

The Bulletin of the
University of Minnesota

RADIO STATION WLB

760 kilocycles—5000 watts

Program Schedule



January, February, March
1940

VOL. XLIII

NO. 3

JANUARY 10 1940

Entered at the post office in Minneapolis as second-class matter, Minneapolis,
Minn. Accepted for mailing at special rate of postage provided for
in section 1103, Act of October 3, 1917, authorized July 12, 1918.

WLB

University of Minnesota Radio Station

Studios in Minneapolis and St. Paul
760 kilocycles—5000 watts

January, February, March, 1940

CONVOCAATION AND LECTURES

Convocation—Thursday, 11:30 a.m.-12:15 p.m.

The University of Minnesota Convocations present famous and talented people in all fields of human endeavor, many of whom are of world renown.

January 4. Thomas Hart Benton—Topic: "Art and American Art"

The decorating of the walls in the new School for Social Research in New York City established Benton's reputation as one of America's foremost mural painters. His murals have since appeared in beautiful buildings all over the nation. He helped to decorate the new Post Office and Department of Justice buildings in Washington. Mr. Benton's life story appears in his book, *An Artist in America*.

January 11. George Fielding Eliot—Topic: "The Ramparts We Watch"

Major Eliot, one of the leading military experts of the United States, has made a life study of military strategy. His book, *The Ramparts We Watch*, is a study of problems of defense. His more recent book, *Bombs Bursting in Air*, discusses the influence of air power on contemporary international relations.

January 18. Christopher Morley—Topic: "Streamlines in Literature"

Since there will be no convocation on this date, WLB will present a transcription of a talk given by Mr. Morley at the Appreciation Dinner celebrating the fiftieth anniversary of the Minneapolis Public Library, which took place on Saturday evening, December 16.

January 25. Max Lerner—Topic: "Ideas Are Weapons"

Formerly editor of *The Nation*, Mr. Lerner is now a professor of political science at Williams College. He has written extensively on law, politics, and public affairs, and particularly on the increasing role of government in the control of industrial activity.

February 1. Bernard H. Ridder—Topic: "How the Peace of the World Was Lost"

Mr. Ridder, the well-known publisher of the *St. Paul Dispatch-Pioneer Press*, began his career under his father as secretary of the *New York Staats-Zeitung*, of which he later became president. He was president of the *New York Journal of Commerce*, and published several daily papers before coming to St. Paul.

February 8. Margaret Culkin Banning—Topic: "Public and Private Opinion"

Mrs. Banning, a native of Minnesota, is well known as the author of numerous books, most recent of which are *The Third Son*, *The First Woman*, *The Iron Will*, and *Letters to Susan*.

February 15. Henry Goddard Leach—Topic: "Scandinavian versus American Democracy"

Dr. Leach was a traveling fellow for Harvard in Denmark from 1908 to 1910. He has been the president of the American-Scandinavian Foundation since 1926. Dr. Leach was curator of Scandinavian history and literature at Harvard for ten years, and he has been editor of the *Forum* since 1923.

February 22. Thomas Mann—Topic: "The Problem of Freedom"

Since there will be no convocation on this date, WLB will present a transcription of the talk to be given by Thomas Mann at a special evening convocation on Thursday, February 15. There will be no broadcast of the Thursday evening convocation.

February 29. Vera Brittain—Topic: "Youth and War"

After serving as volunteer nurse during the World War, Vera Brittain graduated from Oxford, and became a free lance writer in London. For a time she was attached to the headquarters staff of the League of Nations. She is widely known as the author of *Testament of Youth*, and a more recent book, *Testament to Friendship*.

March 7. William Rose Benet—Topic: "A Discussion of American Contemporary Poets" (with readings from his own poems)

William Rose Benet, widely known for his distinctive narrative poetry, has been associated for many years with the *Saturday Review of Literature*, to which he contributes a weekly column on contemporary poetry.

March 14. H. R. Knickerbocker—Topic: "At the Ringside of History"

Mr. Knickerbocker for the past fifteen years has been consistently on the ground when significant events in the world's news have transpired. In 1930 he won the Pulitzer Prize for the best foreign correspondence in a series of articles on "The Red Trade Menace." He has been recently in Russia, France, and Spain.

***March 21. Commencement—Address by Henry Noble MacCracken, L.H.D., LL.D., President of Vassar College**

Interviews of Convocation Speakers

A series of interviews to supplement the Convocation program is being arranged for 3:15 Thursday afternoons. Whenever possible, speakers will be interviewed over WLB the afternoon of the day they appear at Convocation.

Afternoon Lectures

In addition to the Thursday morning Convocations, the University also presents, at irregular intervals, afternoon lectures, which are usually scheduled at 3:30. Whenever possible, WLB broadcasts these talks.

BROADCASTS FROM THE CLASSROOM

**Europe in the Twentieth Century. Harold C. Deutsch, Lecturer
Monday, Wednesday, and Friday, 8:30-9:15 a.m.**

These broadcasts are arranged in response to many requests for authentic information about Europe today. They will be of great value in understanding and following world affairs. During January, February, and March, this course will take up the period from 1900 to 1920. The forces active in Europe at the start of the century will be analyzed. Each country will be discussed in turn, and special emphasis will be placed on racial, political, social, and economic problems. The alliances leading up to the World War will be outlined. The character of the war in all its aspects, and the problems confronting the peace makers at the end of the conflict, will conclude the work for this three-month period.

Harold C. Deutsch, the lecturer, has been associate professor of history at the University of Minnesota since 1929. He studied at the Universities of Wisconsin, Harvard, Paris, Vienna, and Berlin. In the last decade he spent two and a half years in Europe, studying and observing events in France, Austria, and Germany, and interviewing some of the surviving leaders of the World War. Dr. Deutsch is the author of *The Genesis of Napoleonic Imperialism*, and he contributed the chapters on Nazi Germany to *Dictatorship in the Modern World*, edited by President Guy Stanton Ford of the University of Minnesota.

**Principles of Economics. Arthur W. Marget, Lecturer
Tuesday, 11:30 a.m.-12:15 p.m.**

The political and social upheavals of the last decade are largely economic in origin. For this reason thinking people are interested more than ever before in the economic principles underlying the structure of modern society. The subjects of these lectures are closely related to the problems confronting us in our everyday reading, conversation, and radio listening. The topics to be discussed are as follows:

- January 9 The Doctrine of Laissez-Faire: Its History, Meaning and Future
- January 16 An Example of Intelligent Thinking on Social Problems: The Report of the British Liberal Industrial Inquiry
- January 23 A Conservative's Program for Social Betterment and Its Basis: The Combination of the Factors of Production
- January 30 Price Fixing in Relation to the "Law of Supply and Demand," and to Certain Measures of Agricultural Policy
- February 6 The NRA (I)
- February 20 The NRA (II)
- February 27 Raw Materials, Population, and War (I)
- March 5 Raw Materials, Population, and War (II)
- March 12 The Stock Market

* The March 21 Convocation will start at 11:15 a.m.; all others are scheduled for 11:30 a.m.

Professor Marget studied at the Universities of Harvard, London, Cambridge, and Berlin. He has been a visiting lecturer at the University of London, at Bocconi University, and at the University of California. He has been a member of the University of Minnesota faculty since 1927.

American Government and Politics. Asher N. Christensen, Lecturer Monday, Wednesday, and Friday, 11:30 a.m.-12:15 p.m.

This series of classroom lectures, now in its second consecutive year, is one of WLB's most popular features. Authentic information about the organization and functions of our government is necessary for an understanding of today's problems. This series of lectures by Mr. Christensen has proved popular with WLB listeners because the subjects taken up are so vital to our existence as a nation, and are so frequently found in the day's news.

The lectures in January will take up American legislative organization and procedure, in connection with the national Congress, state legislatures, and municipal councils. Since Congress is convening in January, this part of the course will be particularly interesting. Other lectures will take up the position and powers of the president, governors, and mayors. The problem of administrative reorganization, so often in the news, will be considered. The work for this quarter will conclude with an analysis of the powers and constitutional position of the American judiciary.

Asher N. Christensen, an assistant professor of political science at the University of Minnesota, is a graduate of this institution. He has also studied at the University of Chicago, and the University of Madrid in Spain. He attended the latter university while holding a Carnegie Traveling Fellowship in International Law. He was assistant registrar of the University of Minnesota from 1925 to 1930, and a member of the Political Science Department at the University of Chicago in 1933 and 1934. Mr. Christensen has been in the Political Science Department at the University of Minnesota since 1934. He has been heard over WLB regularly since May, 1938.

MINNESOTA STATE MEDICAL AND DENTAL ASSOCIATIONS PROGRAM

Health Talks. Dr. William A. O'Brien, Speaker Saturday, 11:00-11:15 a.m.

William A. O'Brien, M.D., Associate Professor of Pathology and Preventive Medicine in the University of Minnesota Medical School, has chosen the following topics for the next three months:

January 6	Diphtheria and Small Pox	February 17	Cancer of the Stomach
January 13	Whooping Cough and Scarlet Fever	February 24	Periodontia
January 20	Measles and Chicken Pox	March 2	Rheumatic Fever
January 27	Orthodontia	March 9	Arthritis
February 3	Cause of Dyspepsia	March 16	Gout
February 10	Peptic Ulcer	March 23	Injuries of Joints
		March 30	Exodontia

NEWS BROADCASTS

A news program based on the latest United Press dispatches is presented each day over WLB at 12:15 p.m., and on Monday, Wednesday, and Friday, at 4:45 p.m. This Newscast provides an authoritative and unbiased account of the swiftly moving panorama of world events. These broadcasts are made possible through the co-operation of the university student newspaper, the *Minnesota Daily*.

In addition to the Newscasts, WLB presents the Background of the News, at 3:15 p.m. Monday through Friday. This feature is designed to furnish a background of information to supplement the other news broadcasts. Use is made of the extensive facilities of the University of Minnesota Library, particularly of the periodical division, in selecting articles written by prominent statesmen, historians, economists, and journalists.

PLAYS AND NOVELS

WLB Playhouse

The WLB Playhouse brings to the air significant dramatic material of many types. The programs during January, February, and March will range from radio adaptations of the classics to experimental dramas written expressly for broadcasting. Other dramatic programs on WLB's schedule include "Representative Authors," which is outlined elsewhere. The programs are given by university students under the direction of Reid Erekson, Program Director in charge of Dramatics at WLB.

The Afternoon Novel

Monday, Wednesday, Friday, 4:00-4:30 p.m.

This program presents readings from contemporary literature. During January, February, and March, the book to be read will be the exciting American literary classic, *The Turn of the Screw*, by Henry James. The readings are given by Charles T. Harrell of the WLB staff.

PROGRAMS FOR THE HOMEMAKER

A Lady's Leisure

Monday, 10:45-11:00 a.m.

A Lady's Leisure is devoted to a critical discussion of contemporary publications, predominantly fiction, and reviews of motion pictures and theater entertainment.

Meet the Faculty Women

Tuesday, 10:45-11:00 a.m.

This program features the achievements of women faculty members, and introduces to the public the wives of faculty members of the University. The series has been developed in co-operation with the American Association of University Women. Mrs. L. D. Zeleny is the chairman of the Association's division on the Legal and Economic Status of Women, which is working on the broadcasts.

Institute of Child Welfare

Wednesday, 10:45-11:00 a.m.

The Institute of Child Welfare presents the adventures of the Lively Family. Parent education broadcasts have been given over WLB by the Institute of Child Welfare for over seven years. Mrs. Marion L. Faegre, Assistant Professor of Parent Education will be the speaker.

January 10	Now I Can Talk about My Operation!	February 14	We're Old Married People!
January 17	Mickey Isn't Hungry	February 21	I'm Afraid It's Scarlet Fever
January 24	Great Expectations	February 28	A Slow Convalescence
January 31	Why Dosen't Mickey Talk More?	March 6	Mickey's New Companion
February 7	Cousin Anna Comes to Town	March 13	Let's Try Not To Worry
		March 20	Cast-off Friends

Neighbors' Broadcast

Friday, 10:45-11:00 a.m.

A weekly presentation by the Division of Home Economics and the Agricultural Extension Service. The informal and friendly "lady next door" stops in each Friday with hints on homemaking and suggestions for better family living. During the winter quarter the topics will deal mainly with children's problems; for example, "Let's Have a Skating Party," "Providing Work and Play Space for Children," and "An Indoor Picnic for Winter Months."

Story Book Time

Monday, Wednesday, Friday, 4:30-4:45 p.m.

(February and March time: 5:30-5:45 p.m.)

The attention of mothers is called to Story Book Time, which presents stories and dramatizations for children. The stories, heard on Mondays and Fridays, are selected by the narrator, Marion Latta, with the assistance of experts from the Child Welfare Institute of the University. The dramatizations, broadcast on Wednesdays, are directed by Nan Scallon of the WLB staff.

RADIO WORKSHOPS

Minneapolis High School Radio Workshop

Wednesday, 3:30-3:45 p.m.

The staff of WLB is co-operating with the Minneapolis Board of Education in developing a workshop program for radio presentation. On January 24 the program will be produced by students from Roosevelt High School, on February 21 by students from Washburn High School, and on March 20 by students from South High School.

General College Radio Workshop
Monday, 3:30-3:45 p.m.

The emphasis on experience projects in the General College of the University of Minnesota is illustrated in the work which is done by the General College Radio Workshop, broadcast each Monday afternoon from 3:30-3:45. Students who take part in the workshop activities are given opportunities to read and broadcast poetry, novels, plays, and essays.

PROGRAMS FROM THE UNIVERSITY FARM CAMPUS

University Farm Hour
Monday, Wednesday, Friday, 12:30-1:00 p.m.

The Agricultural Extension Service of the University of Minnesota offers this broadcast as an educational and service feature for Minnesota farms and homes. In addition to weather information, state and national agricultural news, and farm highlights, the program brings practical informative talks on the newest and the best practices in farming and homemaking. These broadcasts are arranged by a member of the Department of Agriculture staff, Richard Hull, Farm Radio Editor.

Up With the Sun
Monday and Friday, 7:15-7:30 a.m.

This quarter hour of fellowship and song is arranged by J. O. Christianson, Superintendent of the School of Agriculture. Those taking part include students of the school, faculty members, and occasional guests.

Mid-Morning Markets
Monday through Friday, 10:30-10:45 a.m.

The mid-morning turn of the markets! The radio section of the Agricultural Extension Service brings northwest listeners a daily review of market trends which affect farm buyers and sellers. Complete with a northwest weather résumé, the broadcast offers grain information from Winnipeg, Minneapolis, and Chicago, significant stock quotations from New York, lists the latest Dow-Jones industrial, utility, and rail averages, and presents complete details on livestock markets at Chicago and South St. Paul. From time to time University of Minnesota marketing men present interpretative material on market trends.

Market Finale
Monday through Friday, 2:25 p.m., Saturday, 12:25 p.m.

Co-operating with the Minneapolis Chamber of Commerce, the Agricultural Extension Division at University Farm presents a five-minute résumé of closing grain market trends and quotations, including closing quotations on Milwaukee barley. Minnesota grain elevator operators will find this feature of special use.

MINNESOTA SCHOOL OF THE AIR

The Minnesota School of the Air is heard with enjoyment and profit by many adult listeners, although it is intended primarily for classroom use. Its programs are outlined in detail in the Minnesota School of the Air bulletin which will be mailed free upon request. During the first semester this year, the programs were heard regularly by approximately forty thousand students each week. For the convenience of public schools, the Minnesota School of the Air is organized on a semester basis. The second semester begins February 5; for that reason, the listings below begin with the February programs

Countries and Cities Around the World
Monday, 11:05-11:20 a.m.

Junior and Senior High School

February 5	A Cruise to South America	March 4	Valparaiso, Chile
February 12	Port of Santos, Brazil	March 11	Buenos Aires, Argentina
February 19	Brazil	March 18	Province of Patagonia in Argentina
February 26	Lima, Peru	March 25	Montevideo, Uruguay

Vocational Orientation—Choice of Occupation

Monday, 1:30-2:20 p.m.

Senior High School and Junior College

This is the lecture section of a course offered by the General College. The speakers are outstanding personalities in the occupational fields which are discussed.

Date	Topic	Speaker
February 5	Homemaking and Kindred Occupations	Ivol Spafford, Curriculum Director, General College
February 14	Trade and Mechanical Jobs (This broadcast will be heard on Wednesday, February 14, since university classes will not be in session on February 12, Lincoln's Birthday.)	Homer Smith, Professor of Industrial Education
February 19	Jobs in Handling Other People's Money	To be announced
February 26	Jobs in Education	Marcia Edwards, Assistant to the Dean, College of Education
March 4	Clerical Work	Ernestine C. Donaldson, Assistant Professor of Secretarial Training
March 11	Jobs and Agriculture	Edward M. Freeman, Dean of the College of Agriculture, Forestry, and Home Economics
March 18	Requests	Malcolm MacLean, Director of the General College
March 25	Requests	Milton Hahn, Instructor of Vocational Orientation

Current Events

Tuesday, 11:05-11:20 a.m., Friday, 2:05-2:20 p.m.

Grades six to eight

During the first semester, the Minnesota School of the Air included a program on current events for younger listeners. The popularity of this course convinced the directors of the School of the Air that an additional program should be offered for the convenience of classes which could not hear the Friday afternoon broadcast. Although this series is designed for young students, many adult listeners follow the broadcasts regularly.

Art for You

Tuesday, 2:05-2:20 p.m.

Junior and Senior High School

This program, under the direction of Clifton A. Gayne, Jr., instructor in Art Education at the University of Minnesota, is planned to help listeners increase their appreciation of the ways in which art may aid our citizens to live richly and vigorously.

February 6	Of What Importance Is Art to You?
February 13	Your Clothing and Your Personality
February 20	How Can You Improve Your Home?
February 27	Art Enters the Garden
March 5	Art at Work in Our School
March 12	Building a Better Community
March 19	Art and the Job You Will Have
March 26	Art in Industry

Old Tales and New from Many Lands

Wednesday, 11:05-11:20 a.m.

Primary Grades

This program has been designed with special attention to the age level interests of pupils in the primary grades. The stories were chosen by Miss Marion Latta, who will be narrator, and approved by Miss Neith E. Headley, head kindergarten teacher and instructor in Child Welfare at the University of Minnesota. (* Indicates dramatization.)

February 7	* <i>How Br'er Rabbit Met Lil' Tar Baby</i>
February 14	<i>Picture Tales from the Russian: Hungry Wolf</i>
February 21	* <i>The Gingerbread Man</i>
February 28	<i>Mary and the Cootah</i>
March 6	* <i>Willy Nilly</i>
March 13	<i>Snythergin</i>
March 20	* <i>The Tale of Peter Rabbit</i>
March 27	Story Poems

WLB SCHEDULE FOR JANUARY,

760 kilocycles

MONDAY	TUESDAY	WEDNESDAY
7:00 The Weathervane	Assigned to WCAL	The Weathervane
7:15 Up With the Sun		Up With the Sun
7:30 Bulletin Board: Music, time signals, weather		Bulletin Board: Music, time signals, weather
8:30 20th Century Europe class lecture		20th Century Europe class lecture
9:15 TB Association		Music
9:30 to 10:30—Assigned to WCAL, the St. Olaf Station in Northfield, which shares		
10:30 Market News and Information—Monday through Friday		
10:45 Lady's Leisure	Meet the Faculty Women	Child Welfare
Minnesota School of the Air.		
11:05 Travel Talk	Current Events	Children's Story
11:30 Political Science class lecture	Principles of Economics class lecture	Political Science class lecture
12:15 World News of importance—Monday through Saturday—United Press dispatches		
12:30 Farm Hour		Farm Hour
1:00 Minnesota Symphony Orchestra	12:30 to 1:30 Assigned to WCAL	Minnesota Symphony Orchestra
1:30 Vocational Orientation	Science News	TB Association
Minnesota School of the Air.		
2:05	Art for You	French and German
2:30 Afternoon Concert	WLB Playhouse	Chamber Music
3:15 Background of the News—Monday through Friday		
3:30 University Lectures or Music	Assigned to WCAL	University Lectures or Music
4:00 Afternoon Novel		Afternoon Novel
4:15		Band Clinic*
4:30 Music		
4:45 UP News		UP News
5:00 Minnesota Symphony Orchestra*		Minnesota Symphonic Band*
5:30 Story Book Time*		Story Book Time*
5:45 Talk**		Talk**
6:00 Dinner Hour Concert**		Dinner Hour Concert**

* Beginning in February.

** Beginning in March.

FEBRUARY, AND MARCH, 1940

3000 watts

THURSDAY	FRIDAY	SATURDAY
Assigned to WCAL	The Weathervane Up With the Sun Bulletin Board: Music, time signals, weather 20th Century Europe class lecture U. S. Government Reports	Assigned to WCAL
Time with WLB		Music
Familiar Music	Neighbors' Broadcast	
Monday through Friday		
Music Appreciation	Vocational Guidance	Dr. O'Brien Art Gallery
University Convocation	Political Science class lecture	Recorded Concert
12:30 to 1:30 Assigned to WCAL	Farm Hour Minnesota Symphonic Band	12:30 to 1:00 Assigned to WCAL
Art Gallery	Walther Pfitzner, Pianist	
Monday through Friday		
Representative Authors	Current Events	
Symphony Preview	Afternoon Concert	
Assigned to WCAL	University Lectures or Music Afternoon Novel Music UP News Organ Recital* Story Book Time* Talk** Dinner Hour Concert**	

WLB is required by the Federal Communications Commission to sign off at sunset. For this reason the service of the station is curtailed especially during those portions of the year when the days are short. The sign-off varies from 4:30 in December to 8:00 in June and July. During the months covered by this schedule the sign-off times are as follows: January, 5:00; February 5:45; March, 6:15.

German and French Wednesday, 2:05-2:20 p.m.

High School and College

Class work in German and French is supplemented by these stimulating broadcasts. The home listener who is interested in learning more about these languages will find them exceptionally valuable, since they afford examples of good pronunciation and usage. These programs are approved by the American Association of the Teachers of French and the Department of German of the University of Minnesota.

February 7	German	<i>Schneewittchen</i> (reading)
February 14	French	Moinaux, <i>Les Deux Souds</i> (play)
February 21	German	Lieder (music)
February 28	French	Bernard, <i>L'Anglais Tel Qu'on Le Parle</i> (play)
March 6	German	Benedix, <i>Einer muss heiraten</i> (play)
March 13	French	Bizet-Merimée, <i>Carmen</i> (opera)
March 20	German	German Easter customs (reading)
March 27	French	Dondo, <i>La Farce De Maître Pierre Pathelin</i> (play)

Band Clinic Wednesday, 4:15-4:45 p.m.

All School Bands

In co-operation with the Minnesota Music Project of the Work Projects Administration, the Minnesota School of the Air will offer, beginning in February, a radio band clinic. These programs are intended to be heard by school bands. The broadcasts will consist of performances by the Minnesota Symphonic Band of the compositions being rehearsed and performed by school bands of all classes. Comments will be given on the selections, with suggestions on interpretation.

Music Appreciation Thursday, 11:00-11:30 a.m.

Junior and Senior High School

The Music Appreciation programs, now in their ninth consecutive year, are the oldest educational feature originated by any Minnesota radio station. A thirty-six page bulletin, containing song texts, musical themes, program notes, and other information concerning the selections played, is available free upon request; additional copies of this bulletin for use by study groups or classes are available at fifteen cents each. These programs are prepared and presented by Burton Paulu.

The Instruments of the Orchestra

January 4	Lesson 15	The Stringed Instruments
January 11	Lesson 16	Chamber Music
January 18 and 25	Lessons 17 and 18	The Wood-wind Instruments
February 1	Lesson 19	The Brass and Percussion Instruments
February 8	Lesson 20	The Conductor and the Symphony Orchestra

Listening to Vocal Music

February 15	Lesson 21	The Human Voice
February 22	Lesson 22	Vacation Program
February 29	Lesson 23	A Concert of French Songs
March 7	Lesson 24	The Art Song and Johannes Brahms
March 14 and 21	Lesson 25 and 26	The St. Matthew's Passion

Music for Keyboard Instruments

March 28	Lesson 27	Listening to Organ Music
----------	-----------	--------------------------

Representative Authors Thursday, 2:05-2:20 p.m.

High Schools

This series consists of readings and plays chosen from the recommended and supplementary lists provided in the state course of study. (* Indicates dramatization.)

February 8	Hamlin Garland	* <i>Under the Lion's Paw</i>
February 15	Edgar Allan Poe	<i>The Tell-Tale Heart</i>
February 22	Thomas Hardy	* <i>The Three Strangers</i>
February 29	Robert Louis Stevenson	* <i>Will o' the Mill</i>
March 7	Frank R. Stockton	<i>The Lady or the Tiger</i>
March 14	Alexander Dumas, père	* <i>Zoderminsky's Duel</i>
March 21	Joseph Conrad	* <i>The Inn of Two Witches</i>
March 28	William Wilke Collins	<i>A Terribly Strange Bed</i>

Guidance for the Future Worker

Friday, 11:05-11:20 a.m.

Senior High School

The parents of young people who are trying to select vocations will find these programs especially interesting. (* Indicates dramatization.)

February 9	Introduction and Recapitulation	March 8	*Medicine
February 16	*Proprietary Schools	March 15	Nursing
February 23	Engineering	March 29	*Music
March 1	Law		

MUSICAL PROGRAMS

The principal musical programs for January, February, and March are outlined below. For the convenience of listeners having access to the Twin City libraries, all those selections for which the music or scores are available in the St. Paul and Minneapolis libraries have been marked.

Minneapolis Symphony Orchestra

Sunday, 9:30-10:00 a.m.

The Minneapolis Symphony Orchestra will continue to broadcast over WLB Sunday mornings from 9:30 to 10:00. These programs originate in Northrop Memorial Auditorium on the University campus, and are fed to a number of other radio stations, including WTCN and WMIN in Minneapolis and St. Paul, KWNO in Winona, KROC in Rochester, KFAM in St. Cloud, KYSM in Mankato, WJMC in Rice Lake, Wisconsin, and WDSM in Superior, Wisconsin.

The Young People's Concerts and the University Student Concerts are also broadcast by WLB. At the Young People's Concert on Thursday, March 7, at 3:00 p.m., the internationally known violinist, Robert Virovai, will appear as soloist. For all of these programs the entire orchestra of ninety members will play, and Dimitri Mitropoulos will conduct.

Minnesota Symphony Orchestra

Minnesota Symphonic Band

Jubilee Singers

Beginning in January, 1940, WLB will co-operate with the Music Project of the Work Projects Administration in presenting a series of concerts utilizing the several musical organizations maintained by the Work Projects Administration. Dr. John J. Becker, state supervisor of the Music Project, and Burton Paulu, manager of WLB, have arranged for the fifty-piece Minnesota Symphony Orchestra to broadcast a number of concerts, the Minnesota Symphonic Band to present a radio band clinic, and the Jubilee Singers to take part in the program "Up with the Sun." Chamber music concerts are also scheduled. These programs are listed in detail on the following pages.

Walther Pfitzner, Pianist

Friday, 1:30-2:00 p.m.

Walther Pfitzner will continue to appear over WLB, presenting representative piano works of all types. Mr. Pfitzner is a graduate of the Royal Academy of Music at Leipzig, where he studied under Alfred Reisenauer, Stefan Krehl, Georg Schumann, and Artur Nikisch. Mr. Pfitzner has been prominent as teacher and performer in the Twin Cities since his arrival here three years ago.

Organ Recitals

Friday, 5:00-5:30 p.m.

Beginning in February WLB will broadcast a series of organ recitals using the splendid concert organ in Northrop Memorial Auditorium. For over a dozen years WLB has presented the best in organ music. This series is organized with the co-operation of the Minnesota Chapter of the American Guild of Organists. Arthur B. Jennings, the organ instructor at the University of Minnesota, will appear as soloist in these programs, assisted from time to time by other prominent organists from the Twin Cities.

Recorded Programs

Broadcasts of recorded music have an important place on WLB's schedule. The careful selection and use of recordings make it possible to present diversified musical programs which are equalled by the schedules of very few radio stations in the United States.

Principal Musical Programs of WLB

Sunday, January 7

9:30 Minneapolis Symphony Orchestra

Monday, January 8

1:00 Minnesota Symphony Orchestra
2:30 Wagner—*†Excerpts from "Die Walküre"
*†Parsifal: Amfortas, die Wunde!

Tuesday, January 9

1:45 Early Music

Wednesday, January 10

1:00 Minnesota Symphony Orchestra
2:30 Chamber Music Recital
3:00 Lieder Program

Thursday, January 11

11:00 Music Appreciation—Stringed Instruments
2:30 Symphony Preview: Symphony Preview programs are broadcast each Thursday during the weeks in which the Minneapolis Symphony Orchestra presents Friday evening concerts. At 2:30 the music for the week is discussed. The period from 2:45 to 3:15 is devoted to recordings of some of the selections the orchestra is to play.

Friday, January 12

1:00 Minnesota Symphonic Band
1:30 Walther Pfitzner, Pianist
2:30 Mozart—*†Duet in B Flat for Violin and Viola, K. 424
Bliss—Music for Strings

Saturday, January 13

11:30 Brahms—*†Symphony No. 3 in F Major
McDonald—Two Hebraic Poems

Sunday, January 14

9:30 Minneapolis Symphony Orchestra

Monday, January 15

1:00 Minnesota Symphony Orchestra
2:30 Beethoven—*†Quartet in A Minor, Opus 132

Tuesday, January 16

1:45 Early Music

Wednesday, January 17

1:00 Minnesota Symphony Orchestra
2:30 Chamber Music Recital
3:00 Lieder Program

Thursday, January 18

11:00 Music Appreciation—Wood-wind Instruments
2:30 Symphony Preview

Friday, January 19

1:00 Minnesota Symphonic Band
1:30 Walther Pfitzner, Pianist
2:30 Haydn—*Quartet in C Major, Opus 1, No. 6
Bartok—*Quartet No. 2 in A Minor

Saturday, January 20

11:30 Sibelius—*Concerto in D Minor for Violin and Orchestra
Mendelssohn—*†Midsummer Night's Dream Overture

Sunday, January 21

9:30 Minneapolis Symphony Orchestra

Monday, January 22

1:00 Minnesota Symphony Orchestra
2:30 Schubert—*†Symphony No. 9 in C Major

Tuesday, January 23

1:45 Early Music

Wednesday, January 24

1:00 Minnesota Symphony Orchestra
2:30 Chamber Music Recital
3:00 Lieder Program

* In Minneapolis Public Library. † In St. Paul Public Library

Thursday, January 25

- 11:00 Music Appreciation—Wood-wind Instruments
2:30 Symphony Preview

Friday, January 26

- 1:00 Minnesota Symphonic Band
1:30 Walther Pfitzner, Pianist
2:30 Ravel—*†Daphnis and Chloé Suite No. 2; *†La Valse

Saturday, January 27

- 11:30 Brahms—*†Quintet in F Minor, Opus 34

Sunday, January 28

- 9:30 Minneapolis Symphony Orchestra

Monday, January 29

- 1:00 Minnesota Symphony Orchestra
2:30 Vivaldi—†Concerto in G Minor
Haydn—*†Quartet in C Major (Emperor), Opus 76, No. 3

Tuesday, January 30

- 1:45 Early Music

Wednesday, January 31

- 1:00 Minnesota Symphony Orchestra
2:30 Chamber Music Recital
3:00 Lieder Program

Thursday, February 1

- 11:00 Music Appreciation—Brass and Percussion Instruments
2:30 Symphony Preview

Friday, February 2

- 1:00 Minnesota Symphonic Band
1:30 Walther Pfitzner, Pianist
2:30 Chopin—*†Concerto No. 2, in F Minor
Handel—Overture in D Minor
5:00 Organ Recital

Saturday, February 3

- 11:30 Dukas—Variations on Theme by Rameau
Haydn—*†Symphony in G Major (Military), No. 100

Sunday, February 4

- 9:30 Minneapolis Symphony Orchestra

Monday, February 5

- 1:00 Minnesota Symphony Orchestra
2:30 Chopin—*†Polonaise-Fantaise in A Flat Major, Opus 61; *†Polonaise
No. 5 in F Sharp Minor, Opus 44; *†Andante Spianato and Grande
Polonaise in E Flat Major, Opus 22
5:00 University Concert Band

Tuesday, February 6

- 1:45 Early Music

Wednesday, February 7

- 1:00 Minnesota Symphony Orchestra
2:30 Chamber Music Recital
3:00 Lieder Program
4:15 Band Clinic
5:00 Minnesota Symphonic Band

Thursday, February 8

- 11:00 Music Appreciation—The Conductor and the Symphony Orchestra
2:30 Elgar—†Falstaff; *†Pomp and Circumstance March No. 1

Friday, February 9

- 1:00 Minnesota Symphonic Band
1:30 Walther Pfitzner, Pianist
2:30 Dvorak—*†Quartet in G Major, Opus 106; Slavonic Dances
5:00 Organ Recital

Saturday, February 10

- 11:30 Coates—Cinderella Suite
Carpenter—*Adventures in a Perambulator

Sunday, February 11

- 9:30 Symphony Concert

Monday, February 12

- 8:45 Grieg—*†Concerto in A Minor, Opus 16, for Piano and Orchestra
11:30 Brahms—*†Sextette in B Flat, Opus 18; *†Academic Festival Overture
1:00 Minnesota Symphony Orchestra
2:30 Bach—*†French Suite No. 6 in E Major
Haydn—*†Theme and Variations in F Minor
Schubert—*Landler
Schumann—*†Papillons
5:00 Minnesota Symphony Orchestra

Tuesday, February 13

- 11:30 Sibelius—*Symphony No. 1 in E Minor; *†Finlandia
1:45 Early Music

Wednesday, February 14

- 1:00 Minnesota Symphony Orchestra
2:30 Chamber Music Recital
3:00 Lieder Program
4:15 Band Clinic
5:00 Minnesota Symphonic Band

Thursday, February 15

- 11:30 Music Appreciation—The Human Voice
2:30 Wagner—*†Siegfried: Love Duet from Act III; *†Meistersinger Overture

Friday, February 16

- 1:00 Minnesota Symphonic Band
1:30 Walther Pfitzner, Pianist
2:30 Bach—*Goldberg Variations
5:00 Organ Recital

Saturday, February 17

- 11:30 Strauss—*†Also Sprach Zarathustra

Sunday, February 18

- 9:30 Symphony Concert

Monday, February 19

- 1:00 Minnesota Symphony Orchestra
2:30 Brahms—*†Sextette in G Major, Opus 36
Beethoven—*†Coriolan Overture
5:00 University Concert Band

Tuesday, February 20

- 1:45 Early Music

Wednesday, February 21

- 1:00 Minnesota Symphony Orchestra
2:30 Chamber Music Recital
3:00 Lieder Program
4:15 Band Clinic
5:00 Minnesota Symphonic Band

Thursday, February 22

- 11:00 Music Appreciation—Orchestral Program
2:30 Rachmaninoff—*Concerto No. 2 in C Minor for Piano and Orchestra

Friday, February 23

- 1:00 Minnesota Symphonic Band
1:30 Walther Pfitzner, Pianist
2:30 Berlioz—*Symphonie Fantastique
5:00 Organ Recital

Saturday, February 24

- 11:30 Mendelssohn—*†Quartet No. 3, in D Major
Rossini—*Semiramide Overture

Sunday, February 25

- 9:30 Symphony Concert

Monday, February 26

- 1:00 Minnesota Symphony Orchestra
2:30 Chopin—*†Preludes, Opus 28
5:00 University Concert Band

Tuesday, February 27

- 1:45 Early Music

Wednesday, February 28

- 1:00 Minnesota Symphony Orchestra
- 2:30 Chamber Music Recital
- 4:15 Band Clinic
- 5:00 Minnesota Symphonic Band

Thursday, February 29

- 11:00 Music Appreciation—French Songs
- 2:30 Symphony Preview

Friday, March 1

- 1:00 Minnesota Symphonic Band
- 1:30 Walther Pfitzner, Pianist
- 2:30 French Folk Songs
Gounod—*†Romeo and Juliet Tomb Scene
- 5:00 Organ Recital

Saturday, March 2

- 11:30 Schubert—*†Symphony No. 4 in C Minor; *†Rosamunde Ballet Music

Sunday, March 3

- 9:30 Symphony Concert

Monday, March 4

- 1:00 Minnesota Symphony Orchestra
- 2:30 Brahms—*†Trio in E Flat, Opus 40, for Violin, Horn, and Piano
Strauss—*†Citronen Waltz
- 5:00 University Concert Band

Tuesday, March 5

- 1:45 Early Music

Wednesday, March 6

- 1:00 Minnesota Symphony Orchestra
- 2:30 Chamber Music Recital
- 4:15 Band Clinic
- 5:00 Minnesota Symphonic Band

Thursday, March 7

- 11:00 Music Appreciation—The Art Song and Johannes Brahms
- 2:30 Symphony Preview
- 3:00 Young People's Concert
Smetana—*†Bartered Bride Overture
Brahms—*†Third Movement from Symphony No. 2 in D Major
Grainger—*†Irish Tune from Country Derry; *†Shepherd's Hey
Selected—Group of Violin Solos (with Piano)
Wagner—*†Introduction to Act III; *†Dance of the Apprentices, and
*†Procession of the Mastersingers, from "Die Meistersinger"

Friday, March 8

- 1:00 Minnesota Symphonic Band
- 1:30 Walter Pfitzner, Pianist
- 2:30 Brahms—Lieder Recital
- 5:00 Organ Recital

Saturday, March 9

- 11:30 Bach—*†Concerto in D Minor for Two Violins
Haydn—*†Quartet in C Major, Opus 54, No. 2

Sunday, March 10

- 9:30 Symphony Concert

Monday, March 11

- 1:00 Minnesota Symphony Orchestra
- 2:30 Beethoven—*†Piano Sonata in E Minor, Opus 90; *Cello Sonata in C Major, Opus 102, No. 1
- 5:00 Minnesota Symphony Orchestra

Tuesday, March 12

- 1:45 Early Music

Wednesday, March 13

- 1:00 Minnesota Symphony Orchestra
- 2:30 Chamber Music Recital
- 3:00 Lieder Program
- 4:15 Band Clinic
- 5:00 Minnesota Symphonic Band

* In Minneapolis Public Library. † In St. Paul Public Library.

Thursday, March 14

- 11:00 Music Appreciation—*†The St. Matthew's Passion
2:30 Symphony Preview

Friday, March 15

- 1:00 Minnesota Symphonic Band
1:30 Walther Pfitzner, Pianist
2:30 Strauss—*†Ein Heldenleben
5:00 Organ Recital

Saturday, March 16

- 11:30 Haydn—*Quartet in D Major, Opus 20, No. 4
Rachmaninoff—*Rhapsody on a Theme of Paganini

Sunday, March 17

- 9:30 Symphony Concert

Monday, March 18

- 1:00 Minnesota Symphony Orchestra

Tuesday, March 19

- 1:45 Early Music

Wednesday, March 20

- 1:00 Minnesota Symphony Orchestra
2:30 Chamber Music Recital
4:15 Band Clinic
5:00 Minnesota Symphonic Band

Thursday, March 21

- 11:00 Music Appreciation—*†The St. Matthew's Passion
2:30 Symphony Preview

Friday, March 22

- 1:00 Minnesota Symphonic Band
1:30 Walther Pfitzner, Pianist
2:30 Bach—*†St. Matthew's Passion Excerpts
5:00 Organ Recital

Saturday, March 23

- 11:30 Goldmark—Rustic Wedding Symphony

Sunday, March 24

- 9:30 Symphony Concert

Monday, March 25

- 1:00 Minnesota Symphony Orchestra
2:30 Vieuxtemps—*†Violin Concerto in D Minor, Opus 31, No. 4
Holst—St. Paul's Suite
5:00 Minnesota Symphony Orchestra

Tuesday, March 26

- 1:45 Early Music

Wednesday, March 27

- 1:00 Minnesota Symphony Orchestra
2:30 Chamber Music Recital
4:15 Band Clinic
5:00 Minnesota Symphonic Band

Thursday, March 28

- 11:00 Music Appreciation—Listening to Organ Music
2:30 Symphony Preview

Friday, March 29

- 1:00 Minnesota Symphonic Band
1:30 Walther Pfitzner, Pianist
2:30 Beethoven—*†Quartet in F Major, Opus 59, No. 1
5:00 Organ Recital

Saturday, March 30

- 11:30 Strawinsky—*†Petrouchka Ballet

Sunday, March 31

- 9:30 Symphony Concert

✓

The Bulletin of the UNIVERSITY of MINNESOTA

The University Address Book
1939-1940

Winter Quarter Supplement



Volume XLIII, Number 4

January 15, 1940

*Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota.
Accepted for mailing at special rate of postage provided for in Section 1103, Act of
October 3, 1917, authorized July 12, 1918*

UNIVERSITY OF MINNESOTA

THE BOARD OF REGENTS

The Honorable James F. Bell, Minneapolis	-	-	-	-	-	-	-	-	1945
The Honorable Daniel C. Gainey, Owatonna	-	-	-	-	-	-	-	-	1943
The Honorable Richard L. Griggs, Duluth	-	-	-	-	-	-	-	-	1945
The Honorable George W. Lawson, St. Paul	-	-	-	-	-	-	-	-	1945
The Honorable Albert J. Lobb, Rochester	-	-	-	-	-	-	-	-	1941
The Honorable E. E. Novak, New Prague	-	-	-	-	-	-	-	-	1943
The Honorable A. J. Olson, Renville	-	-	-	-	-	-	-	-	1943
The Honorable Albert Pfaender, New Ulm	-	-	-	-	-	-	-	-	1941
The Honorable Ray J. Quinlivan, St. Cloud	-	-	-	-	-	-	-	-	1945
The Honorable F. J. Rogstad, Detroit Lakes	-	-	-	-	-	-	-	-	1943
The Honorable Fred B. Snyder, Minneapolis	-	-	-	-	-	-	-	-	1941
The Honorable Sheldon V. Wood, Minneapolis	-	-	-	-	-	-	-	-	1941

OFFICERS OF ADMINISTRATION

Guy Stanton Ford, President, 202 Administration Building 1005 se 5th, Gl 1963
Malcolm M. Willey, University Dean and Assistant to the President, 202 Administration Building 255 se Bedford, Gl 5205
Rodney M. West, Registrar, 105 Administration Building 2141 Doswell av, St Paul, Mi 3970
William T. Middlebrook, Comptroller, 326 Administration Building 2285 Folwell, University Grove, St Paul, Mi 8957
Frank K. Walter, University Librarian and Director Division of Library Instruction, 107 Library 1560 e River Terrace, Ge 2534
William F. Holman, Supervising Engineer, 309 Administration Building 629 se 5th, Gl 2725
Anne D. Blitz, Dean of Women, Shevlin Hall 523 se Ontario, Gl 7492
Edward E. Nicholson, Dean of Student Affairs, 213 Administration Building 806 se Superior, Gl 1419
Ruth E. Boynton, Director of Students' Health Service 2738 w River rd, Du 7969
Ernest B. Pierce, Field Secretary of the University and Secretary of the General Alumni Association, 119 Administration Building 510 Glenham, St Paul, Ne 5280

DEANS AND THEIR OFFICES

Malcolm S. MacLean, Director of the General College, 200 Wesbrook Hall
John T. Tate, Dean of the College of Science, Literature, and the Arts, 219 Administration Building
Samuel C. Lind, Dean of the Institute of Technology, 127 Chemistry Building
Ora M. Leland, Dean of Administration, 133 Main Engineering Building
Walter C. Coffey, Dean and Director of the Department of Agriculture, 201 Administration Building, University Farm
Edward M. Freeman, Dean of the College of Agriculture, Forestry, and Home Economics, 200 Plant Pathology Building, University Farm
Everett Fraser, Dean of the Law School, 204 Law Building
Harold S. Diehl, Dean of the Medical Sciences, 127 Medical Sciences Building
William F. Lasby, Dean of the School of Dentistry, 149 Medical Sciences Building
Charles H. Rogers, Dean of the College of Pharmacy, 101 Pharmacy Building
Wesley E. Peik, Dean of the College of Education, 204 Burton Hall
Wilford S. Miller, Acting Dean of the Graduate School, 234 Administration Building
Richard R. Price, Director of the University Extension, 402 Administration Building
Russell A. Stevenson, Dean of the School of Business Administration, 127 Vincent Hall
Julius M. Nolte, Director of the Center for Continuation Study, Center for Continuation Study Building

KEY TO ABBREVIATIONS

BUILDINGS‡

A, Armory	GH(UF), Green Hall	OSL, Oak Street Laboratories
Ad(UF), Administration	Gy(UF), Gymnasium	P, Pillsbury Hall
Adm, Administration	HB(UF), Home Building	Pe(UF), Pendergast Hall
Ag(UF), Agronomy Bldg	HE(UF), Home Economics	Ph, Physics
BCB(UF), Beef Cattle Barn	HH(UF), Haecker Hall	PH(UF), Power House
Bo, Botany	HL, Hydraulics Laboratory (Hennepin Island)	Pbm, Pharmacy
BoG, Botany Greenhouse	HP, Heating Plant	PiH, Pioneer Hall
Bu, Burton Hall	Hr(UF), Horticulture	PoH, Louise M. Powell Hall for Nurses
C, Chemistry Bldg	HS, Health Service	Pop, Power Plant
CCS, Center for Continuation Study	HS(UF), Health Service	PP(UF), Plant Pathology
CH, Cooke Hall	IA, Institute of Anatomy	Psy, Psychology
CI, Cancer Institute	J, Jones Hall	Pt, Pattee Hall
CS(UF), Carpenter Shop	L, Law Bldg	S, Stadium
CSP(UF), Cold Storage Plant	Lib, Library Bldg	SaH, Sanford Hall
CWI, Child Welfare Institute	LSPav(UF), Livestock Pavilion	SB(UF), Swine Barn
DCB(UF), Dairy Cattle Barn	M, Mines Bldg	SBH, State Board of Health
DeH(UF), Dexter Hall	MB(UF), Music Bldg	SH(UF), Seed House
DH(UF), Dining Hall	ME, Mechanical Engineering	ShH, Shevlin Hall
E, Main Engineering	MeS, Medical Sciences	SnH(UF), Snyder Hall
EdH, Eddy Hall	MEEx, Mines Experiment Station	So(UF), Soils
EE, Electrical Engineering	MH, Millard Hall	SS, Storehouse and Shops
EH, Eustis Hospital	MiU, Minnesota Union	St(UF), Stock Pavilion
EMH, Elliot Memorial Hospital	MNH, Museum of Natural History	TH(UF), Thatcher Hall
En(UF), Engineering Bldg	MS(UF), Machinery Shop	TM, Todd Memorial
Ex, Experimental Engineering	MSh(UF), Meat Shop	UD, University Dispensary
F, Folwell Hall	MU, Music Building	UHS, University High School
FdH, Field House	MurH, William J. Murphy Hall	Ve(UF), Veterinary
FH(UF), Farm House	NMA, Northrop Memorial Auditorium	VH, Vincent Hall
G, Greenhouse (13th and University av se)	OD(UF), Old Dairy	WeH, Wesbrook Hall
		WG, Women's Gymnasium
		WH(UF), Women's Hall
		Z, Zoology

TELEPHONE EXCHANGES

University of Minnesota—Main Campus	Main	8177
University of Minnesota—Farm Campus	Nestor	4616
University of Minnesota Hospitals	Main	8551

MINNEAPOLIS

At.....Atlantic	Gr.....Granville
Br.....Bridgeport	Hy.....Hyland
Ch.....Cherry	Ke.....Kenwood
Co.....Cofax	Lo.....Locust
Dr.....Drexel	Ma.....Main
Du.....Dupont	Or.....Orchard
Ge.....Geneva	Re.....Regent
Gl.....Gladstone	Wa.....Walnut

ST. PAUL

Ce.....Cedar	La.....La Salle
Da.....Dale	Mi.....Midway
De.....De Sota	Ne.....Nestor
El.....Elkhurst	Ri.....Riverview
Em.....Emerson	To.....Tower
Ga.....Garfield	Va.....Van Buren
Hu.....Humboldt	

CLASSIFICATION

* Married

† New appointment 1939-40

‡ Buildings located on the University Farm campus are followed by UF in parentheses.

THE FACULTY, ADMINISTRATIVE OFFICERS, AND EMPLOYEES

- *Anderson, John E, Instructor Pediatrics, EMH 205W. 3532 28th av s, Dr 3354
 †Aubrecht, Don A, Teaching Assistant, C 43. 719 Jefferson av, St P, El 5976
 †Baird, Eleanor, Instructor, Mpls Gen Hosp, At 1178
 Beland, Irene, Instructor, Mpls Gen Hosp, At 1178
 Benson, Margaret, Instructor, Mpls Gen Hosp, At 1178
 Brown, Spencer F, Instructor Speech, F 411. 707 University av se, At 6909
 Burggren, Hannah, Instructor, Mpls Gen Hosp, At 1178
 *Chryst, Elsie F, Clerk-stenographer, MH 111. 1736 Minnehaha av w, St P, Mi 3748
 †*Clair, Marguerite B, Instructor, J 201. 900 Summit av, Ke 9317
 Dalen, Bernice, Instructor, Mpls Gen Hosp, At 1178
 *Fixen, V L, Lecturer, E 123. 2429 Portland av s, At 3687
 †*Goldsmith, Ellene, Instructor, Mpls Gen Hosp, At 1178
 Guinotte, Marguerite, Asst Professor Romance Languages, F 224. 217 se Harvard,
 Gl 1183
 *Hansen, Arild E, Assoc Professor Pediatrics, EMH 205W. 1437 e River rd, At 5748
 †*Harris, Dale B, Instructor, CWI 204D. 1629 se 6th, Gl 9880
 †Hart, James, Professor Political Science, Bu 203
 †Hinds, Claudia A, Adm Fellow, 101 EdH. 1214 Broadway, Ch 8838
 †*Koltun, Alexander, Instructor Violin, Mu 107. 515 se Delaware, Gl 2265
 †Koskela, Irma E, Technician, School of Dentistry, MeS 242. 212 se Harvard, Gl 2027
 †Lamoreaux, Elizabeth M, Instructor Clothing and Textiles, HE 301(UF). 1115 se 5th,
 Gl 2470
 *Lewis, Leah M, Instructor Art, General Extension Division, J 209. Rt 1, Hopkins,
 Wa 1210
 Lu, Hoff, Teaching Asst Physics, Ph 77. 619 se Delaware, Gl 5648
 †Martin, William E, Teaching Assistant, Bu 220. 316 Walnut av se, Gl 1153
 *Martinson, Harry, Laboratory Mechanic, ME 106. 3904 22nd av s, Du 6569
 †*Mickelsen, Olaf, Instructor Physiological Chemistry, EMH 406. 808 se 5th, Br 8644
 †Murphy, Mary J, Jr Record Clerk, Ad 203(UF). 521 se 6th, Gl 2404
 †Nostdal, C Rosemary, Technician, Ve 204A(UF). 2817 17th av s, Du 1781
 †Nuckolls, Richard G, Teaching Asst Physics, Ph 73. 1114 se 4th, Gl 3904
 †*Nylund, Felix, Assistant Agricultural Education, Hr 205(UF). 1384 Keston av, St P
 †*Opatowski, Isaac, Instructor Mathematics and Mechanics, E 105. 1115 e River rd,
 Gl 5857
 Rose, Ella J, Assistant Professor Home Economics Education, HE 111(UF). 2168
 Knapp, St P, Ne 6729
 †*Ruble, Genevieve H, Record Supt, Adm 106. 1629 se 6th, Gl 9880
 †Shulman, Edward E, Teaching Asst Speech, WeH 304. 1512 se 4th, Gl 7415
 †Stalland, Una, Instructor, Mpls Gen Hosp, At 1178
 †*Teske, Frederick C, Jr, Instructor Drawing and Descriptive Geometry, C 424. 4254
 24th av s, Dr 2941
 *Turnberg, Eugene N, Assoc Architectural Engineer, Adm 309. 4148 Minnehaha av s,
 Dr 4385
 Whitson, Lee S, Instructor, A 205. 4841 Harriet av, Co 4852

KEY TO ABBREVIATIONS

<p>A, Science, Literature, and the Arts *†Ag, Agriculture (Including Forestry and Home Economics) †B, School of Business Administration D, Dentistry DH, Dental Hygienist *Ed, Education EdPG, Education Postgraduate Em, Embalming G, General College</p>	<p>Gr, Graduate ††IT, Institute of Technology L, Law Md, Medicine MdT, Medical Technologist N, School of Nursing P, Pharmacy PHN, Public Health Nursing U, Unclassed UC, University College</p>
--	--

The numerals after the abbreviations indicate the year of the course, e.g., A40, indicates an Academic student of the class of 1940.

The numbers in parentheses after the name indicate the post-office box numbers; UF preceding the numeral indicates that the box is a University Farm post-office box.

In cases where the home address differs from the local address the home address is given in parentheses.

Foreign students: Asher N. Christensen may be consulted in Room 229 Northrop Memorial Auditorium, mornings or by appointment.

* Name followed by AgEd indicates students registered in both colleges.

† Name followed by ITAg indicates students registered in both colleges.

‡ Name followed by ITB indicates students registered in both colleges.

STUDENTS

A

Aarnes, William, A42 (4710) 4223 Washburn av s, Wa 6487
 Aaseng, Ingvar, B40 (4722) 1320 se 7th (McIntosh)
 Abbey, Robert, IT42 (12733) 2800 18th av n, Ch 6980
 Abrams, Irving M, Gr (6151) 1128 Upton av n, Ch 1282
 Abramson, Leonard S, Gr (5068) 1414 Queen av n, Hy 5683
 Adams, Mary H, Ed43 (4460) 2117 2nd av s, Br 8273 (Deerwood)
 Agrell, Donald, A43 (2807) 2602 3rd av s, Br 2890
 Akerson, Phillip L, ITU (3271) 4148 21st av s, Dr 1589
 Alberts, Harold V, IT43 (4757) 2117 6th av n
 Albinson, Mrs Evelyn F, AU (14147) 1718 s 11th, Br 7256
 Alexis, Gerhard T, Gr (5040) 790 Mound, St P, To 7220
 Aller, C Charles, Gr, 4208 Linden Hills blvd
 Allison, Helen L, AgU (UF1880) 2108 Humboldt av s, Ke 8072
 Allison, James, IT43 (4668) 1911 se 4th, Gl 2776
 Almas, Mary, EdU (4634) Sanford Hall, Ma 8177 (Havre, Mont)
 Almin, Ragnar, Gr, 4941 17th av s, Du 1023
 Almquist, Andrew E, A42 (4403) 1401 Fremont av n, Ch 3484
 Alrick, Lila H, AN (3387) Excelsior, Ex 35J
 Altschul, Nina, A42 (3322) 412 se 6th, At 1021
 Amundson, Esther, EdU 1290 Grand av, St P, De 3989
 Anderson, Alfred, G41 (3259) 427 8th av se, Ge 4570 (Osakis)
 Anderson, Arnold S, A40 (3270) 4634 Bruce av s, Wa 6731
 Anderson, Avismeri, Gr, 703 14th av se, Gl 7669
 Anderson, Betty M, A42 (4525) 415 Newton av n, Ma 6092
 Anderson, D Carol, MdT41 (5077) 310 se Walnut, Gl 3266 (Starbuck)
 Anderson, David B, IT40 (5623) 427 8th av se, Ge 4570 (Osakis)
 Anderson, Earl W, Gr (4910) 517 8th av se, Gl 1150
 Anderson, Effal O, EdU (4723)
 Anderson, Gordon H, AU (14096) 995 Bayless av w, St P, Mi 8619
 Anderson, Graydon K, Gr (4412) (Salem, Ore)
 Anderson, Herbert A, Gr (3262) 412 se 6th (Granite Heights, Wis)
 Anderson, Lende O, A42 (4477) Pioneer Hall, Ma 8177 (Northfield)
 Anderson, Mabel L, EdU, 2749 13th av s, Du 2137 (Worthington)
 Anderson, Olive M, Ed40 (4474) 1700 se 4th, Gl 2448 (Sturgeon Lake)
 Anderson, Richard J, Gr (5020) 1000 University av se (New York, N Y)
 Anderson, Waldemar, AU, Augsburg Seminary
 Andre, Camille D, Gr (4897) 3345 University av se, Gl 5003
 Andres, William A, Gr (5090) Rt 1, Hopkins, Wa 2765R
 Antonsen, Irene G, G41 (3277) 3615 Stevens av, Re 2289
 Apsourri, Constantin N, Gr (5046) 1316 se 4th
 Arent, Louis I, Gr, 2102 University av se, Ge 5009

Armstrong, Dick J, G41 (4559) 3842 Unity av, Robbinsdale, Ch 6001
 Armstrong, Grace O, Gr
 Armstrong, Robert W, Gr (4911) 2024 Commonwealth, St P, Ne 1965
 Arneman, Harold, Gr (4482) 2089 Carter av, St P (Mankato)
 Arnold, Donald C, Gr, 1014 24th av se (Boise, Idaho)
 Aronsohn, Gladys A, A41 (11224) 1128 se 6th, Gl 3309 (Superior, Wis)
 Artz, Genevieve, Ed40 (4678) Sanford Hall, Ma 8177 (Antler, N D)
 Ashburn, Frank S, Gr (4914) Mpls Gen Hosp, At 1178 (Dallas, Tex)
 Atkinson, James W, Gr (5094) 312 se Walnut, Gl 1961 (Selma, N C)
 Aubrecht, Don A, Gr (5052) 719 Jefferson av, St P, El 5476
 Ausenius, Dorothy, A42 (4493) 1501 4th av n, Hy 0771
 Axness, Ruby J, NU, Deaconess Hospital, Du 8341 (Willmar)

B

Baardseth, Archie B, Gr, 4019 40th av s, Dr 4926
 Bacheller, Betty, Gr (5005) 2249 Carter av, St P, Mi 2952
 Backstrom, Leone M, AU (6563) 3710 3rd av s, Co 0945
 Bagley, Marion R, EdU, 609 White Bear Lake
 Bahner, Harriet, N43 (2771) 361 Prescott, St P, Ri 0721
 Bailey, John, A43 (3285) 920 20th av se
 Bailey, William, A42 (4593) 3100 w Lake, Ke 6179
 Baker, Gertrude M, Gr, 25 Sidney pl se, Gl 7257
 Baker, Helen J, Gr, 1600 22nd av n, Ch 0016
 Baker, John W, Gr, 1600 22nd av n, Ch 0016
 Baker, Mary, Gr (4987) 628 se 4th, Ge 6152 (Fergus Falls)
 Ballard, John H, Gr (4906) 1423 w Minnehaha pkwy, Wa 6232
 Bancroft, John W, EdU, 1508 Hennepin av, At 8907 (Mora)
 Bannister, Donald, EdU
 Bar-Deroma, Haim, AU (4877) 694 Holly, St P, El 2786
 Barlow, Howard W, Gr (5031) 1624 e River ter, Ma 7698
 Barnum, Cyrus P, Jr, Gr (4902) 707 se 5th, Gl 1234 (Evanston, Ill)
 Barrett, Kathryn, AU, 3701 Abbott av s
 Bartholdi, Wendell L, Gr (5056) 2312 Alden, St P
 Bartz, Caroline J, Gr (4408) 1100 University av se, Ma 8177 (Fall Creek, Wis)
 Batdorf, Gordon, A43 (13120) 3100 Girard av n, Hy 8815
 Bates, Thomas C, IT43 (3242) 4305 Alabama av, St Louis Park, Wa 4030
 Bauman, Archie E, Gr (5080) 1917 Fremont av s, Ke 5503
 Baumann, Leola, NU, St Andrews Hosp, Ma 8535 (Oakland)
 Bayer, Alfred, Gr (4883) 1212 Raymond av, St P, Mi 3306 (Canada)
 Beck, Charles, Md40 (4782) 225 Prescott, St P, Ri 2360 (Mountain Iron)
 Becker, Elizabeth V, Gr (4835) 2029 Sheridan av s, Ke 5117
 Becker, Lester, A42 (1988)
 Behrenbrinker, John A, Gr, 317 18th av se, Gl 2187
 Beland, Irene L, Gr, Mpls Gen Hosp, At 1178
 Belanger, Aurilien J, Gr (4420) 4541 Aldrich av s, Re 3493
 Bell, J Frederick, Gr (4908) 1000 w 53rd
 Bell, Ruth, Gr (3272) 906 se 5th, Br 6285
 Bellamy, Maurice L, Ag43 (UF1754) 914 Central, St P, Da 9605
 Bellan, Alexander L, Gr (5011) 1076 se 14th, Gl 3128 (Canada)
 Bellis, Carroll J, Gr (4826) 1185 Laurel av, St P, Da 9588
 Benfield, Dolores, A42 (4535) 308 w Page, St P, Ri 4350
 Bengtson, Berniece S, GU (4627) 308 Ridgewood av, Ke 3432
 Bennyhoff, Gordon, IT42 (4601) 436 Newton av s, Ma 2764
 Berg, Clifford L, A42 (4632) 1410 se 7th, Gl 5484
 Berg, Curtis L, A43 (4656) 2110 Knapp, St P (Welch)
 Berg, Merlin H, Gr, 983 18th av se, Gl 3547
 Berg, Olive A, Ag40, 2800 Portland av, Re 8159
 Berg, Oliver A, Gr (4923) 312 se Walnut, Gl 1961 (Duluth)
 Bergan, Evelyn D, A40 (11308) (Rochester)
 Bergee, Arthur, Gr (Boyceville, Wis)
 Berger, Kenneth L, Gr (4938) 8 Melbourne av se (Duluth)
 Berger, Marie, AU (2808) 1640 Randolph, St P
 Bergeson, E Irving, Gr (4907) 1524 se 8th, Gl 3445 (Superior, Wis)
 Bergh, James E, G41 (4461) 5120 Nokomis av s, Dr 3706
 Bergh, Solveig M, Gr (5097) 2615 Park av, Ma 8301 (Montevideo)
 Bergquist, Thelma R, EdU (4602) Como Sta, Rt 3, St P (Pitchfork, Wyo)
 Bergstrom, Ralph W, Gr (Hutchinson)
 Berkey, Donald, G40 (4514) 2605 w 52nd, Wa 1992
 Berman, Averill J, Gr (4882) 1230 Knox av n, Hy 5524
 Berman, June M, Gr (4438) 1807 Hillcrest, St P, Em 2077
 Berman, Rae C, Gr, 1105 Washburn av n, Hy 1067
 Berman, Ralph, A43 (4686) 1230 Knox av n, Hy 5524
 Berndtson, Earl H, Ag43 (UF69) 1208 Raymond av, St P, Mi 4461 (Hastings)
 Berrettoni, Julio N, Gr, Pioneer Hall, Ma 8177 (Canada)
 Berthel, Russell M, Gr (5002) Marlborough Hotel, St P (White Bear Lake)

- Beyer, R Carlyle, Gr (4924) 1392 w Minnehaha, St P, Mi 7964
 Bickford, Kenneth F, Gr (501) 301 se Walnut, Gl 1956 (Deerwood)
 Billing, Osborn, EdU (Elk River)
 Billman, Vera S, Gr, 2121 Nicollet av, Br 4259
 Birkeland, Tollef, Gr (Waconia)
 Bishop, Dorothy C, AU (9747) 1 Seymour av se, Gl 1510
 Biske, Helen R, PHN41 (3293) 775 Lexington av s, St P, De 7438
 Biskup, William F, Gr, 2091 Princeton av, St P, Em 1789
 Bitting, H Wayne, Gr (5030) 2270 Carter av, St P, Mi 3948
 Bittner, Vera, Ag42 (UF53) 1112 17th av se, Gl 7817 (Rogers)
 Bjorklund, Don, A42 (4551) 1544 Grand av, St P, De 3047
 Blaisdell, Donald, IT41 (1987) 228 10th av s, So St P
 Blaisdell, Dorothy J, Gr (4955) 2155 Doswell av, St P, Mi 8289 (Washington, D.C.)
 Blanchard, George, A42 (3240) 1710 se 4th, Gl 1061 (Fairmont)
 Blood, Everett G, Gr, 1469 Cleveland av, St P, Ne 1932 (Garnett, Kan)
 Blossjo, Victoria E, PHNU, 2500 s 6th (Lafayette)
 Blotnick, Frank, AU (4732) 510 12th av se
 Boardman, George R, Gr, 4737 14th av s, Lo 8955
 Boekelheide, Virgil C, Gr (5057) 822 se 7th, Gl 7391 (Northville, S D)
 Bohan, Eugene R, Gr (4881) 406½ 14th av se (St Paul)
 Bohan, Joan Z, Gr, 806½ 14th av se (St Paul)
 Bonesky, Edward J, A43 (4520) 621 se Ontario, Gl 5372
 Boock, Milton G, Gr (Lake City)
 Boosalis, Nicholas, Md40 (4762) 1316 se 4th (Faribault)
 Borchardt, Arthur, A40 (4568)
 Bornhoft, Arnold, A43 (4638)
 Bottman, Phillip, A43 (4647) 3012 Grand av
 Boudrye, Mason R, Gr, 2024 Commonwealth av, St P
 Bowers, Gordon, Md40 (4748)
 Bowman, Joseph H, AU (11299) 421 se Walnut, Gl 3495 (Kewanee, Ill)
 Boyd, H James, IT43 (4971) Pioneer Hall, Ma 8177 (Alexandria)
 Bradford, Robert, A43 (5498) 2910 James av s, Ke 4370 (Cincinnati, Ohio)
 Brady, Ignatius C, Gr (4899) 710 13th av se, Gl 7011
 Brain, Philip, EdU (4696) 4027 26th av s, Du 2596
 Branch, Earl B, EdU (4612) Holland Hotel, Br 7410
 Brathé, Arthur P, AU (11983) 515 15th av se, Gl 2664 (Veblen, S D)
 Bratner, Bernard I, IT43 (4712) 1408 Goodrich av, St P, De 3494
 Bratfield, Arthur H, Gr (5114) 1629 se 6th, Gl 9910 (Bellflower, Cal)
 Breitschopf, Kenneth, IT41 (3253) 861 Aurora av, St P, Da 8079
 Brekke, Albert H, Gr
 Brezinski, Florence, EdU, 3450 Portland av, Co 1142
 Briggs, Audrey L, Gr (5027) 1721 e 46th, Dr 2736
 Brill, Alice C, AU (10751) 716 Osceola, St P, Da 0468
 Brink, David L, Gr (4859) 1061 Lombard av, St P, Da 6875
 Brink, Norvel O, Gr (4427) Mpls Gen Hosp, At 1178 (St Paul)
 Brinley, Ann, Gr, 4150 Pillsbury av, Co 6325
 Brisend, June, EdU, 4315 2nd av s
 Broderick, Alan T, Gr (4892) 307 16th av se, Gl 7931 (Calumet, Mich)
 Broderick, Arline, BU, 2619 Cedar av s, Du 8027
 Brodrick, Edna, AU, 801 se Huron
 Brown, Brunhilde L, A40 (4560) 1412 e 24th, St P, Da 8341 (Montevideo)
 Brown, Gerald S, Gr, Pioneer Hall, Ma 8177 (Canada)
 Brown, James I, Gr, Cleveland and County Rd A2, St P, Ne 8364
 Brown, Margaret E, EdU, 45 Melbourne av se, Gl 1565
 Brown, Marie A, AU (10754) 500 se Essex, Ma 8177 (Bloomington, Ind)
 Brown, R Clifford, Gr, Gillette Hosp, St P (Fargo, N D)
 Brown, Schuyler, Md40 (3418) 1000 University av se, At 1165
 Brown, William J N, Gr, 2307 Alden, St P, Mi 6940
 Broz, James, IT43 (3019) 509 15th av se (Meadowlands)
 Bruncke, Harry P, Gr, 1710 Albert av n, St P, Ne 1928
 Bryngelson, P Wesley, Gr, 4626 Wentworth av, Lo 8930
 Buehler, Martin S, Gr, Mpls Gen Hosp, At 1178 (Dallas, Tex)
 Buot, Antonio V, Gr, 3852 45th av s, Dr 8182
 Burke, Russell D, A43 (3288) 3904 18th av s, Du 4558
 Burke, William, G41 (1990) 1906 3rd av s, Ge 5497
 Burkhardt, Harry, A42 (4711) 611 14th av se, Gl 3743 (Wabasha)
 Burks, Ardath W, Gr (4979) Pioneer Hall, Ma 8177 (Cincinnati, Ohio)
 Burris, Donald S, Gr (5105) 2027 Sheridan av s, Ke 4212
 Burtis, Fay, Gr, 1675 Capitol av, St P
 Burton, Gale C, A42, Deephaven, Ex 382J
 Burud, Harold, A43 (4659) 2002 5th av s (Crosby)
 Burwell, Willis E, Gr, 482 Holly av, St P, El 5514
 Bush, James B, Gr, 800 42nd av n, Hy 7857
 Bushey, Dick, P42 (4954) Pioneer Hall, Ma 8177 (Sauk Center)
 Butler, Gertrude, A40 (3301) Camden Sta, Hy 1736
 Butler, John M, Gr (6831) 1623 University av se, Gl 1865 (Los Angeles, Calif)
 Butler, Mrs Pierce, Jr, AU, 1600 Edgumbe rd, St P, Em 2929
 Butler, Richard D, IT41 (4838) 725 n Snelling, St P, Mi 4394 (Virginia)
 Butter, John, Md40 (8475) 110 w 49th, Co 2313

C

- Caldwell, Paul, A43 (3313) 3119 Wenonah pl, St P, Da 8422
 Calef, Wesley C, AU (5013) 1302 se 7th, Gl 1205 (New London, Wis)
 Calton, Robert, Gr, 1316 Van Buren, St. P, Mi 6875
 Calvert, Leonard, G41 (3244) 609 15th av se, Gl 2468
 Cannon, Jean P, Gr (4405) 609 8th av se, Gl 5746
 Caple, Ira, Gr (International Falls)
 Caplow, Theodore, Gr (4453) 910 University av se, Br 1828
 Cardille, Samuel, IT42 (3235) 310 12th av se (Corley)
 Carey, Alice, EdU (4455) Sanford Hall, Ma 8177 (St Cloud)
 Carlsen, Earl W, Gr (4579) 401 Eustis, St P, Ne 5020
 Carlson, Clara D, AU (12744) 2205 44th av n, Hy 6903
 Carlson, Gordon H, Gr, 4713 Oakland av s, Lo 3466
 Carlson, Kenneth A, IT41 (4754) 500 15th av se (Duluth)
 Carlson, Kenneth L B, IT42 (4764) 107 University av se, Ge 1742
 Carlson, Philip O, AU (2731) 1473 Blair, St P, Mi 7537 (Lakeland)
 Carlson, Walter H, A42 (4554) 1883 Iglehart, St P, Mi 6115 (Gilbert)
 Carlson, Warren E, Gr (4349) 981 17th av se, Gl 7477
 Carlson, Warren J, G41 (4509) 954 Hyacinth, St P, To 7653
 Carmichael, H Kenn, Gr (5116) 311 7th av se, Ge 1242 (W Lafayette, Ind)
 Carpenter, Lola, A40 (3284) Sanford Hall, Ma 8177 (Norwich, N D)
 Carpenter, Phyllis M, Gr, 3831 Sheridan av s, Wa 7423
 Castleberry, Donald M, Gr (4950) 307 16th av se, Gl 7931 (Oklahoma City, Okla)
 Carquettini, Olga, A41 (9825) Sanford Hall, Ma 8177 (Virginia)
 Chafin, Douglas E, Gr (4945) 611 16th av se, Gl 5188 (St P)
 Chalek, Jack J, Gr (4803) 3246 Girard av s, Lo 1940
 Chang, Yien-Tang, Gr (4887) 317 se Oak, Gl 3776 (China)
 Chapman, E Myfanwy, Gr, 5344 Ewing av s, Wa 6651
 Chapman, Kenneth W, Gr, 2230 Carter av, St P (Buffalo)
 Chapman, Willa, A43 (4497) 2617 Clinton av
 Charbonneau, Clare C, A43 (2911) 534 Dayton av, St P, Da 2396
 Charnley, Jean C, Gr (4456) 521 15th av se, Ge 3701
 Chen, Shan Ming, Gr (4890) 1421 Cleveland av, St P (China)
 Chernick, Jack, Gr (4400)
 Cherrington, Betty J, Ag42 (UF1872) 1635 Sherburne av, St P (New Richland)
 Chestek, Abbie E, Gr, Hillcrest Apt, So St P
 Childs, Frank E, Gr (4949) 1000 University av se
 Christensen, Grace D, Gr, 2276 Highland pkwy, St P
 Christenson, Cornell, Gr, 65 Lake av, White Bear
 Christenson, Donald, G40 (5913) 2518 Aldrich av n, Hy 3677
 Christenson, Elmer J, Gr, 1380 Frankson av, St P, Mi 2531
 Christoffer, Ruth M, Gr (4392) 3405 Holmes av s, Lo 7441
 Christopherson, Armon, B40 (5222) (Grand Rapids)
 Christopherson, Everett W, Gr, 5116 11th av s
 Chun, Edwin H, Gr, 203 n Grotto, St P, Da 9394
 Chutina, Krongthong, A43 (4817) Sanford Hall, Ma 8177 (Washington, DC)
 Claggett, Lorraine, A42 (4637)
 Clair, Arnold V, Gr (3324) 900 Summit av, Ke 9317 (Dillon, Mont)
 Clair, James, A43 (4586)
 Clardy, Erma C, A43 (4687) 2437 27th av s, Dr 2560
 Clark, Albert, A42 (2907) 3230 Nicollet av, Gr 6896
 Clark, Harold E, Gr (5036) 1114 se 4th, Gl 3904 (St Louis, Mo)
 Clark, Lyle H, AU (12404) 672 Summit av, St P, Da 7397
 Clark, Robert E, Ag40 (UF83) 828 University av se, Ge 5834
 Clarke, Raymond L, Gr (5096) 613 se Oak, Gl 1634 (Avoca)
 Clarke, Zelda M, EdU, St Joseph's Hosp, St P, Ce 6321 (Preston)
 Clarkson, Gayette, Gr (4788)
 Class, Arlene, Ed41 (14039) 680 Simon av, St P, Hu 3136
 Clauson, Howard, G41 (3269) 409 se Oak, Ge 3109 (Halby)
 Clendening, Janet, Gr, 1067 15th av se, Gl 3854
 Clifford, Joseph W, Ag43 (UF1756) 207 Pendergast Hall, U Farm (Northfield)
 Cline, Omar K, Gr (4502) 1112 se 8th, Gl 1505
 Clough, Margaret, AU (4666) 611 e 14th, Br 4061
 Coan, Mrs F W, AU, 2100 Stevens av, At 7915
 Codere, Helen F, Gr, 194 Amherst, St P, Em 3273
 Coffey, Charles, G41 (4356) 95 Lexington av s, St P, Da 0495
 Cohen, Arnold A, Gr, 1211 se 6th, Gl 1070 (Duluth)
 Colarich, George M, Gr (4857) 417 s 10th, At 9221 (Coleraine)
 Colestock, Eugene, UCU (4573) 1289 Osceola av, St P, De 3997
 Collins, John T, AU (4447) 2416 Nicollet av, Ma 2000
 Collins, Ruby L, Mrs, Gr, 432 Dayton av, St P, Ga 7324
 Conley, Margaret, AU, 3409 2nd av s, Lo 3661
 Conley, Mary G, Gr, 3409 2nd av s, Lo 3661
 Conley, Thompson, Gr (4458) (New York City)
 Connell, Walter A, Gr (4442) 1305 Raymond av, St P, Mi 9615 (West Grove, Penn)
 Connolly, B Genevieve, AU (13756) 1608 Hawthorne
 Cook, Annabelle H, Gr (5039) 313 17th av se, Gl 7479
 Cook, Barbara, MdT40 (2749) Mpls Gen Hosp, At 1178

Cooper, Katherine, A43 (3286) 4310 Lake dr, Robbinsdale, Hy 8856
 Corbett, John H, Gr (4913) 1410 se 5th, Gl 7166
 Corley, Catherine, PHNU (4383) (Columbus, Ga)
 Corrigan, Mary E, EdU
 Cotten, Mary, A40 (4570) 2718 Humboldt av n, Ch 2072
 Cotter, Clarence J, IT43 (2889)
 Cowan, John A, Gr (1994) 212 se Walnut
 Cowan, J Ritchie, Gr (UF PI Genetics) 1305 Raymond av, St P, Mi 9615 (Canada)
 Coward, I Elizabeth, Gr
 Cowdry, Edmund W, B40 (5021) 1625 University av se, Gl 5943 (Canada)
 Cox, Ethel, AU, 118 w Minnehaha pkwy, Co 2291
 Craigie, Jean M, Ag41 (UF76) 3221 Grand av s
 Cramer, Donald C, A43 (3281) 1005 University av se, Ge 5986
 Cramolini, Gordon, Ed43 (4691) 3329 18th av s, Dr 7578
 Cramsis, Kenneth J, Gr (4917) Pioneer Hall, Ma 8177
 Crossley, Desmond I, Gr, 2293 1/2 Langford av, St P, Mi 1796 (Canada)
 Cuckler, Ashton C, Gr (5067) 325 se Ontario, Gl 3783 (Cambridge, Nebr)
 Culbertson, Joseph O, Gr (4360)
 Cumming, Harry A, Gr (5112) 1773 Ashland av, St P
 Cunningham, Lawrence P, Ag43 (UF1881) 2012 Como av w, St P, Ne 3483 (Pipestone)
 Currie, Isabelle M, AgU (UF93) (Rochester)
 Curtis, Lucile, AU, 672 Summit, St P, Da 7397

D

Dahl, Kathryn L, EdU (4733) St Barnabas Hosp, At 0441
 Dahlberg, Harvey, L43 (11951) 2145 University av, St P, Mi 6339
 Dalton, Helen, Gr, 813 University av se, Ge 4798
 Daniels, Howard L, Gr, 1414 16th av n, Ch 0416
 Darling, June, AU, 5136 Logan av s, Wa 4439
 Davies, John E, A43 (4630) 327 6th av se
 Davies, Vernon, Gr (4937) 1410 se 5th, Gl 7166 (Cannonville, Vt)
 Davis, Ralph, G40 (4494) Commodore Hotel, St P, El 1061 (Clark, S D)
 Dean, James H, Gr, 4036 Aldrich av s, Co 6272
 Deeny, Hugh J, Gr (4865) (Prescott, Wis)
 Deinema, George R, Gr, Como Sta, Route 5, St P, Ne 8490
 Delo, Charles G, Jr, Gr, 615 Commerce bldg, St P, Ce 1813
 DeLong, Dudley D, Gr (Hutchinson)
 De Luc, Frank P, A42 (4620) 1075 13th av se, Gl 3176
 Dennis, Donald P, AU (4490) 813 University av se (Clinton, Ohio)
 Dennis, Thornton, A42 (4625) 1363 Jefferson, St P, Em 3749
 Dennistoun, Rollin M, Ag43 (UF1757) 2127 Knapp av, St P (Brooks)
 Dennstedt, Frederick D, Ag43 (UF60) 2097 Como av w, St P, Ne 1689 (Harmony)
 Devaney, J Patrick, A42 (4869) 2774 w Lake of Isles blvd, Ke 2708
 De War, Helen, A43 (1430) 4036 43rd av s
 Dexter, John L, G40 (4451) 1295 Raymond av, St P, Ne 3065
 Dicke, Leonard H, Gr, 506 Mt Curve blvd, St P, Em 7363
 Dickerson, Douglas F, Gr (Nashauk)
 Dickson, Ned B, Gr, 611 se Huron, Gl 3010 (Cowley, Wyo)
 Dietz, Edward, Ag43 (UF95) 2270 Doswell av, St P (New Prague)
 Dillery, Clare, Ed40, 934 Grand av, St P, Da 6262
 Dixon, Dorothy, A42 (4718) 49 Como av, St P, Ce 7508
 Dockum, Norman L, Gr (4864) 412 se Walnut, Gl 3212
 Doescher, Ernest B, Gr, 4544 Chowen av, Wa 1834
 Dohm, John W, A42 (4694) Pioneer Hall, Ma 8177 (Hibbing)
 Dolan, Katherine M, Gr, 3154 33rd av s, Dr 2416
 Dolliff, Mary, A42 (4498) 4704 Sunnyside rd, Wa 6949
 Donelson, Alice A, EdU (4594) 1408 Hythe, St P, Mi 2680 (Ames, Ia)
 Donnellan, Helen M, Gr, 1437 w Minnehaha pkwy, Wa 9110
 Donnelly, Thomas F, AU (4574) 2922 Thomas av n, Hy 4408
 Dowdell, Madeleine, A42 (1986) 427 14th av se (Bemidji)
 Drake, Charles H, Gr (4932) 3121 Irving av s, Co 8937
 Draxten, Nina E, Gr, 2518 Girard av n
 Dreiman, Lawrence, Gr, 3429 Holmes av s, Co 4234
 Drobnick, Albert E, Ed40 (12932) 1308 se 7th, Gl 2717 (Bovey)
 duBois, Donald, AU, 1011 w 36th
 Dudding, William, IT41 (1428) 4141 Upton av s, Wa 4601
 Dugan, James E, Gr (5028) 703 se Delaware, Gl 3184
 Dugan, Willis E, Gr (4861) 1012 26th av se, Ma 5669
 Dunlop, Carrie, EdU, 3625 Bryant av s, Lo, 2003
 Dunn, Margaret S, Gr, 1963 Grand av, St P, Em 1683

E

Ecksteen, Sidonia, Ed40 (3317) 2816 Pillsbury av, Co 9223
 Edgell, Walter F, Gr (4981) 821 se 7th, Gl 1415 (Los Angeles, Calif)
 Edwards, Gordon C, Gr (4578) 1944 Louisiana av, St Louis pk

Eilertson, J Einar, Gr (5093) 2269 Alden pl, St P, Mi 4101 (St Peter)
 Elmquist, Carl, Jr, A43 (2909) 448 e Maryland, St P, To 7721
 Elmquist, Janet A, A43 (4995) 2910 Dorman av, Dr 5936
 Elson, Ardis E, Gr (Glencoe)
 Emmons, Betsy, Gr (4388) 1225 se 7th, Gl 2998
 Engan, Earl R, Gr (Brownton)
 Engelman, Gerald, Gr, 2089 Carter av, St P, Ne 1160 (Slater, Ia)
 Engle, Glenn E, EdU
 Englund, Lawrence E, A43 (3257) 2230 ne Benjamin, Gr 5811
 Engstrom, Clarice H, Gr, 828 22nd av ne, Gr 4898
 Engvall, Arthur E, IT43 (4642) 29 Oliver av s
 Erickson, Orlan, A43 (4513) 2118 s 3th, Br 3519 (Hendricks)
 Erickson, Zeta H, AU (6598) 2987 James av s, Ke 7633
 Erten, Mehmet H, IT43 (4370) 204 Franklin av w (Turkey)
 Estrem, Robert, Md40 (4780) 2312 s 6th, Ge 6691 (Fergus Falls)
 Ettel, Anthony A, Gr, 490 Edmund, St P, Da 1843
 Evans, Charles A, Gr (5048) 427 8th av se, Ge 4570
 Evans, Lisle, A43 (1432) (Starbuck)
 Ewald, Earl, Gr, 4504 Xerxes av s, Wa 7110

F

Falk, LeRoy A, IT43 (4700)
 Farabaugh, Charles L, Gr (4903) 1601 Park av (Owatonna)
 Farseth, E Pauline, Gr, 4024 Elliot av, Lo 6847
 Fast, John, Md41 (11041) 317 se Union, Gl 1839 (St Croix Falls, Wis)
 Fattore, Celia C, AgEd40 (UF679) 2286 Doswell av, St P, Mi 9041 (Eveleth)
 Faye, Leo, A42 (4652) 2122 St Anthony, St P, Ne 1666
 Fazen, Louis E, Jr, Gr (4373) 849 Cleveland av s, St P (Racine, Wis)
 Featherstone, Eleanor, A40 (4527) 1606 se 4th, Gl 5728
 Featherstone, James W, Gr, 1606 se 4th, Gl 5728
 Feirer, John L, Gr, 3409 Longfellow av, Dr 7128
 Feldman, Harold, Gr (5065) 1325 Newton av n, Ch 7104
 Feldman, Seymour I, Gr (4978) 325 se Ontario, Gl 3783
 Fellroth, Anna L, Gr, 3105 43rd av s, Dr 0190
 Ferguson, Ruth C, Gr (Stillwater)
 Fineman, Zola M, Gr, 2089 Carter av, St P, Ne 1160
 Finn, Walter, Jr, Ed43 (4503) 504 se Beacon, Gl 7290 (Rochester)
 Finnberg, F Faith, Gr, 3637 46th av s, Dr 0020
 Fischer, Mary H, PHN (3310) (Strasburg, N D)
 Fisher, George E, Gr
 Fisher, Paul E, IT43, 3245 Noble av, Hy 8278
 Fishman, Myer, Gr (4365) 1901 University av se, Gl 1708 (Duluth)
 Fisk, Robert S, Gr
 Fiskett, Frank J, AU, 3042 13th av s
 Fiskin, Abram M, Gr, 515 se 5th, Gl 2035 (Canada)
 Flinsch, Harold V, Gr, 3520 w Calhoun blvd, Wa 9202
 Flom, Kathleen S, Ag43 (UF96) 1506 Raymond av, St P, Ne 3786 (Delhi)
 Floyd, Clare D, Gr (4943) 1399 Raymond av, St P, Mi 3806 (Canada)
 Flynn, Mac, Ed41 (4481) 825 4th av s, Ma 6526
 Fogarty, Charles W, Jr, Gr, 1826 Summit av, St P, Em 2458
 Fogarty, John E, Ag41 (UF87) 1466 Hythe, St P (Belle Plaine)
 Folinsbee, Robert E, Gr, 951 17th av se, Gl 7432 (Canada)
 Fornell, G Willard, B41 (1998) 2948 Alabama, St Louis pk, Wa 6911
 Fossey, Harold E, Ag43 (UF1883) 509 Washington av se (Lyle)
 Fossum, Melvin, MT40 (3226)
 Foster, Orley, Md42 (4744) 1664 Hague av, St P, Mi 2172
 Foster, Ruth A, Gr, 519 se Beacon, Ma 8177 (Canada)
 Foster, Winifred S, AU, 818 University av se, Br 8572
 Fox, Joseph M, Ed41 (4355) 104 w 36th, Lo 2398
 Frank, Earl A, Ag41 (UF97) 4050 Fremont av n
 Freberg, C Roger, Gr (4927) 508 12th av se, Gl 1763 (Hector)
 Frederickson, Frederick, A42 (4496) 2157 Commonwealth av, St P, Mi 4528
 Freed, Delia T, AU (10067) 2950 w River rd, Du 5386
 Freidmann, Frank, Md43 (4384) 144 Fairview av s, St P, Em 3288
 Frellsen, Sidney A, Gr, 3225 Dupont av s, Lo 9650
 Frey, William A, Gr (Ironton)
 Frick, A Walter, Gr (4369) 2401 Clinton av s, At 7661
 Frishberg, Miriam F, Gr (4868) 3450 Dupont av s, Lo 2833
 Frisk, Ila, AU, 1846 ne Johnson, Gr 1749
 Friss, Harriet S, A43 (2974) 1634 Upton av n, Hy 8232
 Frits, W Otto, Ag43 (UF80) 828 9th av se, At 8479
 Fuller, Jack, A42 (3275) 713 19th av ne
 Fuller, Willard C, Gr, 1792 Blair, St P, Mi 1992
 Futscher, Agnes, AU, 2611 Penn av n, Hy 5367
 Fuzzy, Robert H, G41 (3238) 2951 ne Johnson, Gr 6792
 Fuzzy, William T, G41 (3237) 2951 ne Johnson, Gr 6792

G

- Gaetke, Fred T, Gr (4801) 1414 Irving av n, Ch 1733
 Galeno, Lorenzo S, Gr (5012) 1705 James av s, Ke 2621 (Philippine Islands)
 Gallagher, David A, Gr (4827) Glen Lake, Minn (Graceville)
 Gardiner, Lynn, Gr, 420 14th av se
 Gaskill, John O, Gr (4385)
 Gates, Wright, Md40 (4777) Deaconess Hosp (San Francisco, Calif)
 Gaumnitz, Richard K, Gr, 1702 Laurel av, St P, Mi 2904
 Gaylord, Clinton G, Gr (UF1849) Curtis Hotel (Blue Earth)
 Gefke, Marshall L, Gr (Hinckley)
 Geiger, Philip, Gr (4942) 2344 Doswell, St P, Mi 4965
 Genge, Doris, AU, 3405 2nd av s, Re 4908
 Gilbert, Floyd O, Gr (5001) (St Cloud)
 Gilbertson, Wallace, IT43 (4519) 1419 se 5th (Canada)
 Gillberg, Esther M, Ed41 (3241) 980 17th av se, Gl 7687 (Donnybrook, N D)
 Gjerdsjo, Ottar, Gr (4947) 500 15th av se (Norway)
 Glasser, Myrtle, EdPG (St Cloud)
 Glazer, Rivel M, A43 (552) 1234 Vincent av n, Hy 3321
 Glickman, Mary J, AU (6262) 5312 Upton av s, Wa 2452
 Godward, Alfred C, Gr (4445) 5104 Colfax av s, Re 1188
 Goldberg, Marian, G41 (4540) 1102 Russell av n, Ch 4744
 Goldberg, William A, A43 (4676) 1102 Russell av n, Ch 4744
 Good, Charles, A43 (4697) 332 e 34th, Lo 3672
 Good, Robert A, A43 (3309) 332 e 34th, Lo 3672
 Gooder, Angela G, A42 (4624) 2208 Harriet av, Ke 0848
 Goodlow, Robert J, Gr, St Barnabas Hosp, At 0441 (Hackensack, N J)
 Goodman, Milton, IT43 (6845) 1010 Irving av n
 Gorder, Carol J, A43 (4531) 4100 Nicollet av, Co 2642
 Gordon, Harold E, AU (4414) Pioneer Hall, Ma 8177
 Gorman, Margaret, Ag41 (UF1867) 1670 Marshall av, St P, Ne 3679
 Gorshe, Frank, Jr, G41 (4421) 323 6th av se, Br 6045 (Chisholm)
 Gourley, Marjorie I, AU (11571) 500 se Essex, Ma 8177 (St Paul)
 Gouze, Frank, Md40 (4750) 1021 e River rd, Gl 1744 (Ely)
 Graca, Joseph G, Gr (4956) 1531 ne California, Gr 5006
 Grafslund, Charles W, IT42 (2599) 3519 Emerson av s, Lo 2764 (Lake Park)
 Graham, Kenneth L, AU, 1812 se 4th, Gl 2441
 Grais, Melvin L, AU (10553) 1210 James av n, Ch 7265
 Grant, Virginia, A43 (4731) 698 Laurel av, St P, Da 5524
 Gratzek, Frank R, Gr (4853) 1536 ne 6th, Gr 3325
 Green, Melvin M, Gr (4940) 1507 Queen av n, Hy 7140
 Greenspan, Anita L, AU (3475) 628 University av se
 Gregory, George L, AU (4663) 769 Jessamine, St P, To 6147
 Griffin, Dorothea S, Gr (St Cloud)
 Griffith, Albert G, Gr, 613 se Oak, Gl 1634
 Griffith, Clement H, Gr (4844) 1907 Lyndale av s, Ke 0517
 Griffith, H Dennis, G41 (6052) 2000 Sheridan av s, Ke 6093
 Griggs, Lyle F, BU, 1920 Franklin av se
 Grimes, Burton, Gr (Madelia)
 Grimsho, Nils H, Ag41 (UF1758) 1485 Cleveland av, St P, Ne 3196 (Palisade)
 Grip, William R, AU (Duluth)
 Gross, Helen, Ed40 (4415) 4501 Aldrich av s, Re 3086
 Grout, May, EdU, 911 se 7th, Gl 5723
 Grzeskowiak, Edward, AU (3057) Nazareth Hall, St P, Mi 8071
 Gunderson, Leland, Gr (4988) 1115 se 4th, Gl 2332 (Morris)
 Gundlach, Wilton B, Gr, 3612 13th av s, Du 5033
 Gustafson, Arthur, AU (12441) 5719 Goodrich av, Wa 4304
 Gustafson, Harry, A43 (4726) 5149 30th av s, Du 6120
 Guthrie, Ledru O, Gr, 102 Arthur av se, Gl 7380 (Brooklyn, N Y)
 Guttman, Herman L, IT40 (4719) 614 Russell av n, Ch 8846
 Guttman, Louis, Gr (4915) 913 Oliver av n, Ch 1902

H

- Hackman, Ray C, Gr (4973) 1014 24th av se (Lincoln, Nebr)
 Hagberg, Katherine L, Gr (Gaylord)
 Hage, Hortense C, Gr, 3621 Morgan av n, Ch 9221
 Hagen, Paul, Md40 (4795) 429 se Union, Gl 1562 (Crookston)
 Halbert, Hugh T, A43 (4433) 1123 Goodrich av, St P
 Hall, James W, Gr (4840) 411 12th av se, Gl 7064 (Raytown, Mo)
 Hall, Myron W, Gr, 1115 Randolph av, St P, De 4780
 Halseth, Gordon, IT41 (4492) 2845 Irving av s, Ke 2954
 Halter, Rosetta, EdU, 1962 Grand av, St P, Em 7666
 Halvorsen, Roy A, Gr (Niagara, Wis)
 Halvorson, Alfred R, Ag43 (UF88) 1528 Grantham, St P, Ne 5576 (Milan)
 Halvorson, Harlow W, Gr (5110) 525 16th av se (Duluth)

- Hamilton, Edward W, Gr, 2024 Commonwealth av, St P, Ne 6979
 Hamilton, John L, Gr, Pioneer Hall, Ma 8177 (Milwaukee, Wis)
 Hammer, Ruth J, AU (4828) 5035 30th av s, Du 4287
 Hanscome, Betty, Ag40 (UF58) 6 Lake av, White Bear
 Hansen, Hazel B, A42 (14078) 408 13th av se, Gl 3791 (St Cloud)
 Hansen, Russell, IT41 (3265) 1815 University av se, Gl 1319 (Balsam Lake, Wis)
 Hansen, William O, Gr (4860) 1207 Burns av, St P, To 3691
 Hanson, Dale, Ed42 (3021) 600 15th av se, Gl 3278 (Cresco, Ia)
 Hanson, Gerald J, Ag43 (UF81) 2145 Carter av, St P, Mi 1375 (Wolverton)
 Hanson, Harvey J, Ag40 (UF61) 1107 Edgerton, St P, To 7350
 Hanson, Howard L, A42 (4483) 1786 Hennepin av, Ke 6451 (Granite Falls)
 Hanson, John W, Gr, Mpls Gen Hosp, At 1178
 Hanson, Kenneth E, A43 (4707) 793 Mound, St P, To 1968
 Hanson, William B, A43 (3252) 3721 Blaisdell av, Re 0841
 Harden, Leigh H, Gr (5058) 1140 Raleigh, St P, Mi 4667
 Harmon, Alice I, Gr, 1203 se 8th, Gl 3795 (Mondovi, Wis)
 Harris, Clifford, G40 (1427)
 Harris, Dale B, Gr (4919) 1325 se 7th, Gl 7865
 Harris, Esther K, Gr (4511) 1128 se 6th, Gl 3309 (Westport, Conn)
 Hart, Alexander L, Gr, 810 se 6th
 Hasbrouck, Joseph L, A43 (5004) 1814 se 4th (Marshall)
 Haskins, Ingfried J, AU (13318) 3917 20th av s
 Hasleton, Hubert C, AgU (UF1897) 2060 Carter av, St P, Mi 6917 (Alexandria)
 Hathaway, Lillian E, Gr (Stillwater)
 Hatton, Harrison, A43 (13796) 579 Summit, St P, El 6045
 Hauer, Leonard H, Gr, 343 Wilder av, St P, Mi 2636
 Haugen, Clarence, Gr (5099) Augsburg College, Ma 9037
 Hautala, Arthur E, Ag42 (UF1760) 1425 se 6th, Gl 3666 (Brainerd)
 Hautala, Frank E, Ag43 (UF1761) 2270 Doswell av, St P, Ne 2013 (Aurora)
 Hawkins, Alice F, Gr (5070) 900 University av se, Ge 2906
 Hay, Lyle J, Gr (4918) 1629 se 6th, Gl 9880 (Worthington)
 Hay, Suzanne M, A43 (10661) 4809 Garfield av s, Co 3074
 Hayden, Charles, Md40 (4806)
 Hayden, Helen E, Gr (4953) 305 Edmund st, St P, Da 0707
 Hayek, Helen, Gr, 1005 e 28th, Re 2095
 Hayes, Mary C, AgU (UF1843) 1460 Hythe, St P, Mi 2618
 Heggen, Helen, EdU, 4840 Upton av s, Wa 6410
 Heglund, Anna T, Gr (4399)
 Hegman, Harold, G41 (4512) 2048 Minnehaha, St P, To 5145
 Hegre, Erling S, Gr, 821 se 7th, Gl 1415 (Madison)
 Heier, Lyle, B40 (2806) 3048 17th av s, Du 8969
 Heikinen, Harry W, B41 (4457) 818 se 4th, Ge 3705
 Heinz, Lawrence, Md40 (4751) St Luke's Hosp, St P, Ce 4451 (Henderson)
 Heise, J Herbert, AU (3289) 1730 Dayton, St P, Mi 0910
 Hella, Udet W, Gr (4487) 2801 Park av, Lo 6577 (Cloquet)
 Hendrickson, Carl C, Gr, 21 Shady Lane, White Bear Lake
 Hendrickson, Melvin A, A43 (4654) 728 10th av se (Duluth)
 Hendrickson, Merrill J, Gr, 501 15th av se (Ansley, Nebr)
 Henricks, Marvin L, AU (13136) 2936 Nicollet av, Re 2723
 Henschel, Austin F, Gr (4898) 3029 Holmes av s, Ke 3957 (Princeton)
 Herrich, Robert, A42 (2730) 1216 Douglas av, Ke 0796
 Heuperman, Frederick, IT43 (4515)
 Hiemstra, Wyhren, Gr (4812) 5300 Park av, Re 6579
 Higbee, Ross C, Gr, 1765 Lincoln av, St P, Em 5454
 Higbie, Ila H, AU, 3948 1st av s, Co 6605
 Hill, Donald R, A42 (4591) 1126 se 5th, Gl 9944 (Clear Lake, Ia)
 Hill, Dorothy B, Gr (4824) 1443 Capitol av, St P, Mi 8818
 Hill, Elmer J, IT42 (4558) 221 se Walnut, Gl 3390 (Nashwauk)
 Hill, George K, A42 (4781) 9 s 9th
 Hill, Helene C, AU (6782) 4536 Zenith av s, Wa 2353
 Hirsch, Hans G, Ag41 (UF1763) R R 7, St P, Ga 0218-W
 Hodiwskyj, Longin, AU, 1321 Reaney, St P
 Hodorovski, Leo, IT43 (4386)
 Hoffman, William L, A42 (4614) 3128 Humboldt av s, Lo 4998
 Hogan, Joe, A43 (4646) 4219 1st av s, Co 2464
 Hogen, Myrtle O, NU, Powell Hall, Ma 8177 (Spokane, Wash)
 Hohle, Anna B, EdU, 3909 Aldrich av s, Lo 1330
 Holcomb, William, BU (4486) 742 Goodrich av, St P, Da 0734
 Holland, Mary J, B41 (3228) 4206 Irving av s, Hy 3897
 Holland, William, A42, 701 e River rd, Gl 3950 (Rochester)
 Holmen, Robert W, Gr (4819) 1918 Goodrich av, St P, Em 1996
 Holsinger, V Virginia, G40 (4464) 1100 se 5th, Gl 3977 (Faribault)
 Holte, Norman O, AU (13653) 704 se Delaware, Gl 3648 (Moose Lake)
 Hooker, R D, B40 (1993) 308 18th av se, Gl 7927 (Cedar Falls, Ia)
 Hookom, Regina I, A43 (4485) 905 16th av s, At 2790 (Spicer)
 Hopkins, Margaret M, Gr (4448) 711 Washington av se (Kansas City, Kan)
 Hopland, Laurie R, Gr (4409) 2251 Riverwood pl, St P, Mi 0419
 Horstmann, Richard H, G41 (4430) 2309 Harriet av s, Ke 8619
 Hosford, Lois D, Gr
 Hosp, Claire, AU (5974) 2808 3rd av s, Co 5783

Hovland, Lucille, G41 (4729)
 Howard, George P, IT40 (6556) 4300 Linden Hills blvd, Wa 7805
 Hoyt, Helen, Gr (4378)
 Hoyt, Robert E, Gr (4895) 513 16th av se, Gl 7471
 Hsu, Ke-Chin, Gr (1418) 1518 se 6th
 Huchthausen, Ida, EdU
 Hughes, Daniel E, Gr, Macalester College, St P, Em 1363
 Hughes, Leslie, B40 (1991) 422 w Lake, Lo 6839
 Hull, Robert B, IT43 (3274) 2941 Webster av, St Louis pk, Wa 1097
 Hunegs, Harry, Gr (4894) 1629 Upton av n, Ch 0051
 Hunt, Eldred M, Gr, 1475 Raymond av, St P, Mi 4180
 Hunter, Ruby D, Gr
 Huntley, Philip L, Gr (4791) 604 16th av se, Gl 3179 (Hill City)
 Hursh, Lawrence, Md40 (4784) 506 se Oak, Gl 3535 (Cohasset)
 Hursh, Philip W, AU (5610) 417 se Walnut, Gl 7554 (Hibbing)
 Hurst, William L, A43 (4566) 2833 e Lake of Isles blvd, Ke 8831
 Hutchings, Ernest F, Jr, AU (5911) 1829 University av se, Gl 7903 (Canada)
 Hutchinson, Richard, A42 (3232) 5038 42nd av s, Du 2643
 Huxley, Richard D, Gr (4822) 3440 Dupont av s

I

Ironside, Keith L, EdU (4467) (Browns Valley)
 Ironside, Marjorie, Ag42 (UF77) 1241 Charles, St P
 Irwin, Don L, AgU (UF89) 1399 Raymond av, St P, Mi 3806 (Matanuska, Alaska)

J

Jackson, Edwin C, Gr (4622) 225 se Cecil, At 5653 (Winona)
 Jacobson, Louise, G41 (3231) 2180 Dayton av, St P, Mi 7182
 Janecek, William L, Gr, 311 e Hurley, St P, Ri 0147
 Jassoy, Shirley, A43 (4681) 1993 Ashland av, St P, Ne 5796
 Jedermann, Ruth M, AU (5762) 2633 Girard av s, Ke 5583
 Jeide, Rex, A43 (4649) 1625 se 7th, Gl 3588 (St Paul)
 Jennings, James, A42 (4708) (Coleraine)
 Jensen, Herbert, A43 (2917) 3820 24th av s, Dr 5612
 Jensen, Holger V, AU, 4625 43rd av s, Dr 4625
 Jensen, N Kenneth, Gr (4809) 184 Seymour av se, Ge 4541
 Jensen, Thomas A, IT43 (3306) (Austin)
 Jepsen, Irene L, G41 (8420) 3010 Abbott av n, Hy 2492
 Jerdee, Loyd R, Gr
 Jesse, Norma, Ag42 (UF70) 1880 Lexington av n, St P
 Jobe, Harley, A40 (11651) 307 16th av se, Gl 7931
 Johansen, Arnold, A43 (4571)
 Johndreau, Allan F, AgU (UF84) Central YMCA, Ma 2431
 Johnson, Beth L, A42 (3258) 106 w 52nd, Lo 7054
 Johnson, Betty L, A43 (4672) 5307 Russell av s, Wa 4045
 Johnson, Clarence W, A42 (4592)
 Johnson, Clifford R, G41 (2918) 528 se Delaware (Buffalo)
 Johnson, Dale W, A43 (3311) 2223 Harriet av, Ke 0908
 Johnson, Dale W, Gr (4880) 706 se Huron, Gl 7217
 Johnson, Dewey E, Ag43 (UF1764) 629 12th av se, Gl 5321 (Swanville)
 Johnson, Edmund E, A42 (4404) 619 se Delaware, Gl 5648 (Red Lake Falls)
 Johnson, Edwin G, Ag42 (UF71) 2120 Commonwealth av, St P, Ne 2120 (Morris)
 Johnson, Elisabeth Ann, AU (11636) 1023 University av se, Br 4044 (Jacksonville, Ill)
 Johnson, Erwin M, IT43 (1423) (Hawley)
 Johnson, Floyd S, IT40 (4811) 217a 8th av se (Elmore)
 Johnson, Glen J, Gr, 2060 Carter av, St P, Mi 6977 (Pine City)
 Johnson, Katherine E, A41 (3320) 4809 Girard av s, Co 6450
 Johnson, Muriel E, Ed40 (3302)
 Johnson, Ralph H, Gr, Glen Lake)
 Johnson, Richard R, A43 (13811) 3122 30th av s, Dr 6044
 Johnson, Warren B, Ag43 (UF1898) 1212 Raymond av, St P, Mi 3306 (Cokato)
 Johnson, William R, A43, 4714 Humboldt av n, Hy 2200
 Johnston, Geneveve K, Gr, 4818 Garfield av s, Lo 4818
 Jones, Elizabeth, AU
 Jones, Prudence, Ag40 (UF56) 1026 se 5th, Br 4197 (Lake Crystal)
 Jonnard, W Amison, Gr (4816) Curtis Hotel
 Jorde, Thomas S, G41 (4394) 2273 Alden pl, St P, Ne 3450 (Thief River Falls)
 Jorgensen, Gotthilf, Gr (4891) 5237 10th av s, Co 0250
 Judd, Allen W, A43 (4662) 508 12th av se (Hector)
 Julson, Herbert, IT41 (4727) Pioneer Hall, Ma 8177
 Julsrud, J Maurice, Gr, Mound
 Jurek, Mark A, Gr (13356)

K

Kaercher, William C, IT40 (1424) 2934 ne Polk
 Kahan, George, Gr, 1801 Park av, Ge 5163
 Kamienski, Henry C, EdU (4353) Pioneer Hall, Ma 8177 (Chicago, Ill)
 Kamp, Lioba, Ed40 (4564) 312 18th av se, Gl 5896 (Adams)
 Kane, Stanley D, Gr, 2878 Holmes av s, Ke 2853
 Kapaun, Mary, Ag42 (UF1765) 781 Cedar, St P, Ga 1990
 Kaplan, Jack, Gr (4842) 903 Logan av n, Hy 5214
 Kaplan, William J, Gr (4858) 1112 se 8th, Gl 1505 (Newark, N J)
 Katz, Helen T, AU (6580) 1128 Portland, St P, El 3535
 Katze, Johannes, A42
 Kaul, Winifred, AU (6693) 330 11th av se, Gl 2001 (Faribault)
 Keeton, Marjorie, AU, 515 se Delaware, Ge 1000 (Helena, Mont)
 Kehl, Raymond A, Gr (4862) 809 se Essex, Gl 3456
 Keller, Ethel P, A42 (4790) 1038 Linwood pl, St P
 Keller, Ronald F, AU (13416) 315 15th av se
 Kelly, John M, A40 (11833) Elgin Hotel, At 1423 (Superior, Wis)
 Kelly, William, G41 (4387) Elgin Hotel, At 1423 (Superior, Wis)
 Kempe, Madge S, Gr (4885) 1280 Raymond av, St P, Ne 3478
 Kendall, Irving W, Gr, 934 Grand av, St P, Da 1537
 Kern, Marion L, Gr, 3161 Park av, Re 9226
 Kerns, David M, Gr, 736 se Superior, Gl 7705
 Kerzinski, John L, Ag40 (UF855) 2095 Scudder av, St P (Eveleth)
 Kevern, Jay L, AU (3089) Pioneer Hall, Ma 8177 (Kellogg, Idaho)
 Kilbourne, Warren, Ed40 (4645) 255 Stevens, St P, Ri 2415
 Kildow, Fred, AU (4429) 4432 Edmund blvd, Du 5951
 Kinder, James E, AgU, 1012 se 8th, Gl 3730
 King, John, Md40, 1021 e River rd, Gl 1744 (Westfield, Mass)
 Kirchner, Mary, Ag40 (UF1801) 2258 Knapp, St P, Ne 1128
 Kirk, Everett, AgU (UF1766) (Hutchinson)
 Kittleson, Gladys, EdU, 1831 2nd av s, Br 6362
 Kjelstad, Reilia, EdU, 1468 Van Buren, St P, Mi 8943
 Kjome, Ruth A, Ag40 (UF1791) 1454 Chelmsford, St P, Ne 3765 (Spring Grove)
 Kleven, E Milton, A43 (3314) 910 23rd av s, Ge 3464
 Kline, Judd, Gr (4825) 311 7th av se, Ge 1242
 Knudsen, Helen, AU, 833 e River rd, Gl 7566 (Albert Lea)
 Knutson, James T, A42 (4684) 1620 se 4th (Slayton)
 Koenig, Rose, A41 (4393) 608 6th av se, Gl 5463
 Koenig, Vernon E, A43 (4670) 1300 s 7th, At 5928
 Koepke, Edwin E, BU (4401) 806 se 6th, Gl 3407 (Elmore)
 Koivisto, Sulo, A42 (4633) 910 University av se (Hibbing)
 Koschnitzke, Herman K, Gr (4904) Mpls Gen Hosp, At 1178 (LaCrosse, Wis)
 Kositsky, Dorothy, B41 (11379) 1318 se 7th, Gl 1255 (Wood, S D)
 Kovacevich, Helen M, Ed42, Powell Hall, Ma 8177 (Bessemer, Mich)
 Kozberg, Pauline, Gr, 333 Macalester av, St P, Em 1884
 Kramer, Roy L, G41 (4432) 756 Marshall av, St P, Da 4238
 Kreman, Arnold J, Gr (4422)
 Krienke, Oliver K, IT43 (3276)
 Kromhout, John, IT40 (4773) 1497 Breda, St P, Ne 3139
 Krusemark, Marguerite O, Gr, Rt 4, Daytons Bluff Sta, St P, Hu 2487
 Kuth, Edward J, Gr, 329 se Union, Gl 1369 (Duluth)
 Kvalness, Clifford, IT43 (11143) Rt 8, Minneapolis

L

LaDue, John, Gr, Mpls Gen Hosp, At 1178
 Lamont, Charles V, Ag43 (UF1793) 2151 Commonwealth av, St P, Ne 5669 (Elysian)
 Landry, Arthur Z, Gr, 627 12th av se, Gl 7828
 Lane, Forest J, Gr (UF1894) Tonkawood, Hopkins, Hopkins 9380
 Langdell, Marion E, A40 (Eau Claire, Wis)
 Lamm, Bernard G, Gr (4821) 520 se Delaware, Gl 7853 (Mabel)
 Larsen, Mary E, AU (5372) 2004 Summit av, St P, Em 1640
 Larson, Harry A, IT40 (1415) 1530 se 7th, Gl 7706 (Nashwauk)
 Larson, Inez, B41 (3295) 2816 16th av s, Du 9203 (Downing, Wis)
 Larson, Lawrence C, Gr, 319 6th av se, Ge 4103
 Lasky, Miriam R, A43 (4734) 1333 Russell av n, Hy 5580
 Lattrell, Milo, Gr, 5336 Columbus av s
 Laurie, Frank, Ed40 (4596) 1517 se 5th, Ge 1917 (Hibbing)
 Lawrence, Beth L, AU (9742) 2222 Girard av s, Ke 2583
 Leach, David M, A42 (6294) 1521 University av se, Gl 1104 (Owatonna)
 Lee, Albert C, Gr, 4020 45th av s, Dr 6872
 Lee, Cora O, EdU, 601 Ridgewood, Ke 1090
 Lee, Dorothy, EdU, 152 Orlin av se, Gl 7848
 Leech, Florence E, Gr, 500 se Essex, Ma 8177

Leigh, John K, IT42 (3319) 5040 Thomas av s, Wa 5382
 Leveau, Kyle H, Gr (4926) 463 Brimhall, St P, De 4672
 Leverantz, Philip, AU, 3245 22nd av s, Dr 0696
 Levich, Jean, A42 (4582) 928 se 5th, Ma 6066
 Lewis, Audrey J, EdU (4836) 4937 Clinton av, Lo 3887
 Lewis, Stanley E, A43 (2908) 5443 Pleasant av, Lo 1715
 Libby, Harriet W, AU (10525) 201 Ridgewood av, Ke 1206
 Liedholm, Ruth, EdU, 1924 e River ter, Br 6026
 Lind, Robert S, Gr, 3438 Aldrich av n, Ch 8287
 Lindberg, Roy A, A42 (4600) 1117 se 7th, Gl 2819 (Brooklyn, N Y)
 Lindemann, Robert F, AU (5984) 630 Carroll av, St P, El 6508
 Linder, Garth, A43 (2898) 706 e 36th, Co 6090
 Lindhjem, Fred J, Jr, ITU (3280)
 Lindholm, Richard W, Gr, St Thomas College, St P (Mankato)
 Lindstrom, Glen, G41 (4595) 87 Cleveland av s, St P, Em 5366
 Lindstrom, Harold V, Gr, 4704 11th av s, Co 9202
 Lipschultz, Maidee G, A43 (4650) 1661 Jefferson, St P, Em 3761
 Listiak, Daniel, Gr (10438) 2201 27th av s, Du 9586
 Loban, Walter D, Gr, 802 se 4th, Ge 2555
 Lockwood, Neil, ITU (4431)
 Lodin, Kermit L, Ag41 (UF99) 4122 Fremont av n, Hy 9384
 Loeb, Harold G, Gr, 930 17th av se, Gl 7592
 Loken, Luella, A42 (2813) 21 Hyland av n, At 1780 (Lake City)
 Lokken, Elizabeth H, Gr (5748) 1717 Portland av, At 4977 (Watertown, S D)
 Lomasney, Winifred G, Gr, 325 6th av se, Br 7588
 Loomer, Iva L, B41 (4616) Sanford Hall, Ma 8177 (Chisholm)
 Loomis, Arthur, A42 (4539) 3330 Holmes av, Re 5511
 Lorberbaum, Sidney, L40 (4660)
 Lord, Frederic M, Gr (4813) 314 se Oak, Gl 3505
 Loth, Bernard C, A42 (8497) Alden Apts, Ma 5316 (Fort Dodge, Ia)
 Lovell, Janet, A42 (4347) 2300 Carter av, St P, Mi 4750
 Loveridge, Louise, AU, Curtis Hotel, At 5144 (St Louis, Mo)
 Lovik, Norma I, A43 (4606) 925 se 4th (Joice, Ia)
 Luckert, Miriam P, AU (4866) 1915 Humboldt av s, Ke 1228
 Luehis, Robert H, Ed43 (6237) 3320 33rd av s, Du 1727
 Lufkin, James, A42 (3250) 208 5th av se, At 0763
 Lund, James B, L42 (7590) 1831 Summit, St P, Ne 1192
 Lund, Loren B, AU, 3501 10th av s, Du 7897
 Lunde, Donnie C, PHN40 (2747) (Great Falls, Mont)
 Lundeen, Elizabeth C, A43 (3282) 1620 23rd av ne, Gr 4448
 Lutz, Mac, IT41 (4619)
 Lyght, Norman P, Ed40 (3247) 809 Aldrich av n, Ch 3098 (Lutsen)
 Lyons, LeRoy S, A43 (3294) 1022 s 8th

M

MacDonald, G Annette, Gr (4851) 1629 se 6th (Dillon, Mont)
 MacFarland, Erwin C, A43 (4364) Pioneer Hall, Ma 8177 (Fairmont)
 MacIver, Julia C, A43 (4436)
 Mackay, James, AU (13373) 1983 Sargent, St P, De 3619
 MacKenzie, Ralph, Md40 (4760) 104 n Mississippi River blvd, St P, Ne 1647
 MacLean, Lester, Md43 (11612) 1810 Ashland av, St P, Mi 4257
 Maduro-Palmer, Luis G, AU (6201) 1838 Sargent av, St P, Em 3825
 Maiden, Stephen W, Gr (4747) 4037 Longfellow av, Du 5130
 Mangan, John J, Gr, 3433 23rd av s
 Manley, Mary, A43 (4508) 1830 Stevens av, At 8111
 Mannheimer, Carl, A43 (3305) 31 Lake av, White Bear, White Bear 127
 Manuel, Helen, AU (6283) Murray Hill, Excelsior
 Marchel, Joseph T, A42 (4416) 959 14th av se, Gl 7034 (Brainerd)
 Margulas, Ernest, Gr, 3320 Bryant av s, Co 7134
 Markson, Elizabeth, EdU (4499) 4240 Vincent av s, Wa 0663 (Sauk Center)
 Marshall, Douglas, IT42 (4692) 2408 Nicollet av, At 5943
 Martin, Myrnel J, EdU (4675) 1698 LaFond, St P, Mi 0559
 Martin, Robert H, A42 (4648) 1830 Stevens av, At 8111
 Martinson, Luddy, IT43 (4463) 600 University av se (Milaca)
 Marturano, Frank P, Md40 (4787) Eitel Hospital, At 0505 (Buhl)
 Martz, Dorothy A, EdU, 562 Holly av, St P, Da 0698
 Matta, Arnold A, AU (6528) 1001 e 28th, Co 4262
 Matthes, Lester, Gr (4872) 701 e River rd, Gl 3950
 Maul, Eugene, A42 (1433) 1717 University av se (Denver, Colo)
 May, Gordon, A42 (6275) 99 Cambridge av, St P, Em 1453
 Maynard, Eugene P, G40 (5975) 2110 Larpenteur av w, St P, Mi 2866
 McAdams, Elsie R, Gr
 McCaffrey, Fabian, Md40 (12551) 2749 Stevens av, Lo 6579
 McClintock, Virgil C, A43 (3296) 1217 se 4th (Alex, Okla)
 McCombs, James, Jr, G41 (2945) 3537 4th av s

McCormack, Joseph G, Ed41 (4682) 3423 Harriet av s, Co 7330
 McCough, Charles P, IT43 (4689)
 McCrary, Leon C, AU (5196) 707 St Anthony, St P (Lynch, Ky)
 McCulley, Douglas F, Ag42 (UF62) 2060 Carter av, St P, Mi 6917 (Maple Plain)
 McCulloch, June E, A43 (4643) 4812 Washburn av s, Wa 3690
 McFadden, Patricia, A43 (2804) 514 6th av se, Gl 7049
 McFarland, Robert, A42 (4709) 711 se Essex, Gl 2867
 McFarlin, Ervin R, B41 (4721) 723 13th av se, Gl 5885 (Superior, Wis)
 McGibbon, Leona M, Gr, 391 Selby av, St P, Da 6909
 McGinnis, F Donald, IT41 (11016) 420 se Oak, Gl 1404 (Aberdeen, S D)
 McGovern, Earl J, EdU, 3640 Lyndale av s, Co 8864 (Duluth)
 McGuire, Constance C, Ed43 (4534) 1008 Selby av, St P, Da 0501
 McGuire, Margaret I, A43 (4397) 1008 Selby av, St P, Da 0501
 McHugh, Dorothy, PHNU (2895) St Mary's Hospital (Farmington)
 McKaig, Helen, A40 (4597) 1103 se 4th, Gl 5035 (Pine Island)
 McLeod, Noah W, AU (9251) 1512 se 4th (Christine, N D)
 McLimons, William F, Gr (4854) 516 University av se, Ge 1070
 McNamara, Vincent, Gr (4922) 5331 Irving av s, Wa 7975
 McNeely, Callan B, A42 (2893) 518 12th av se, Gl 1754 (Duluth)
 McWait, Carolyn, G41 (4500) 726 Sherburne av, St P, Da 3656
 Melin, Esther, A43 (3304) 2520 31st av s, Dr 8261
 Menninga, Fred T, Gr (4437) 515 15th av se
 Merriman, John H, Gr, 1432 w 32nd, Re 4392
 Metcalfe, Ruth H, EdU, 1522 Portland, St P, Mi 0569
 Mickel, Stanley A, Ag43 (UF1795) 2153 Scudder av, St P, Mi 3771
 Mickelson, Floyd, IT43 (4577) 3624 39th av s, Dr 5104 (Duluth)
 Midler, Louis T, EdU (4536) 434 Charles, St P, El 0757
 Miller, Everett, Ed40 (13199) 1938 ne McKinley, Gr 1220
 Miller, H Ross, A41 (4557) 1617 University av se, Gl 1100 (Chisholm)
 Miller, Helen L, AU, 2725 Inglewood, Wa 7108
 Miller, Lorraine A, A42, 3137 Aldrich av s (Wayzata)
 Miller, Martin, A43 (4677) 920 Fremont av n, Ch 2601
 Milner, Max, Gr (4585) 317 se Oak, Gl 3776 (Canada)
 Minni, Robert P, G41 (3225) 333 ne 2nd
 Minnich, Helen B, AU, 1415 e River rd, Ma 0959
 Minter, Gloria, A43 (3249) 1716 w 31st, Ke 1615
 Mintzer, Miriam, A41 (2894) 1134 Vincent av n, Hy 2384
 Mitchell, Gordon P, B40 (2729) 1072 25th av se (Superior, Wis)
 Mitton, William E, Ag42 (UF90) (Staples)
 Moberg, Martha M, AU (2802) 1215 LaSalle av, Ma 6934
 Moen, Elmer, EdU (3256) 5500 Minnetonka blvd (Norwich, N D)
 Mogilevsky, Ruth, G41 (4730) 811 Sheridan av n, Hy 3923
 Monson, Forrest, AU, Augsburg Seminary
 Monson, Wilmar H, Ag40 (UF63) 2359 Chilcombe av, St P, Mi 0853 (Wausau, Wis)
 Moore, Marjorie R, A43 (2733) 4216 Linden Hills blvd, Wa 4940
 Morgan, Thomas H, A43 (4667) 1619 Minnehaha av w, St P, Mi 4304
 Morse, Marius A, Gr, 4031 40th av n, Robbinsdale, Hy 5506
 Murphy, Joseph E, Md40 (4778) 408 se Oak, Gl 5234 (Coleraine)
 Murphy, Royse P, Gr, 2089 Carter av, St P, Ne 1160
 Murray, Agnes R, EdU, Ogden Hotel, At 5441
 Murray, Leonard, IT43 (13746) 317 se Oak, Gl 3776 (Nashauk)
 Murray, W Donald, Gr, 132 e Langford pk pl, St P, Mi 9218 (Columbus, Ohio)
 Mussey, Mary, Md40 (4779) 507 se Essex, Gl 7052 (Rochester)
 Myser, Andrew C, A43 (4725) 1471 Ashland av, St P, Mi 1288
 Myster, John L, A42 (4664) 611 14th av se, Gl 3743 (Hayfield)
 Mystrom, Donald G, A42 (4538) 2950 ne Pierce, Gr 2617

N

Naus, Esther C, Gr (2810) 2404 Lake pl, Ke 6007
 Neale, Frances E, Gr (St Cloud)
 Neel, Janet E, EdU, 5033 Girard av s, Co 9423
 Neider, Berenice, PHNU (2902) 1111 se 4th, Gl 1537 (Wabeno, Wis)
 Nelsen, Catherine A, G40 (4553) 1530 Como av se, Ge 7550 (Washington, D C)
 Nelson, Alvin E, Gr (4446) 1469 Cleveland av, St P, Ne 1932 (Park Falls, Wis)
 Nelson, Einar W, EdU, 5124 45th av s, Du 8903
 Nelson, James A, Ag43 (UF1796) 1298 Raymond av, St P, Ne 5590 (Halstad)
 Nelson, Lawrence H, A43 (4599) 297 Clarence, St P, Va 1381
 Nelson, Lawrence W, Gr, 1029 se 4th, Br 3207
 Nelson, LeRoy A, A42 (4665) 1628 se 4th (Virginia)
 Nelson, Ralph K, Ag40 (UF64) 4829 10th av s, Lo 5748
 Nelson, Robert C, A42 (4635) 1813 University av se (Windom)
 Nemer, Sidney, A42 (3227) 596 Iglehart av, St P, Da 2976
 Nerud, John K, IT42 (1420) 5305 3rd av s, Co 9796
 Nerburn, Lloyd J, AU (9351) 18 n 13th, At 4947
 Neseth, E Irene, EdU (4572) 1524 e 18th, At 8045

Nessa, Curtis B, Gr, 706 se Huron, Gl 5077 (Osseo, Wis)
 Netteburg, Lyol H, AU (5121) 818 Curfew, St P, Mi 7315
 Newberry, Joseph, B41 (2887) 1401 se 6th (Crookston)
 Newcomb, Victor A, Gr (UF1787) 912 18th av se, Gl 5615
 Nicholas, William, Ag42 (UF65) 2145 Scudder av, St P (Chicago, Ill)
 Nicholson, Vivian, A42 (2820) Crystal Bay, Beach 61
 Nobis, Darwin, Ed42 (4680) Elgin Hotel (Duluth)
 Nolan, George C, Gr, 5209 13th av s, Re 8051
 Nolte, Robert E, A42 (4548) 245 Oak Grove
 Nolte, Vernon, A42 (4434) 317 18th av se, Gl 2187 (Fairmont)
 Nora, Fred F, Gr, 4154 Wentworth av, Lo 8508
 Norcia, Leonard N, AU (13283) 825 s 8th, (Mountain Iron)
 Norman, David D, A41 (4410) 406 13th av se, Gl 3629 (Crookston)
 Nydahl, Harold G, Gr, 2419 35th av s, Dr 1119

O

Ochs, Gerard J, G41 (4639) (Springfield)
 Odden, Mona M, AU (6398) 2005 2nd av s, At 6789
 Ohman, Clifford B, IT40
 Oistad, Jeanne F, A40 (4581) 2230 Princeton, St P, Em 1102
 Olafson, Lillie E, EdU, 145 Exeter pl, St P, Mi 4685
 Olson, Richard W, Gr (4544) (Albert Lea)
 Olson, August H, Ed43 (3255) 1005 University av se, Ge 5986 (Red Wing)
 Olson, Edith L, PHNU (4604) 509 se Beacon (Cokato)
 Olson, Everett B, A43 (3292) 409 se Oak, Gl 3109
 Olson, Hazel B, Gr (4428) 4423 Colfax av s, Co 4376
 Olson, Ivy, Md40 (4758) 919 se Fultax, Gl 7175 (Ray)
 Olson, Sylvia M, A42 (1985) 3940 27th av s, Dr 0301
 Olson, Vincent N, Gr (4501) 215 se Walnut, Gl 3225 (Comfrey)
 Onstad, Reuben C, A42 (4698) 615 e 27th, Lo 8674
 Opdahl, Stanton N, A42 (3260) 818 se 4th, Ge 3705
 O'Phelan, Edward, A42 (4703) 1985 Portland, St P, Ne 1554
 Oppenheimer, Margaret, AU (13673) 3923 Girard av n, Ch 7898
 Otto, Kermit L, Gr (4450) 1321 se 6th, Gl 7753 (Frazee)
 Owen, Charlotte M, A43 (4728) 3549 3rd av s, Lo 0942

P

Paetzold, Jane, AU (5543) 925 Fairmount, St P, Da 2844
 Pajari, Eleanor R, Ag42 (UF66) 1823 Park av, Br 3977
 Palmatier, Richard, AU, 320 16th av s, Ge 3356
 Palzer, Edward T, AU (5440) 514 se 4th
 Pangburn, Phyllis, Gr (4351) Sanford Hall, Ma 8177 (Northwood, Ia)
 Parent, Leslie M, AU (3137) 1021 e River rd, Gl 1744
 Parker, Harriet S, AU (6226) 1000 University av se
 Parker, Velma E, PHN42 (4713) 312 se Harvard, Gl 1119 (Dixon, Ill)
 Parson, Robert, A42 (4470) 4732 Portland av, Re 7873 (Redwood Falls)
 Patterson, Dale O, Gr (4837) 718 13th av se, Gl 5413
 Patterson, Stuart, Md40 (4491) St Barnabas Hospital, At 0441 (Brainerd)
 Pautz, Richard, EdU, 6636 Clinton av s, Re 5843 (LeSueur)
 Payne, Brownell, AU (5519) 1709 se 7th (Indianapolis, Ind)
 Pearson, Jack, B41 (4608) 1491 Blair, St P (Tower)
 Pearson, Neil A, Ag42 (UF72) 1199 Raymond av, St P, Mi 1008 (Georgeville)
 Pease, Ethel E, Gr, 600 Franklin av w, Br 3324
 Pedersen, Arthur C, Ag42 (UF100) 519 11th av se, Gl 1444 (Delhi)
 Pederson, Lila, Ag42 (UF54) 1285 Cleveland av, St P, Ne 5139 (Starbuck)
 Pegelow, Margaret A, A42 (5587) 2508 Stevens av, Lo 7762 (Bemidji)
 Penner, Donald, A42 (10481) 3325 Dupont av s, Lo 9660
 Perlman, Raymond, A43 (4644) 940 Selby av, St P, El 1703
 Perrault, Howard W, IT43 (11546) 2420 Nicolle av s, At 2055 (Monticello)
 Perry, Mabel W, AU (13365) 915 se 6th, Gl 2450 (New York City)
 Persons, Edith B, AU (13300) 250 17th av n, Hy 5953 (St Charles)
 Pesola, Albert O, B41 (4636) 1302 se 7th
 Peterson, Donald C, Gr, 3027 39th av s, Dr 3738
 Peterson, Edna L, BU, 2904 41st av s, Dr 5252
 Peterson, John W, G43 (4379) 4202 Harriet av, Co 5954
 Peterson, Lloyd H, Ag42 (UF480) 976 Sherburne av, St P, El 5607 (Madison)
 Peterson, Roald A, Gr (4391) 3439 Hennepin av (Schafer, N D)
 Peterson, Willard H, A42 (3243) 406 11th av se, Gl 3004 (Litchfield)
 Phillips, Mary E, PHN40 (8221) 2076 Roblyn, St P, Mi 9067
 Pierce, Lorraine H, Ag42 (UF55) 2357 Carter av, St P, Mi 3452 (St Charles)
 Pierre, Joseph J, Gr (4389)

Pihlstrom, J Leslie, L40 (4759)
 Polzak, Jacob A, Gr, 2514 ne Cleveland, Gr 1233
 Poore, James H, Ag43 (UF1884) 1495 Goodrich av, St P, Em 1054
 Poore, John, Md40 (4746) 106 Cambridge, St P, Em 4517
 Potter, Marshall A, Ag43 (UF1875) 4800 Bloomington av, Re 8595 (Milwaukee, Wis)
 Powell, Gilman D, A43 (2805) 4909 31st av s, Dr 9759
 Powelson, John, AU (4583) 1000 University av se
 Power, Charles E, Ag42 (UF1797) 1515 University av se, Gl 1389 (Center City)
 Prisley, John T, Gr, 2089 Carter av, St P (Sacaton, Ariz)
 Probst, Ella M, Gr, 4601 Stevens av, Re 4840
 Proehl, Corine F, A43 (3223) 3600 42nd av s, Du 1000
 Putnam, Susanna, A43 (4626) 977 Goodrich av, St P, Da 0934

Q

Quanrud, O Gerhard, Gr (Lanesboro)
 Quealy, John M, Gr, 2555 Bryant av s, Ke 2757

R

Ramsay, Robert M, Gr, Miller Hospital, St P, Ce 8421 (Canada)
 Rankin, Richard, G40 (4640) 3838 Sheridan av n, Ch 0957
 Raskin, David, A40 (4598) 3008 Knox av s, Ke 2598
 Rasmussen, Harry W, G41 (4685) 1400 Portland av (Hayfield)
 Rasmussen, Henry A, IT40 (1425) 3527 Pillsbury av, Co 1373 (Siren, Wis)
 Reece, Philip, A43 (3315)
 Reed, Samuel A, AU (10077) 1221 Rice, St P, Hu 3029
 Reeve, Lew P, A43 (4505) Pioneer Hall, Ma 8177 (Austin)
 Reichow, Gordon W, G41 (2819) 437 Cretin av s, St P, Em 9640
 Reid, James W, Md43 (11984) 351 Grand av, South St P, La 4113
 Reierson, Katherine J, Ag43 (UF1798) 1328 Keston, St P, Ne 3522 (Warren)
 Reierson, Margaret, Ag42 (UF1746) 1328 Keston, St P, Ne 3522 (Warren)
 Reitz, Lois L, AU, 2183 Commonwealth, St P, Mi 3801 (Duluth)
 Reker, Bill G, A42 (3312)
 Remole, William D, A43 (4565) 2904 Ewing av s, Wa 1042
 Revak, Raymond J, G41 (4417) 4212 Nokomis av s, Dr 9178
 Rhoades, Herbert E, Gr, 1315 e 54th, Co 7336
 Rice, Frank B, A42 (4615) 327 w Minnehaha pkwy, Re 1868
 Rice, Katherine C, AU (10132) 5211 Humboldt av s, Re 3170
 Richardson, Fanny E, Gr, 51 n 15th, Ma 6848
 Richardson, Ralph W, Ag42 (UF1868) (Newport)
 Rickbeil, Robert J, A42 (3299) 1710 se 4th (Worthington)
 Ridley, Janus E, Gr, 2288 Carter av, St P, Mi 1335 (Duluth)
 Riikola, Katherine, Ed41 (4524) Sanford Hall, Ma 8177 (Ely)
 Riley, Margaret H, Gr, 3401 Colfax av s, Co 0886
 Roan, Chester, Ed41
 Roan, O Morton, Md42 (4756) 3401 16th av s, Du 7456
 Roberts, Jean S, A42 (4889) 619 9th av se
 Robinson, Thomas, A43 (5388) 718 6th av s
 Rock, Agnes O, EdU (6180) 2424 Bryant av s, Ke 1319
 Roddy, John P, G41 (10943) 2714 ne Pierce
 Roe, Mildred H, AU, 675 Sumner av, St P, Em 8354
 Rogers, Anna Marie, AU (3575) 1313 se 6th, Br 8317 (North St Paul)
 Rogin, Minnie, AU, 1926 3rd av s, At 7488
 Rollings, Alma J, Ag42, Larpenteur and Cleveland avs, St P (Montevideo)
 Rollings, Clair T, AgU (UF1869) Larpenteur and Cleveland avs, St P (Lake Crystal)
 Rommel, Frank, EdU (2815) 1129 University av se (Rochester)
 Rorem, Ida, AU (4623) 625 e 14th, Ma 2901
 Rosen, Milton S, A42 (4605) 960 15th av se, Gl 7986
 Rosenthal, Boylye, A43 (3297)
 Ross, Sylvia J, Ag42 (UF1855) 109 e 25th (Kansas City, Kan)
 Rothenberger, James, A43 (4613) 3213 Aldrich av s, Lo 8754
 Rothmann, Mrs Beverly, AU, 2612 w 40th, Wa 0457
 Rousel, Fred P, Gr, 4541 w 36th, Wa 8586
 Rowberg, Gilbert, Ag42 (UF67) 1056 13th av se, Gl 5855
 Russell, Edward H, B41 (2801) 2401 Chilcombe, St P, Mi 5523
 Russell, Paul, AU (10762) 4238 Elmer av s, Wa 0125
 Ruth, Dorothy Z, PHN42 (4724) 3625 Bloomington av s, Dr 4937
 Rydeen, Mildred R, AU (10661) 418 se Oak (Shafer)
 Rydell, Edwin N, Gr

S

Saibel, Laura F, Gr (3278) 501 se 4th, Ma 2006
 Salisbury, John A, A42 (4441)
 Salscheider, Marie, Ed41, 79 Cretin av s, St P, Mi 4387

- Salveson, Naomi L, AU (6894) 526 11th av se, Gl 2276 (Mabel)
 Sanders, Charles, EdU (4454) 1921 Colfax av s, Ke 0208
 Sartain, Augustus G, AU (6856) 514 14th av se, Gl 3314 (Norwalk, Conn)
 Sather, Marion, Ag41 (UF1856) Sanford Hall, Ma 8177 (Fosnot)
 Scallon, Mary, A43 (4518) 1575 Summit av, St P, Ne 2470
 Schaumburg, Örtwin E, Gr (Lester Prairie)
 Schebloom, Oscar, AU, 1070 17th av se, Gl 3177
 Schein, Donald, G40 (1997) 1100 Upton av n, Hy 4029
 Schermer, Bertha M, Gr (Buffalo)
 Schiff, Leonard, A43 (4563) 613 Elwood av n, Ma 3047
 Schleppey, Ronald, A42 (3303) 1815 University av se, Gl 1319 (Rockford, Ill)
 Schlueter, Ilsa B, Ed40 (3103) 1622 Thomas, St P, Mi 6209
 Schmeckratt, Clifford, Ed41 (4402) 329 19th av (St Paul)
 Schmit, Lola, EdU, 4502 Washburn av
 Schoen, L Theodore, Ag42 (UF1886) 1280 Raymond av, St P (Wells)
 Schoenberger, Paul B, AU (13948) 329 se Oak (Perham)
 Schoepner, Charles, Gr (4814) 2057 Laurel av, St P, Ne 6708
 Schriever, Alice L, A43 (3233) 871 23rd av se, Gl 7745
 Schroeder, Mrs Margaret W, Gr (4359) 2062 Marshall av, St P, Ne 5421
 Schroeder, Richard E, Ag43 (UF78) 851 25th av se, Gl 7378
 Schulte, Richard F, Gr (4407) 5141 Oliver av s, Wa 2582
 Schultz, Elizabeth K, Gr (4411) Sanford Hall, Ma 8177 (Hannibal, Mo)
 Schulze, Clarence, IT42 (2818) 239 Cedar av s, At 0990 (Deer Park, Wis)
 Schwark, Ellen D, A42 (3268) 1126 5th (Fountain City, Wis)
 Seaman, Donald, A43 (5077) 1437 Cleveland av, St P, Mi 1764
 Searle, Bernice, EdU (2890) 1336 s Mississippi River Blvd, St P, Em 1862
 Sears, Muriel M, Ag43 (UF1876) 5049 Dupont av s, Lo 8497
 Selly, Francis J, Ag43 (UF1747) 1466 Hythe, St P (LeSueur)
 Selvig, Stanley, Ed43 (4629) 3449 18th av s
 Shabatura, Emil A, Ag42 (UF91) 518 1st av ne
 Shabatura, Eugene H, Ed41, 518 1st av ne
 Shapiro, Milton J, A43 (3229) 915 University av se, At 6527 (Brooklyn, N Y)
 Sharp, Paul F, AU (6000) 427 15th av se (Crookston)
 Sheets, Nellie A, AU (4651) 1700 se 4th (Gary)
 Sheinkopf, Jacob A, Gr (4833) 1329 Logan av n, Ch 4093
 Shen, Ting, Gr (China)
 Shepard, Mrs Roger, AU (Newport)
 Sherman, Margaret, PHN (4683) 617 se 9th, Gl 7605 (Ulen)
 Shields, John C, B40 (3267) 1435 w 31st, Lo 3379
 Shimek, Walter, A43 (3230)
 Shirey, Allan, G41 (2888) 3606 Garfield av, Re 4610
 Shiroyama, Kiyoshi D, P41 (4465) 1419 se 5th (Terminal Island, Cal)
 Sidlo, Agnes, NU, Powell Hall, Ma 8177 (Jackson)
 Sien, Yun-pei, Gr
 Sigford, Robert O, G41 (3236) 2848 44th av s, Dr 2001
 Simi, Sue L, Ed40 (3091) 509 se Beacon, Ma 8177 (Cloquet)
 Simpson, Fred C, IT41 (1419) (Ada)
 Sister Angela Therese, Gr, College of St Catherine, St P, De 3829
 Sister Mary Cyril, EdU, 2448 18th av s, Dr 2620
 Skold, Francis R, Ag43 (UF1870) 400 ne 4th, At 2750
 Skubec, Louis A, B41 (12832) 1320 se 7th (Hibbing)
 Sloven, Charney, A43 (1989) 960 15th av se, Gl 7986 (Bismarck, N D)
 Smith, Charlotte, A43 (3246) 1519 Girard av n, Ch 9853
 Smith, Mary C, A41 (4674) 512 se Delaware, Gl 3555
 Smith, William A, UC41 (4484) (Duluth)
 Snell, Catherine, EdU
 Snyder, Wayne, A43 (4413) 518 12th av se, Gl 1754 (Alpha)
 Sogn, Donald O, AgU (UF1859) 2477 Como av w, Brock School, St P, Ne 3974
 Soland, Helen A, PHNU, 1515 Charles, St P, Mi 4153 (Bemidji)
 Solberg, Melvin P, Ag43 (UF1860) 515 se 5th, Gl 2035 (Milaca)
 Solstad, Walter, Ag42 (UF68) 3709 29th av s, Dr 2569
 Sorenson, Edna L, Gr, 420 se 6th, At 6658
 Sorlie, Bjilhe, AU (5825) 1308 se 5th, Gl 2900
 Sorum, Eugene, Md40 (4377) 429 se Union, Gl 1562 (Mankato)
 Soteropoulos, William G, A43 (4517) 3600 Minnehaha av, Dr 0516
 Soucheray, Philip, Md40 (4765) Abbott Hospital (White Bear Sta)
 Sours, Robert, IT43 (2750) 1368 Marion, St P, Hu 4065
 Sowa, Stanley, A42 (2803) (Duluth)
 Sparring, Bertha, G41 (2817) 3839 5th av s, Lo 5140
 Speer, Paul B, Gr, 4800 15th av s, Lo 3068
 Spera, Peggy A, A41 (4679) 1022 15th av se, Gl 9806 (Faribault)
 Spika, James, IT43 (3273) 5449 10th av s, Lo 2514
 Staab, Euphrosine, PHN42 (2899) 1111 se 4th, Gl 1537 (Hays, Kan)
 Stacey, E Thomas, Ag40 (UF1749) 2106 Commonwealth av, St P
 Stadtherr, Walter P, G41 (4550) 97 n 17th, Ma 6042
 Stamshkin, Solly, A42 (3356) 896 Ashland, St P, Da 4229
 Standeven, Ealon H, AU, 1097 Goodrich av, St P
 Stapleton, Kathryn S, Gr (4357) 1664 Randolph, St P, Em 6602
 Stardahl, Roy F, Gr (Belgrade)
 Stark, Frederick, Md40 (4789) 2268 Knapp, St P, Mi 1774

Steinman, Martin, Gr (4820) 3615 1st av s, Re 4665
 Stephens, Harley H, AU (5907) 1327 1st av s
 Stephens, Ralph C, Ag41 (UF1861) 1199 Raymond av, St P, Mi 1008
 Stephens, Robert W, G41 (4533) 2926 Chicago av s, Re 5182
 Stewart, Nancy, A43 (2896) 4312 Beard av s, Wa 5695
 Stiles, Adelaide, PHNU (4673) Mpls Gen Hosp, At 1178 (Garden City)
 Stiles, Ann C, AU (11912) 3712 Zenith av s, Wa 4976
 Stiles, Marion A, EdU (4690) 3929 Elliot av, Re 1541
 Stone, Archie R, Gr, 2885 James av s, Ke 3060
 Stone, C Harold, Gr (4815) Pioneer Hall, Ma 8177 (Pasadena, Cal)
 Stone, Frank D, IT41 (9647) 39 27th av se, Gl 3753 (Jackson)
 Strouts, Jack, IT40 (1422)
 Sullivan, L Paul, A43 (4469) 80 Wilder av, St P, Ne 2053
 Sundin, Millard, Gr
 Swain, Tom, A42 (2910)
 Swanson, Donald F, A42 (4475) 309 Oneida, St P, Da 7314
 Swanson, Elmer L, Gr (New Brighton)
 Swanson, Emery C, Ag41 (UF74) 517 se Walnut, Gl 3508 (East Grand Forks)
 Swanson, James R, IT43 (2897) 3108 Natchez av, St P
 Swanson, Vincent L, AgU (UF1750) 1369 Cleveland av, St P, Ne 5752
 Swenson, Philip, Md40 (4771) 317 se Union, Gl 1839 (Chisago City)
 Symonds, Clinton W, Gr, 3915 Fremont av n, Hy 5246

T

Taylor, Charles B, Md40 (8915) Eitel Hospital (Worthington)
 Taylor, Ethel B, AU, 748 Linwood pl, St P
 Telford, Horace, Gr, 207 Alden (Idaho Falls, Idaho)
 Tendeland, Louise, AU, 1000 University av se (Livingston, Mont)
 Teresi, Sam H, Gr, 700 Morgan av n, Hy 7329
 Thackrey, Russell I, Gr (4440) 145 Malcolm av se, Gl 3399
 Thomas, Betty A, A40 (2814) 5112 Emerson av s, Co 3038
 Thompson, Donald I, Gr, 2089 Carter av, St P, Ne 1160
 Thompson, Donald V, IT43 (3018) 706 se Delaware (Farmington)
 Thompson, John G, AU (13954) 1623 University av se
 Thompson, Mary Jean, G41 (4478) 1126 se 5th (Crookston)
 Thompson, O Telford, AU (3486) 315 16th av se, Gl 7929
 Thompson, Telford K, A43 (1431)
 Thompson, Vivian L, AU (11885) 1827 Portland av, Ge 3117
 Thorsen, Bill G, A43 (3321) 3842 Lyndale av n, Ch 4460
 Thurnbeck, Clement N, Ag42 (UF1862) 1393 Cleveland av, St P, Ne 5965 (Forest Lake)
 Tingquist, Stanley C, Ag43 (UF1863) 1888 Carroll av, St P, Mi 3017 (Becker)
 Tjernlund, Robert L, A42 (4590) 2539 Territorial rd, St P, Mi 7379
 Tmey, Gladys, EdU, 1103 13th av se, Gl 7735
 Todd, E Mae M, AU (5589) 909 se 4th, Br 3765 (Bismarck, N D)
 Tofte, Orton R, A42 (4701) 411 12th av se, Gl 5112 (Tofte)
 Torgerson, Mavis, AU (11572) 500 se Essex, Ma 8177
 Towne, Florence, AgU (UF1887) 2104 Penn av s, Ke 0315
 Traverse, Ben, IT42 (3318) 715 16th av se, Gl 7198 (Park Rapids)
 Tromanhauser, N Dale, A40 (4671) 5140 Xerxes av s, Wa 1094
 Trumble, Virginia M, Gr (4466) 445 Logan av s, Ke 2700
 Tysdal, Hubert, A43 (4628) 528 se Delaware (Buffalo)

U

Uglem, Milton, AU, 4074 w Broadway, Robbinsdale, Hy 6809
 Ulvestad, Helen M, AU (4954) 2204 Humboldt av s, Ke 0499
 Upton, Walter, A43 (2727) 4405 Lyndale av s, Lo 8275

V

Van Camp, Marguerite, AU (11003) 1018 se 4th, Ge 1590 (Moose Lake)
 Vanderschaegen, Grace L, A43 (4699) 501 se Beacon, Ma 8177 (Savage)
 Van Ryzin, Paul D, IT41 (2816) 623 14th av se, Gl 7739 (Duluth)
 Van Valkenburg, Robert, Ag43 (UF1871) 245 Upton av s, Ke 4446
 Vaurio, Arvo E, Gr, 613 12th av se, Ma 5945 (Chisholm)
 Villaume, Julie A, A41 (4468) 172 Prospect ter, St P, Ri 0849
 Vinnard, Wanyce C, PHN41 (11788) Powell Hall, Ma 8177 (Sioux Fall, S D)
 Voss, Vearn, G40 (4695) (Wyoming)

W

- Wagner, Paul A, AU, 1316 se 4th (Canby)
 Wahl, David, A43 (4705) 224 se Walnut, Gl 3557 (Cambridge)
 Wakefield, Olaf, Gr (4419) 512 se Delaware, Gl 1273 (Arlington, Va)
 Walhaug, Selmer, Gr (4546) 1320 se 7th, Gl 2952 (Oklee)
 Walstad, Joseph L, A43 (4658) 4105 22nd av s, Dr 9187
 Walter, Patricia A, A43 (10479) 5133 Oliver av s, Wa 0777
 Walz, William, EdPG (4506) 1720 se 4th, Gl 2257 (Perham)
 Warmbold, Lottie K, EdU, 2843 36th av s, Du 7110
 Warpeha, Frank, Jr, G41 (4975) 1579 ne Madison, Gr 2067
 Weander, Frances, PHNU (3291) 1111 se 4th (Sioux City, Ia)
 Webster, Belle, A40 (4661) 3505 Colfax av s, Lo 7669
 Wegner, Lorraine, A43 (4657) 1316 ne Adams, Gr 4645
 Weinberg, Albert IT41 (3300) 1332 Knox av n, Hy 6452
 Weir, Theodore S, Gr, 2225 Knapp, St P, Mi 1908
 Wenstrom, Elaine L, A42 (3248) 408 13th av se (St James)
 Wentz, Walter W, EdU, 20 Oliver av s, Ke 3798
 Weom, Burnice A, AU (9889) 5005 17th av s, Du 2972 (Houston)
 West, James, Md40 (4798) 941 14th av se (Buffalo)
 West, Robert D, A42 (4522) 2232 Langford, St P, Mi 1949
 Westburg, Aluryn, A43 (491) 2117 e 36th, Du 1116
 Westman, Ruth E, Ag43 (UF82) 408 13th av se (St James)
 Whalen, Katherine W, Ag43 (UF79) 1700 se 4th, Gl 2448 (Stillwater)
 Wheeler, Irvn, A42 (3316) 1502 Laurel av (Rich Valley)
 Whitcraft, Ruth, PHN42 (2744) 1402 Dupont av n, Ch 1163
 White, Anne T, AU (5821) 767 Goodrich, St P, Da 2825
 White, Charles E, IT41 (1995) 2077 Commonwealth av, St P, Ne 1635
 White, Frederick A, Gr (Prescott, Wis)
 White, Jean D, AU, 616 Summit av, St P, El 6661
 White, John A, IT40 (1992) 1426 Raymond av, Mi 4624
 Wiik, Edward M, Gr, 4732 16th av s, Dr 0057
 Wikoft, Howard, Md40 (4799) 515 se Oak, Gl 5657
 Wilcox, John W, G41 (12952) 2500 Emerson av s, Ke 8287
 Wilcox, Robert G, Ed41 (4521) 1226½ se 5th, Gl 9984 (Houston)
 Wilcox, William C, AU (4556) 2825 Cedar Lake blvd, Ke 9395
 Wilhelm, John, A42 (4549) 1629 se 6th, Gl 9882 (Washburn, Wis)
 Williams, John N, G41 (13674) 4134 Yates av, Robbinsdale, Hy 4894
 Williams, S Weldon, Ag43 (UF1891) 5029 Newton av s, Wa 1447
 Williams, Virgil, A40 (4529) 711 Washington av se, Gl 2278 (Albert Lea)
 Wilson, Duane A, Ag43 (UF1752) 2012 Como av w, St P, Ne 3483 (Pipestone)
 Wilson, Fletcher A, AU (6527) 4841 13th av s, Lo 9866
 Wilson, G Curtis, A42 (4489) Hyland Sta, Rt 7, Ke 4486R
 Wilson, John F, Gr (4802) Mpls Gen Hosp, At 1178 (Philadelphia, Pa)
 Wilson, John N, Gr (4358) Excelsior, Rt 3
 Winbeck, L Peggy, A43 (3287) 2117 2nd av s, Br 8273
 Winkler, Lucile M, AU (10076) South St Paul (Buffalo, N Y)
 Winter, Hugh, AU (3266) 3246 Humboldt av s, Lo 3462
 Wirth, Harvey E, Gr (3263) (Milwaukee, Wis)
 Wolff, Richard P, IT43 (4688) 2176 Wellesley av, St P, De 3945
 Wolgamot, Hubert S, B41 (4693) 711 Washington av se, Gl 2278 (Albert Lea)
 Wolinski, Frank W, Ed43 (2623) 208 34th av n, Hy 9808
 Wood, Irene, AU, 625 19th av s, At 0991
 Wood, Wilbur, Md40, 525 11th av se, Gl 5585 (Mankato)
 Woodward, Aileen D, AU (9707) 1325 LaSalle av, Ma 4381
 Wright, Fred E, G41 (2809) 528 se Delaware (Buffalo)

Y

- Yaeger, Dorothy D, A42 (3307) 2410 Fremont av s, Ke 5598
 Youngquist, John, A42 (4834) 1809 Fremont av s, Ke 4222

Z

- Zabel, Robert A, Gr 4818) 1317 se 6th, Gl 2708 (Plainview)
 Zagarian, James, Md40 (4797) 655 DeSota, St P To 2176
 Zaun, Jacob, Ed40 (4655) 1557 Goodrich av, St P, Em 3259
 Ziebarth, Victor W, Gr, 2125 Girard av n (Pine City)
 Ziemer, Royal, EdU (4745) 1420 ne 3rd, Gr 3450
 Zietlow, Richard G, Gr (UF) 1322 Thomas, St P
 Zimmerman, Harold, IT42 (4611) 616 se Beacon
 Zimmerman, John L, EdU (4547) 482 n Annapolis, St P
 Zinco, Josephine C, PHN (4653) (Madison, Wis)
 Zwar, Frederick W, IT43 (13544) 327 Maple, St P, To 9476
 Zwaska, Edward, A42 (3061)

STUDENTS WHOSE HOME ADDRESSES ARE OUTSIDE
THE UNITED STATES

- Bayre, Alfred, Gr (4883) 1212 Raymond av, St P, Mi 3306 (Canada)
 Bellan, Alexander L, Gr (5011) 1076 14th av se, Gl 3128 (Canada)
 Berrettoni, Julio N, Gr, Pioneer Hall, Ma 8177 (Canada)
 Brown, Gerald S, Gr, Pioneer Hall, Ma 8177 (Canada)
 Chang, Yien-Tang, Gr (4887) 317 se Oak, Gl 3776 (China)
 Chen, Shan Ming, Gr (4890) 1421 Cleveland av, St P (China)
 Cowan, J Ritchie, Gr (UF Pl Genetics) 1305 Raymond av, St P, Mi 9615 (Canada)
 Cowdry, Edmund W, B40 (5021) 1625 University av se, Gl 5943 (Canada)
 Crossley, Desmond I, Gr, 2293½ Langford av, St P, Mi 1796 (Canada)
 Erten, Mehmet H, IT43 (4370) 204 Franklin av w (Turkey)
 Fiskin, Abram M, Gr, 515 se 5th, Gl 2035 (Canada)
 Floyd, Clare D, Gr (4943) 1399 Raymond av, St P, Mi 3806 (Canada)
 Folinsbee, Robert E, Gr, 951 17th av se, Gl 7432 (Canada)
 Foster, Ruth A, Gr, 519 se Beacon, Ma 8177 (Canada)
 Galeno, Lorenzo S, Gr (5012) 1705 James av s, Ke 2621 (Philippine Islands)
 Gilbertson, Wallace, IT43 (4519) 1419 se 5th (Canada)
 Gjerdsjo, Ottar, Gr (4947) 500 15th av se (Norway)
 Hutchings, Ernest F, Jr, AU (5911) 1829 University av se, Gl 7903 (Canada)
 Milner, Max, Gr (4585) 317 se Oak, Gl 3776 (Canada)
 Ramsay, Robert M, Gr, Miller Hospital, St P, Ce 8421 (Canada)
 Shen, Ting, Gr (China)

✓

The Bulletin of the
UNIVERSITY of MINNESOTA

School of Business Administration
Announcement of Courses for the Years
1940-1942



Volume XLIII, Number 5

January 20, 1940

*Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota.
Accepted for mailing at special rate of postage provided for in Section 1103, Act of
October 3, 1917, authorized July 12, 1918*

SCHOOL OF BUSINESS ADMINISTRATION

ADMINISTRATION

Guy S. Ford, Ph.D., LL.D., Litt.D., L.H.D., President
Russell A. Stevenson, Ph.D., Dean of the School of Business Administration
John J. Reighard, M.A., C.P.A., Assistant Dean of the School of Business Administration
Rodney M. West, B.A. Registrar of the University and Secretary of the School of Business Administration
Bruce D. Mudgett, Ph.D., Chairman of the Graduate Committee
Harry J. Ostlund, B.A., Chairman of the Students' Work Committee
J. Warren Stehman, Ph.D., Chairman of the Curriculum Committee

FACULTY

Roy G. Blakey, Ph.D., Professor of Economics
Darrell H. Davis, Ph.D., Professor of Geography
Austin A. Dowell, Ph.D., Professor of Agricultural Economics
George Filipetti, Ph.D., Professor of Economics and Business Administration
Frederic B. Garver, Ph.D., Professor of Economics
William L. Hart, Ph.D., Professor of Mathematics
Herbert Heaton, M.A., M.Com., Litt.D., Professor of Economic History
Ernest A. Heilman, Ph.D., Professor of Accounting
Oscar B. Jesness, Ph.D., Professor of Agricultural Economics
Charles A. Koepke, M.S. (M.E.), Professor of Mechanical Engineering
Arthur W. Marget, Ph.D., Professor of Economics and Finance
Bruce D. Mudgett, Ph.D., Professor of Economics and Statistics
Donald G. Paterson, M.A., Professor of Psychology
John J. Reighard, M.A., C.P.A., Professor of Accounting
J. Warren Stehman, Ph.D., Professor of Economics and Finance
Russell A. Stevenson, Ph.D., Professor of Economics and Accounting
Roland S. Vaile, M.A., Professor of Economics and Marketing
Warren C. Waite, Ph.D., Professor of Agricultural Economics
Dale Yoder, Ph.D., Professor of Economics and Industrial Relations
Eugen Altschul, Ph.D., Visiting Professor of Economics
Arthur M. Borak, Ph.D., Associate Professor of Economics
Richard Hartshorne, Ph.D., Associate Professor of Geography
Richard L. Kozelka, Ph.D., Associate Professor of Economics and Statistics
Harry J. Ostlund, B.A., Associate Professor of Accounting
Clare L. Rotzel, B.C.S., C.P.A., Associate Professor of Accounting
Emerson P. Schmidt, Ph.D., Associate Professor of Economics
Arthur R. Upgren, Ph.D., Associate Professor of Economics
A. Hamilton Chute, Ph.D., Assistant Professor of Marketing
Alfred B. Cummins, M.S. in M.E., J.D., Assistant Professor of Economics and Business Administration
Ernestine C. Donaldson, M.A., Assistant Professor of Secretarial Training

Howard P. Longstaff, Ph.D., Assistant Professor of Psychology
Walter R. Myers, Ph.D., Assistant Professor of Economics and Finance
George J. Stigler, Ph.D., Assistant Professor of Economics
Francis M. Boddy, Ph.D., Lecturer in Economics
Franklin D. Gray, B.A., B.C.L., Lecturer in Business Law
Benjamin W. Palmer, M.A., LL.B., Lecturer in Business Law
Victor G. Pickett, B.S., Lecturer in Economics
Marshman Wattson, B.A., LL.B., Lecturer in Business Law
Helen G. Canoyer, M.A., Instructor in Economics and Marketing
Frank E. Childs, M.A., Instructor in Economics
Raymond C. Dein, M.A., Instructor in Accounting
Lawrence S. Dreiman, M.A., Instructor in Economics
Richard K. Gaumnitz, M.A., Instructor in Statistics
Richard A. Graves, M.A., Instructor in Economics and Insurance
Alexander L. Hart, M.A., Instructor in Economics
Albert Henwood, M.A., Instructor in Accounting
Agnes J. Kean, M.A., Instructor in Secretarial Training
John K. Langum, M.A., Instructor in Economics
Charles E. Lindblom, B.A., Instructor in Economics
Reuel I. Lund, M.A., C.P.A., Instructor in Economics and Accounting
Laurence R. Lunden, B.A., Instructor in Economics, Investment Counsel,
and Editor of the *Financial and Investment Review*
Herbert E. Miller, M.A., Instructor in Accounting
Clarence A. Nelson, B.B.A. Instructor in Accounting
Edmund A. Nightingale, M.A., Instructor in Economics and Transportation
John A. Nordin, M.A., Instructor in Economics
Floyd R. Simpson, M.A., Instructor in Economics
Merton P. Stoltz, M.A., Instructor in Economics
Clarence W. Tow, M.A., Instructor in Economics
Henry H. Villard, B.A., Instructor in Economics
Emanuel W. T. Weiler, M.A., Instructor in Economics
Paul Wiers, M.A., Instructor in Economics
Nina L. Youngs, B.A., Instructor in Accounting
James E. Dugan, M.A., Teaching Assistant in Economics
Wilfred C. Leland, B.A., Teaching Assistant in Economics
Elizabeth M. Lohren, B.B.A., Teaching Assistant in Secretarial Training
Edward J. Peterson, B.B.A., Teaching Assistant in Accounting
Clifford R. Pruefer, M.A., Teaching Assistant in Economics
Clifford N. Sellie, B.A., Teaching Assistant in Accounting

Sch. of Bus. Ad.

1940-42

GENERAL INFORMATION

ESTABLISHMENT

The School of Business Administration was officially established by vote of the Board of Regents of the University at a meeting held on June 18, 1919. This action was taken in recognition of the need for training in business comparable to that in law, engineering, and the other professions. Some courses in business had been offered as a part of the general program in economics. It had become evident, however, that a curriculum with a professional objective was essential. The establishment of such a school had been recommended by business organizations, firms, and individuals in the state. Their advice and co-operation from the start have aided greatly in placing the school upon a high professional level.

PURPOSE

It is the aim of the School of Business Administration to afford thorough training to those preparing to enter business in positions of responsibility. The school offers instruction of professional grade in the basic principles of management. It also affords an opportunity for more intensive training in certain specialized fields such as accounting, advertising, banking, foreign trade, personnel management, merchandising, traffic and transportation, secretarial training, statistics, insurance, industrial administration, department store training, and office management.

The federal and state governments afford many opportunities for specialists in these fields. Such government agencies as the Securities and Exchange Commission, the Interstate Commerce Commission, the Bureau of Internal Revenue, the several state public utility commissions, and other regulatory bodies require specialists in the several fields of business administration.

In order to insure a broad training in basic principles, a considerable part of the work consists of required courses in the major phases of management. All students are expected to secure a sufficient acquaintance with the problems of production, marketing, finance, and personnel administration to enable them to view management in its broader aspects. The remainder of the work is devoted to more intensive studies in certain specialized lines of business for which the student has demonstrated particular aptitude.

Business is becoming more dependent upon the use of scientific methods in the solution of problems which have developed as a result of recent trends in industry and commerce. The further development in large-scale administration which is likely to occur in the future will increase the importance of the technical equipment of the manager in his scientific approach to business problems. Accounting and statistics constitute the basic tools of the quantitative measurements essential to the analysis of these business problems. These subjects, therefore, are given a prominent place in the curriculum.

It is essential for a student to have obtained a substantial training in other fields of study, particularly in economics. Supplementary courses in

other social sciences are required in order that the student may have a clear understanding of the relationship of business to the more general interests of the community. The school aims to include with its professional training a well-rounded university education.

Every modern business unit conducts its operations in a complex, but organized, business and economic world. Its contacts with the legal, financial, banking, transportation, governmental, and labor institutions with which it must deal call for a special understanding of the organization of these fields in their relation to the business enterprise. This need is met by a special group of courses required in each sequence in the School of Business Administration. This core group, comprising courses in business law, corporation finance, money and banking, transportation, public finance, public utilities, advanced accounting, business statistics, production management, labor problems, and economics, forms the nucleus around which the various sequences are built and constitutes the foundation for the specialized professional training in business administration which the school provides.

LOCATION AND EQUIPMENT

The University of Minnesota is well situated with respect to education for business. With the business districts of the Twin Cities on either side, the opportunities for observing business processes and for effective field work and research are unsurpassed. The cordial support of business organizations in the Twin Cities is a large factor in making the resources of the metropolitan district available for developing and presenting subject-matter in every field of study covered. Equally valuable is the support of business men throughout the state. The close contact which members of the faculty have with the business of the Northwest greatly enhances the opportunities that students in the School of Business Administration enjoy. Co-operation with the College of Agriculture, Forestry, and Home Economics brings the School of Business Administration in contact with the agricultural background of many business problems. This co-operation is especially exemplified in the joint provision in the two schools for work in agricultural economics. Co-operation with Engineering, Law, and various departments of the College of Science, Literature, and the Arts is also an important factor in bringing many viewpoints to bear upon the business problems with which the student has to deal.

The library and laboratory facilities of the University contribute effectively to the success of the work which the School of Business Administration is undertaking.

LABORATORY TRAINING ON THE CO-OPERATIVE PLAN

Arrangements have been made for a limited number of students to secure laboratory experience in business establishments. Under the co-operative plan, students are employed for definite periods of time during their university course. Students in the Accounting Sequence, for example, are placed in the offices of certified public accountants during the winter term of the senior year. They are taken on by the accounting firms as regular employees

during that period, and are paid salaries in accordance with the class of work performed. The work done by these students covers a considerable part of the general practice of an accounting firm including general auditing, income tax procedure, and the preparation of accounting reports. The students return to the University at the beginning of the spring term and complete their course by the end of the following summer term.

A somewhat similar arrangement has been effected for training in the department store field and in some other types of business. Students are given an opportunity in each of these positions to work in several departments in order to gain a knowledge of the business as a whole. A system of routing has been worked out in each case which enables the student to learn the details of business practice. Experience gained from these cooperative positions supplements the training in principles obtained in the classroom. It affords a form of laboratory work under actual business conditions which could not be duplicated on the campus.

ADMISSION

For admission to the school, a student must have satisfied the requirements of one of the two-year prebusiness courses, either in the College of Science, Literature, and the Arts, the College of Agriculture, Forestry, and Home Economics, or the Institute of Technology.

Students entering from other colleges and universities of recognized standing are admitted with the consent of the dean, provided the credits which are presented for admission and approved are substantially equivalent to those of the prebusiness sequences of the University. Provision is made for satisfying deficiencies in certain required courses in accounting, statistics, and money and banking when applicants for admission have not had these courses. In general ninety credit hours are a necessary minimum for admission.

SPECIAL STUDENTS

High school graduates who have reached the age of twenty-four and can furnish evidence that they have had business experience in an executive capacity may be admitted as special students. If later they decide to become candidates for a degree they must complete the requirements for admission.

STUDENTS IN OTHER SCHOOLS OR COLLEGES OF THE UNIVERSITY

Regularly enrolled students in other schools or colleges of the University may be admitted to such courses in the school as are authorized by the faculties of the School of Business Administration and the school or college concerned. Such students are urged to select their business subjects in accordance with a definite plan, and as far as possible to complete a systematic course of business study.

Registration in courses in Business Administration is not open to students of other schools or colleges of the University without special permission, except for those courses which are announced in the bulletin of the school or college concerned.

ADVANCED STANDING

Appropriate credit may be given for work of a similar character done in other approved colleges and universities, but no student may become a candidate for a degree who has not completed the senior year under the faculty of the School of Business Administration.

CREDITS

Requirements for graduation are expressed in credit hours, indicating amount of work done, and in honor points, indicating grade of work. Honor points are computed as follows: Each credit hour with the grade of A carries three honor points; each credit hour with the grade of B, two honor points; each credit hour with the grade of C, one honor point. The grade of D carries no honor points and for a grade of F, or failure, one honor point for each credit hour is subtracted from the total earned.

The grade of E (Condition) in Economics and Business Administration courses may be removed only by taking the regular condition examination. A student receiving an E should consult the Condition Examination Schedule. The grade of I (Incomplete) indicates that some of the requirements of the course have not been satisfied. The student should consult the instructor in the course at the opening of his next quarter in residence and the I (Incomplete) must be removed within thirty days after the opening of the quarter or it automatically lapses into an E. If, in turn, an E is not removed by taking the regular condition examination during the next quarter when the student is in residence, the grade automatically lapses into an F.

The number of credits that may be earned by correspondence study toward the B.B.A. degree is limited to nine. For work carried in the Correspondence Study Department a student will be granted "transfer" credit in the School of Business Administration, i.e., in the transfer of credits for application toward the B.B.A. degree surplus honor points will not be considered.

STUDENTS' WORK COMMITTEE

Students who fail to earn the same number of honor points as credits are failing to make progress toward a degree and are considered as showing unsatisfactory scholarship. The Students' Work Committee co-operates in advising all such students and adjusting the program of work in each case. If these measures are not effective in improving the quality of scholarship, the committee may require the student to withdraw his registration even though he may be receiving passing grades. It is expected that students will meet the requirements imposed with the same professional spirit and measure of precision demanded in well-regulated business houses, and students who fail to come up to this standard will not be recommended for the degree.

No regular student will be permitted to elect more than seventeen hours of work in any one quarter unless he receives special permission by petition to the Students' Work Committee.

MILITARY SCIENCE AND TACTICS

Students who have completed the Basic Course, R.O.T.C., may be selected for advanced work by the professor of military science and tactics. Those who pursue the Advanced Course are required to sign an agreement with the Government to continue the two years' course to completion. This includes attendance at a training camp, held normally during the summer following the first year's advanced work. The camp is conducted free of cost to the student, and in addition, while actually in camp, the student receives the pay prescribed for the seventh grade in the army. Students pursuing the Advanced Course are also furnished a regulation uniform and receive a fixed allowance per day. The total government compensation for the two years' advanced work amounts to something over \$200. Students who satisfactorily complete the Advanced Course will be commissioned in the Officers' Reserve Corps of the Army of the United States. This course carries eighteen credits without additional credit for honor points.

NAVAL SCIENCE AND TACTICS

Courses in naval science and tactics are given for those who intend to complete the four years of training for a commission in the Naval Reserve. Only students signifying such a purpose will be accepted.

Naval Science I and II with Navigation comprise the Basic Course in training. Naval Science III and IV, or IIIa and IVa, plus any uncompleted navigation, comprise the Advanced Course. A student who has completed the Basic Course is admitted to the Advanced Course upon the approval of his application by the professor of naval science and tactics, and upon his agreement to complete the course and take an Advanced Course cruise before his graduation, and upon passing a prescribed physical examination.

The Navy Department pays monthly commutation of subsistence to juniors and seniors who maintain a satisfactory standing and attendance. This, with cruise pay, amounts to about one hundred seventy-five dollars (\$175) for the two years.

N.R.O.T.C. practice cruises will be held annually as prescribed by the Navy Department. Attendance at one Advanced Course cruise is required of all students enrolled in the Advanced Course. Basic Course students may be authorized to take cruises, and while doing so will receive subsistence but no pay. All N.R.O.T.C. students attending cruises are furnished transportation and subsistence by the United States Government.

Those who complete the Advanced Course, if recommended, will, on their application, be appointed as ensigns in the Volunteer Reserve without professional entrance examinations.

REGISTRATION

Before any student may register in the School of Business Administration a complete record of his college work must be approved by the dean's office. The procedure is as follows:

Students transferring from other colleges of the University.—Each prebusiness sophomore should fill out a "Notice of Change of College" form

at the general information window in the registrar's office during his last quarter in the Junior College. The registrar will then send a transcript of his work to the office of the dean of the School of Business Administration and will notify the student as to his status after the grades for the quarter have been recorded.

Students transferring from other institutions.—Each student must submit a transcript of his work done in the other institution to the university examiner. One copy of the "Record of Advanced Standing" will then be sent by the registrar to the office of the dean of the School of Business Administration and another will be sent to the student informing him of his status in the school.

ADVISERS

Upon entering the school each student is assigned to a member of the staff who will act as his adviser throughout his two years. All registrations and changes of registration must receive the approval of this major adviser. Likewise any courses carried in the Extension Division, either in evening classes or by correspondence study, must be approved by the adviser in advance of registration and such approval made a matter of record by petition. Only such courses as have been thus approved may be applied toward a B.B.A. degree.

The student is urged to consult with his adviser on any problems concerning his courses or future plans. It is desirable for him to become well acquainted with his adviser so that recommendations for placement opportunities that may arise either preceding or following graduation may be made on a more personal basis.

DEGREES

Bachelor of Business Administration

Candidates who have met the conditions for entrance, having satisfactorily completed the work covered in one of the prebusiness courses at the University of Minnesota, should normally be able to qualify for the degree of bachelor of business administration at the end of two full academic years of study in the school.

This period of time may be shortened by not more than one academic quarter by the granting of quality credits (maximum, fifteen credits), that is, for each five honor points in excess of one honor point per credit hour, a quality credit will be granted as applicable to the number of credit hours required for the degree. Quality credits earned while the student is enrolled in the School of Business Administration serve to replace elective credit hours but may not be applied as credit hours in required core group or sequence courses.

The degree of bachelor of business administration is conferred on students who have been granted a minimum of ninety credits in the School of Business Administration with at least one honor point per credit. The candidate must have completed the required courses set forth in some one of the various sequences.

GRADUATION HONORS

The degree of bachelor of business administration "with distinction" is awarded to any student who has maintained a scholarship record of at least two honor points per credit in the curriculum of the school, as well as in all prebusiness work, and who in addition has either (1) submitted a thesis on a topic in business administration or economics showing unusual attainment, or (2) satisfied a faculty committee in an oral examination that he possesses unusual ability and originality. A candidate for graduation honors must meet the scholastic requirements at the time that he gives notice of his candidacy, which must be not later than the beginning of the second quarter prior to graduation. At the time of the application the candidate must have completed at least three fourths of the work in his curriculum, one quarter of which must be in residence at the University of Minnesota. The question of whether a candidate will be permitted to elect an examination or a thesis in order to qualify for graduation honors will be determined by the student's adviser and the dean of the school. If a thesis is elected it must be submitted in final form not later than four weeks before graduation.

Master of Business Administration

Students who are interested in professional business training following the obtaining of the Bachelor's degree may become candidates for the degree, master of business administration. Those who hold the degree of B.B.A. may normally expect to complete the work in one year, while those who hold a B.A. or B.S. degree would normally require longer, but usually not to exceed two years.

Prerequisites.—Candidates must meet the prebusiness requirements of the School of Business Administration in principles of economics, accounting, and statistics. Certain courses in other departments are required for the different specialized sequences. For a list of these courses see page 16 (5). Preparation in these prebusiness fields may have been completed in the undergraduate work, or it may be accomplished after entrance on the advanced program by taking the appropriate courses.

Candidates who have not taken the core group courses required for the degree of B.B.A. must do so in preparation for the degree of M.B.A. See page 19 for the list of core group courses.

Course requirements.—Candidates for the M.B.A. degree must meet the general regulations of the Graduate School. The specific requirements may be met in one of two ways:

A.—By completion of twenty-seven quarter credits in courses numbered above 100 together with a Master's degree thesis; or

B.—By the completion of forty-five credits including no fewer than nine credits in seminars or in independent work under the direction of an instructor, in courses giving graduate credit. Under this plan a thesis is not required. Each candidate will be expected, however, to carry on especially intensive work in some one field of business administration. He will be referred to an adviser to guide his specialization.

Comprehensive examination.—All candidates will be required to pass written and oral examinations in the fields covered by the core group courses and the field of specialization.

FEES

Tuition fees (per quarter)	
Residents of Minnesota	\$30.00
Nonresidents	45.00
Credit hour tuition fee (unclassified students, auditors, and others carrying less than full work)	
Residents of Minnesota	2.75
Nonresidents	4.25
Incidental fee (per quarter)	8.50
Matriculation deposit‡ (first quarter only)	
Men	15.00
Women	5.00
Special fees	
Secretarial Training*	2.50
Statistical and Accounting Laboratory†	1.00
Examination for removal of condition	1.00
Examination for credit (after the first 6 weeks in residence)	5.00
Special examination	5.00
Chemistry deposit	5.00
Graduation fee	7.50

Late Fees

The fee for the privilege of late registration or late payment of fees shall be \$2 prior to the day classes begin, on and after which the fee increases at the rate of \$1 per day, provided no student shall pay more than \$10 in fees for late privileges in any given quarter. The fee for late change of registration is \$2.

LIVING EXPENSES

For information concerning living expenses, students are referred to the Bulletin of General Information.

The School of Business Administration does not encourage students to enter entirely without funds. The intensive work required in the school will make it highly desirable for a person to devote all of his time and energy to his studies.

EMPLOYMENT OF STUDENTS AND GRADUATES

An effort is made to find positions for those students and graduates who have made good scholastic records. Every year a number of representatives of large business organizations visit the school for the purpose of interviewing seniors for possible placement in their companies following graduation. Provision is made for the students to interview these representatives and the school attempts to assist in every way possible in the actual placement work.

The school frequently receives requests for placements of its alumni. Graduates are urged to register at the dean's office and to keep that office

* Required of all students who register for one or more of the following courses: Economics 32, 33, 34, 37, 38, 39, 40, 41, 42.

† Charged for each of the following courses: B.A. 112, 139, 150, 151.

‡ Such charges as may be incurred for lockers, library penalties, laboratory breakage, etc., will be deducted from the amount of this deposit and the balance will be refunded by mail upon graduation or after the beginning of the first quarter the student fails to return to the University.

informed as to their correct addresses if they wish to be considered for any employment opportunities that arise. Communications concerning employment should be addressed to the School of Business Administration.

STUDENT ORGANIZATIONS

Associated Students of Business Administration

All activities and interests of the students are centralized in an organization known as the Associated Students of Business Administration. This organization includes all students registered in this school and functions actively through a board of directors which represents the general student body. The board supervises school elections, and student social activities including the annual School of Business Administration banquet.

Beta Gamma Sigma

A chapter of the national honorary business fraternity, Beta Gamma Sigma, is located at the University. Members are selected on the basis of scholarship. Students (both men and women) who have completed two terms' work in the school are eligible. Elections are held in the fall and spring quarters each year. Total membership is limited to 10 per cent of the seniors and 2 per cent of the juniors enrolled in the school.

Beta Alpha Psi

Beta Alpha Psi, national accounting fraternity, has a chapter at the University of Minnesota. Its elections are held semiannually. Selection of members is based on scholarship in accounting and special interest in this field. To be eligible, students must have completed at least two courses in advanced accounting.

University Business Women's Club

This is an organization of business, prebusiness, and commercial education women. Its purposes are to form direct contacts with business problems and to bring together in a social way university women interested in business.

LOAN FUNDS

American Bankers' Association Loan Scholarship

The American Bankers' Association has allocated two loan scholarships of \$250 each to the University of Minnesota. These loan scholarships are available to students majoring in banking and finance. Applications are made to a committee on which there is representation from the Bankers' Association.

Beta Gamma Sigma Loan Fund

The national organization of Beta Gamma Sigma allots funds for loans to students who have maintained high scholastic records in the School of Business Administration. Applications for loans from this fund should be made in the regular manner through the office of the dean of student affairs.

Wayne E. Butterbaugh Scholarship Memorial Loan Fund

It is the purpose of this fund to contribute to the development of scholastic work in the field of traffic management and the funds are available to students who have indicated a special interest in this field. Loans are made in accordance with the general university regulations.

F. D. Lindquist Loan Fund

The sum of \$500 is available as a loan to students in the School of Business Administration in need of financial assistance.

Minneapolis Women's Advertising Club Scholarship Loan Fund

The funds were obtained through lecture courses conducted by the Minneapolis Women's Advertising Club in co-operation with the University Business Women's Club. The loan scholarships, which are restricted to senior women in the School of Business Administration, are awarded in the spring of the junior year to cover the expenses of the senior year. All awards are made on the basis of scholarship, character, and need.

SCHOLARSHIPS AND AWARDS

Minneapolis Women's Advertising Club Scholarship

The Minneapolis Women's Advertising Club awards a scholarship of \$50 annually to the senior woman in the School of Business Administration who has maintained the highest scholastic average throughout her junior year and two quarters of her senior year. The award is made during the spring quarter by a committee headed by the dean of the school and announcement of it is made on the annual Cap and Gown Day. All women who have been graduated during the preceding academic year are considered for the award.

Alpha Kappa Psi Tablet

A tablet was presented to the school in 1926 by the professional commerce fraternity, Alpha Kappa Psi, which maintains a chapter at the University. This tablet is placed in a prominent position in the corridors of the School of Business Administration Building. According to the terms of the gift, each year the names of the three senior students who have contributed the most to the promotion of the interests of the School of Business Administration are to be inscribed on the tablet. The committee of award consists of three faculty members to be selected by the dean, a representative from each of the professional fraternities, a representative of the University Business Women's Club, and one student chosen from the general student body by the other student members of the committee.

University Business Women's Club Scholarship Key

The University Business Women's Club each year awards a key to the woman in the School of Business Administration who has maintained the highest scholastic average over her four-year college course. In case of

students transferred from other institutions, only course work carried at the University of Minnesota will be considered in computing the scholastic average. The announcement of this award is made on Cap and Gown Day. All women who have received their degrees during the preceding academic year are considered for the award.

Delta Sigma Pi Key

A key is awarded each year to the man who has maintained the highest average in scholarship during his entire four-year course. This key is presented by the professional commerce fraternity, Delta Sigma Pi, which maintains a chapter at the University. The announcement of this award is made on Cap and Gown Day. All men receiving their degrees during the preceding academic year are considered for the award.

Alpha Kappa Psi Scholarship Medallion

A bronze medallion, which is presented by the local chapter of Alpha Kappa Psi, is awarded annually in the spring quarter to the junior man in the School of Business Administration who has maintained the highest scholastic standing throughout his junior year. The announcement of the award is made on Cap and Gown Day.

Phi Delta Junior Scholarship Award

A gold bracelet is awarded each year by Phi Delta, professional business sorority, to the junior woman in the School of Business Administration who has maintained the highest scholastic average throughout the first two quarters of her junior year. Announcement of the award is made on Cap and Gown Day.

William A. Paton Award in Accounting

A medal signifying unusual accomplishments in the field of accounting is awarded from time to time to students or alumni of the school. This award is made possible through the generosity of Professor William A. Paton.

COURSES OF STUDY

GENERAL REQUIREMENTS

I. To be eligible for admission to the School of Business Administration, the student must present ninety (90) credits, in addition to credits given for physical education, earned in a recognized college or university with one honor point per credit or a smaller number of earned credits which, together with quality credits, will total a minimum of ninety (90). One quality credit is granted for every five honor points in excess of one honor point per credit.

Quality credits earned in the Junior College may be applied only toward the ninety credits required for admission to the School of Business Administration. In other words, a student who has a surplus of honor points above the number required to complete ninety credits may not apply these for credit in the School of Business Administration. Any excess credits, however, other than quality credits, may be applied toward electives in the School of Business Administration.

The requirements for admission are as follows:

1. Freshman Composition (Comp. 4-5-6), Freshman English (Eng. A-B-C), or exemption from requirement.
2. Nine credits in mathematics or *one* of the following laboratory sciences: botany, chemistry, geology, physics, or zoology.
3. Nine credits in *one* of the following social sciences: geography, history, political science, or sociology.*
4. Ten credits in Principles of Economics (Econ. 6-7).
5. Sufficient electives to complete the minimum of ninety (90) credits required for admission. The following courses should, if possible, be taken during the first two years, for most of them are prerequisites to certain courses in the core group:
 - Introduction to Economics (Econ. 1)
 - Elements of Money and Banking (Econ. 3)
 - Elements of Statistics (Econ. 5)§
 - Elements of Accounting (Econ. 20)¶
 - Principles of Accounting (Econ. 25-26)

Students who do not elect the above courses during the freshman and sophomore years will be required during the first quarter in residence in the School of Business Administration to take

- Money and Banking (B.A. 57)
- Statistics Survey (B.A. 70)
- Elementary Accounting: Combined Course (B.A. 54-55)

In addition certain courses are required in special sequences in the school. These course prerequisites should be included in the Junior College program wherever possible.

The major sequences and special course prerequisites are as follows:

1. Accounting: Mathematics of Investment (Math. 20), (prereq. Math. 8)
2. Advertising: General Psychology (Psy. 1-2)
3. Foreign Trade: General Psychology (Psy. 1-2); 9 credits in political science; reading knowledge of a foreign language

* Social Statistics (Soc. 45) not accepted in fulfillment of this requirement.

§ Credit not granted in Econ. 5 to students who have had Social Statistics (Soc. 45).

¶ Students who have had a high school course or experience in bookkeeping will be admitted to Econ. 25 by passing a placement test. For other students Elements of Accounting (Econ. 20) is a prerequisite to Econ. 25.

4. Finance: Mathematics of Investment (Math. 20), (prereq. Math. 8)
5. Industrial Administration: (See Bulletin of the Institute of Technology)
6. Insurance: General Psychology (Psy. 1-2); Mathematics of Investment (Math. 20), (prereq. Math. 8)
7. Merchandising: General Psychology (Psy. 1-2)
8. Personnel Management: General Psychology (Psy. 1-2)
9. Secretarial Training: General Psychology (Psy. 1-2); Secretarial Training: Typewriting (Econ. 32-33)‡
10. Statistics: Trigonometry (Math. 6); College Algebra (Math. 8)
11. Department Store Training: General Psychology (Psy. 1-2); Secretarial Training: Typewriting (Econ. 32-33)‡
12. Office Management: General Psychology (Psy. 1-2); Secretarial Training: Typewriting (Econ. 32-33)‡

II. Students who wish to prepare for some branch of business which relates to agriculture, such as marketing of farm products, farm finance, farm implements, farm real estate, country merchandising, and the like, should register for the curriculum in Agricultural Business in which the first two years are taken in the College of Agriculture, Forestry, and Home Economics.

1. Ten or twelve credits in General Inorganic Chemistry (Chem. 1-2-3)
2. Six credits in Market Livestock Production (Animal Husbandry 1-2)
3. Nine credits in Rhetoric (Rhet. 1, 2, 3)
4. Ten credits in General Botany (Bot. 1 and election from Botany 2, 5, 7, 12, 21, 22)
5. Three credits in Rural Economics (Ag. Econ. 8)
6. Five credits in Elements of Dairying (Dy. Husb. 1)
7. Three credits in Agricultural Engineering (Ag. Eng. 13, 28, 31, or 37)
8. Eight credits in Principles of Economics (Ag. Econ. 1, 2)
9. Six credits in General Zoology (Zool. 14-15)
10. Five credits in Economic Entomology (Ent. 5)
11. Three credits in General Farm Crops (Agron. 1)
12. Three credits in Elements of Accounting (Econ. 20)*
13. Six credits in Principles of Accounting (Econ. 25-26)
14. Five credits in Mathematics (Math. 1 or 8)
15. Three credits in Fruit Growing (Hort. 6) or Vegetable Growing (Hort. 32)
16. Five credits in Farm Finance (Ag. Econ. 50)
17. Six credits in Psychology (Psy. 1-2)
18. Sufficient work from the following list to make a minimum of 102 credits:
 - a. Five credits in Argumentation (Rhet. 11) or Public Speaking (Rhet. 22)
 - b. Five credits in Agricultural Physics (Ag. Eng. 24)
 - c. Five credits in Commerce Algebra (Math. 8) or applied mathematics
 - d. Five credits in General Bacteriology (Bact. 41)
 - e. Fifteen credits in Introduction to Organic and Biochemistry, and Soils (Ag. Biochem. 4, and either 5 or 6 and Soils 6)
 - f. Two credits in Mechanical Drawing (Ag. Eng. 3)

A standing of one honor point for each credit is required for admission to the School of Business Administration.

Students considering the above group of courses should consult the bulletin of courses in agriculture for further particulars. See Combined Class Schedule.

* Students who have had a high school course or experience in bookkeeping will be admitted to Econ. 25 by passing a placement test. For other students Elements of Accounting (Econ. 20) is a prerequisite to Econ. 25.

‡ A laboratory fee of \$2.50 will be required of students who register for one or more of the courses in Secretarial Training.

III. Students who expect to engage in administrative work in manufacturing industries should take their prebusiness work in the Institute of Technology. The following prescribed program* for the freshman and sophomore years must be completed prior to registration in the course in Industrial Administration in the School of Business Administration. A minimum of 97 credits, including a C average in all economics and business administration courses, is required for admission to the school for this sequence.

FRESHMAN YEAR

Fall		Winter		Spring	
	Credits		Credits		Credits
M. & M. 11 College Algebra	5	M. M. & 12 Trigonometry	5	M. & M. 13 Analytical Geometry	5
Chem. 4 General Inorganic Chemistry	4	Chem. 5 General Inorganic Chemistry	4	Chem. 16 Qualitative Chemical Analysis	5
Comp. 4 Freshman Composition	3	Comp. 5 Freshman Composition	3	Comp. 6 Freshman Composition	3
Draw. 1 Engineering Drawing	3	Draw. 2 Engineering Drawing	3	Draw. 3 Descriptive Geometry	3
M.E. 5, 8 or 11 Shop Practice	2	M.E. 5, 8 or 11 Shop Practice	2	M.E. 5, 8 or 11 Shop Practice	2
G.E. 11 Orientation	0	G.E. 12 Orientation	0	G.E. 13 Orientation	0
	17		17		18

SOPHOMORE YEAR

Fall		Winter		Spring	
	Credits		Credits		Credits
M. & M. 91 Calculus ..	4	Phys. 8 General Physics	5	M. & M. 84 Technical Mechanics	5
Phys. 7 General Physics	5	Econ. 3 Elements of Money and Banking	5	Phys. 9 General Physics	5
Econ. 8 General Economics	3	Econ. 9 General Economics	3	Econ. 5 Elements of Statistics	5
M.E. 15 Machine Shop	2	Econ. 20 Elements of Accounting	3	Econ. 25 Principles of Accounting	3
M.E. 70 Mechanical Technology	1				
	15		16		18

IV. Students may follow specially arranged five-year programs in agricultural engineering or in one of the several fields in the Institute of Technology and in the School of Business Administration. These programs are available in the following fields: aeronautical engineering, chemical engineering, chemistry, civil engineering, electrical engineering, and mechanical engineering. The combined five-year programs give full preparation for both the technical and the management phases of the selected fields and upon completion the student is granted two degrees, one conferred in his technical field, and the B.B.A. conferred by the School of Business Administration.

* See Bulletin of the Institute of Technology for description of courses.

JUNIOR AND SENIOR YEARS

The work of the junior and senior years is taken in the School of Business Administration, where stress is laid upon the adaptation of the student's curriculum to his future plans. In order to make this aim effective, every student is assigned to an adviser who makes a study of his needs and helps him to frame a program.

The programs of study summarized below will therefore be varied as each particular case dictates. In some cases the student will be advised to elect subjects in other schools and colleges of the University in order to obtain a well-rounded preparation for his prospective career.

THE CORE GROUP

The following courses constitute a core of material which should be covered by all students. In addition to these courses, there are certain required subjects in the various sequences. Unless an exception is specifically noted in connection with a sequence, all courses listed in this group will be required.

Exceptions may be made in individual cases upon petition approved by the adviser and the chairman of the Students' Work Committee.

	Credits
Business Law (B.A. 51, 52, 53).....	9
Advanced Money and Banking (B.A. 142).....	3
Advanced General Accounting (B.A. 139)†.....	3
Corporation Finance (B.A. 155).....	3
Survey in Marketing (B.A. 77).....	3
Transportation: Services and Charges I (B.A. 71).....	3
Business Statistics (B.A. 112)†.....	3
Production Management (B.A. 89).....	3
Advanced General Economics (B.A. 101-102).....	6
Labor Problems and Trade Unionism (Econ. 161).....	3
Elements of Public Finance (B.A. 58)†.....	3
Economics of Public Utilities (B.A. 165).....	3

 45

I. GENERAL BUSINESS

Advisers, Mr. Kozelka, Mr. Schmidt, Mr. Upgren, Mr. Stigler, and Mr. Graves

This sequence is recommended to those persons who desire a well-balanced training in the important fields of business education, or for those who have not decided upon a specialized field of study.

A student taking his degree in the General Business Sequence has available a considerably wider range of electives than is the case in the specialized

† Public Finance (Econ. 191-192 (6 cred.) may be substituted for Elements of Public Finance as a core group requirement.

‡ A fee of \$1 is charged for this course.

sequences. These electives offer to the student the opportunity of pursuing an interest in fields associated with his general training, in the social or natural sciences, or in the arts. It is desirable that sufficient electives be taken in a given field to familiarize the student with something more than an introductory course.

	Credits
Core group requirements	45
Sequence requirements	
Geography of Commercial Production (Geog. 41).....	5
Cost Accounting Survey (B.A. 130).....	3
Business Policy (B.A. 109).....	3
Business Cycles (Econ. 149).....	3
Electives	31
	90

II. ACCOUNTING

Advisers, Mr. Heilman, Mr. Boddy, Mr. Nelson, and Mr. Nightingale

The program in accounting is designed to meet the needs of those persons who are preparing for public accounting, the teaching of accounting, or for positions as accountants in financial or business establishments.

Commerce Algebra (Math. 8) and Mathematics of Investment (Math. 20) are Junior College prerequisites for this sequence.

Students in this sequence are not required to take Advanced General Accounting (B.A. 139).

	Credits
Core group requirements	42
Sequence requirements	
Cost Accounting (B.A. 152-153).....	6
Accounting Practice and Procedure (B.A. 150-151)‡.....	6
Accounting Laboratories (B.A. 92, 93, 94).....	3
Auditing and Public Accounting (B.A. 135).....	3
Business Cycles (Econ. 149).....	3
Tabulating Equipment Laboratory (B.A. 91).....	1
Three of the following:	
Cost Accounting Methods (B.A. 133)	} 9
Income Tax Accounting (B.A. 134)	
Internal Auditing and Accounting Control (B.A. 136)	
Governmental Accounting (B.A. 158)	
Public Utility and Railroad Accounting (B.A. 159)	
Senior Topics: Accounting (B.A. 181A)	
Practice Course (B.A. 183)	
Electives	17
	90

‡ A fee of \$1 is charged for this course.

RECOMMENDED ELECTIVES

	Credits
Auditing Laboratory (B.A. 95).....	1
Finance Management (B.A. 156).....	3
Personnel Administration (B.A. 167).....	3
International Commercial Policies (Econ. 176).....	3
Fire and Marine Insurance (B.A. 60).....	3
Casualty Insurance (B.A. 61).....	3
Office Management (B.A. 86).....	3
Investments (B.A. 146).....	3
Theory of Statistics (Econ. 113-114).....	6
Scientific Management in Industry (B.A. 184).....	3
Labor Legislation and Social Insurance (Econ. 164).....	3
Business Law: Property Rights and Obligations (B.A. 56).....	3

III. ADVERTISING

Adviser, Mr. Vaile

The program in advertising is designed to prepare students for work either in advertising agencies or in advertising departments of merchandising establishments. Special emphasis is placed on the use of advertising in constructive merchandising. For those especially interested in copy writing, additional work in English composition is recommended. For those especially interested in illustration and layout, work in freehand drawing is recommended. The courses in textiles and in color and design are recommended to those interested in department store advertising.

Students interested in newspaper advertising should consult the Department of Journalism in the College of Science, Literature, and the Arts. The Department of Journalism offers courses in preparation for professional work in the advertising departments of daily and weekly newspapers. Attention is also given to advertising in specialized magazines, such as trade and class publications.

Students interested in the commercial art side of advertising may apply to the University College where a special program may be arranged.

General Psychology (Psy. 1-2) is a Junior College prerequisite for this sequence.

SCHOOL OF BUSINESS ADMINISTRATION

	Credits
Core group requirements	45
Sequence requirements	
Psychology of Advertising (Psy. 56).....	3
Advertising (B.A. 88).....	3
Introduction to Reporting (Jour. 13)*‡.....	3
Editing for Nonmajors (Jour. 41)‡.....	3
Newspaper and Magazine Articles (Jour. 69)‡.....	3
Graphic Arts (B.A. 64, 65‡).....	6
Advanced Advertising Procedure (B.A. 194).....	3
Retail Store Management (B.A. 69).....	3
One of the following:	
Advertising and Newspaper Typography (Jour. 55)‡	} 3
Daily and Weekly Newspaper Advertising (Jour. 94)‡	
Electives	15
	90

RECOMMENDED ELECTIVES§

	Credits
Advanced Writing (Comp. 27-28).....	6
Applications of Color and Design (H.E. 56A-56B).....	6
English and American Literature	3 to 15
Drawing and Painting (Arch. D.P.I.).....	6
Public Speaking	6
Sales Management (B.A. 68).....	3
Senior Topics: Marketing (B.A. 180-181C).....	6
Social Psychology (Psy. 140).....	3
Textiles (H.E. 50).....	3
Senior Topics: Marketing (B.A. 182C).....	3

IV. AGRICULTURAL BUSINESS

Adviser, Mr. Jesness

This line of specialization is intended for students in the College of Agriculture, Forestry, and Home Economics who wish to prepare for some branch of business which relates to agriculture, such as the marketing of farm products, farm finance, farm implements, farm real estate, country merchandising, and the like. Registration for the freshman and sophomore years is in the College of Agriculture, Forestry, and Home Economics. During the junior and senior years students in this sequence are registered jointly in the College of Agriculture, Forestry, and Home Economics and the School of Business Administration. One hundred ninety-two (192) credits are required for graduation from this sequence.

Substitutions may be made for Corporation Finance (B.A. 155), Survey in Marketing (B.A. 77), Production Management (B.A. 89), Business Statistics (B.A. 112), Labor Problems and Trade Unionism (Econ. 161),

* To be taken in the sophomore year when possible.

‡ A fee of \$1 a quarter is charged all students registering for journalism courses including B.A. 65 with the exception of Journalism 5. In addition a laboratory fee of \$1 for Journalism 41 and \$1 per credit for Journalism 55 is charged.

§ Permission may be obtained by individual students to substitute one from this list of electives for Production Management (B.A. 89) in the core group.

and Economics of Public Utilities (B.A. 165), in the core group requirements for students in this sequence. Upon approval of the adviser, Marketing Accounting (Ag. Econ. 47) may be substituted for Advanced General Accounting (B.A. 139).

	Credits
Core group requirements	27
Sequence requirements	
Economics of Agricultural Production (Ag.Econ. 110-111)	6
Principles of Marketing Organization (Ag.Econ. 40)	3
Marketing Organization: Dairy and Poultry Products (Ag.Econ. 141)	3
Agricultural Prices (Ag.Econ. 30)	3
Market Prices (Ag.Econ. 131)	3
Agricultural Statistics (Ag.Econ. 90)	5
Advanced Agricultural Statistics (Ag.Econ. 191)	3
Methods of Price Analysis (Ag.Econ. 135)	3
Advanced Farm Finance (Ag.Econ. 150)	3
Land Economics (Ag.Econ. 170)	3
Business Cycles (Econ. 149)	3
Electives	25
	90

RECOMMENDED ELECTIVES

A. Economics

	Credits
Business Statistics (B.A. 112)‡	3
Corporation Finance (B.A. 155)	3
International Commercial Policies (Econ. 176)	3
Co-operative Organization (Ag. Econ. 144)	3
Business Policy (B.A. 109)	3
Labor Problems and Trade Unionism (Econ. 161)	3
Farm Organization (Ag. Econ. 102)	3
Farm Operation (Ag. Econ. 103)	3

B. Agriculture

The following courses are suggested for students who wish to prepare for business related to certain aspects of agriculture. Students interested in other specializations should consult their adviser.

- | | |
|--|--|
| <p>1. Dairy Products</p> <ul style="list-style-type: none"> Agricultural Biochemistry General Bacteriology Dairy Bacteriology Dairy Products Market Milk <p>2. Grain and Hay</p> <ul style="list-style-type: none"> Forage Crops Grain Crops Grain and Hay Grading | <p>3. Seeds</p> <ul style="list-style-type: none"> Principles of Genetics Farm Crops Special Crops Plant Breeding <p>4. Agricultural Implements</p> <ul style="list-style-type: none"> General Physics Agricultural Physics Farm Machinery Mechanical Training Auto and Tractor |
|--|--|

‡ A fee of \$1 is charged for this course.

V. FINANCE

Adviser, Mr. Stehman

This sequence of courses is designed to meet the needs of persons who will ultimately secure connections with financial institutions such as banks and bond houses or with the financial departments of other concerns.

Commerce Algebra (Math. 8) and Mathematics of Investment (Math. 20) are Junior College prerequisites for this sequence.

	Credits
Core group requirements	45
Sequence requirements	
Foreign Exchange (B.A. 145).....	3
Comparative Banking: British Systems (Econ. 124).....	3
Finance Management (B.A. 156).....	3
Bank Administration (B.A. 147).....	3
Investments (B.A. 146).....	3
Senior Topics: Business Finance (B.A. 181-182B).....	6
Business Cycles (Econ. 149).....	3
The Securities Market (B.A. 148).....	3
Electives	18
	90

RECOMMENDED ELECTIVES

	Credits
Advanced Farm Finance (Ag. Econ. 150).....	3
Comparative Banking: European Systems (Econ. 125).....	3
Comparative Banking: South American Systems (Econ. 127).....	3
Cost Accounting Survey (B.A. 130).....	3
State and Local Taxation (Econ. 193).....	3
International Commercial Policies (Econ. 176).....	3
Life Insurance (B.A. 59).....	3
Fire and Marine Insurance (B.A. 60).....	3
Casualty Insurance (B.A. 61).....	3
Internal Auditing and Accounting Control (B.A. 136).....	3
Income Tax Accounting (B.A. 134).....	3

VI. FOREIGN TRADE

Adviser, Mr. Blakey

This sequence is designed for persons who plan to associate themselves with exporting houses or with export departments of large manufacturing and mercantile establishments. Students following this sequence are required to have a reading knowledge of at least one foreign language.

General Psychology (Psy. 1-2) is a Junior College prerequisite for this sequence.

	Credits
Core group requirements	45
Sequence requirements	
Geography of Commercial Production (Geog. 41).....	5
Foreign Exchange (B.A. 145).....	3
Advertising (B.A. 88).....	3
International Commercial Policies (Econ. 176).....	3
Foreign Trade (B.A. 177).....	3
International Law (Pol. Sci. 180-181)*.....	6
Business Cycles (Econ. 149).....	3
Electives	19
	—
	90

RECOMMENDED ELECTIVES

	Credits
A senior topics course	3 to 9
Finance Management (B.A. 156).....	3
Economic History.....	5 to 9
Foreign Languages.....	
Comparative European Government (Pol. Sci. 7).....	5
Personnel Administration (B.A. 167).....	3
Economics of Agricultural Production (Ag. Econ. 110-111).....	6
Fire and Marine Insurance (B.A. 60).....	3
Advanced Writing (Comp. 27-28-29).....	9
Transportation: Services and Charges II (B.A. 72).....	3

VII. PERSONNEL MANAGEMENT

Adviser, Mr. Yoder

This sequence is intended to meet the needs of prospective workers in public and private personnel departments as well as others who may be interested in management as it affects employment, wages, hours, collective bargaining, and related working conditions.

General Psychology (Psy. 1-2) is a Junior College prerequisite for this sequence.

	Credits
Core group requirements	45
Sequence requirements	
Labor and Socialist Movements (Econ.162).....	3
Personnel Administration (B.A. 167).....	3
Labor Legislation and Social Insurance (Econ. 164).....	3
Psychology in Personnel Work (Psy. 160).....	3
Vocational Psychology (Psy. 130).....	2
Senior Topics: Personnel Management (B.A. 180-181-182D)	9
Electives	22
	—
	90

* Nine credits in political science are prerequisite for International Law.

RECOMMENDED ELECTIVES

	Credits
Casualty Insurance (B.A. 61).....	3
Introduction to Sociology (Soc. 1).....	5
Office Management (B.A. 86).....	3
Abnormal Psychology (Psy. 144-145).....	6
Scientific Management in Industry (B.A. 184).....	3
Sales Management (B.A. 68).....	3
Retail Store Management (B.A. 69).....	3
Psychology of Individual Differences (Psy. 125-126).....	6
Public Administration I (Pol. Sci. 131-132).....	6

VIII. MERCHANDISING

Advisers, Mr. Vaile and Miss Canoyer

This sequence is designed to prepare the student for work in merchandising departments of manufacturing, wholesaling, or retailing establishments.

General Psychology (Psy. 1-2) is a Junior College prerequisite for this sequence.

	Credits
Core group requirements.....	45
Sequence requirements	
Psychology of Advertising (Psy. 56).....	3
Advertising (B.A. 88).....	3
Sales Management (B.A. 68).....	3
Retail Store Management (B.A. 69).....	3
Senior Topics: Marketing (B.A. 180-181C).....	6
One of the following:	
Transportation: Services and Charges II	
(B.A. 72)	3
Credits and Collections (B.A. 76)	
International Commercial Policies (Econ. 176).....	3
Business Cycles (Econ. 149).....	3
Electives.....	18
	90

RECOMMENDED ELECTIVES

	Credits
Applications of Color and Design (H.E. 56A-56B).....	6
The Co-operative Movement (Econ. 140).....	3
Cost Accounting Survey (B.A. 130).....	3
Fire and Marine Insurance (B.A. 60).....	3
Foreign Trade (B.A. 177).....	3
Geography of Commercial Production (Geog. 41).....	5
Personnel Administration (B.A. 167).....	3
Scientific Management in Industry (B.A. 184).....	3
Tabulating Equipment Laboratory (B.A. 91).....	1
Textiles (H.E. 50).....	3

IX. SECRETARIAL TRAINING

Advisers, Miss Donaldson and Miss Kean

This sequence is designed for students who intend to become secretaries, office managers, correspondence supervisors, and chief file clerks.

General Psychology (Psy. 1-2) and Secretarial Training: Typewriting (Econ. 32-33) are Junior College prerequisites for this sequence.

	Credits
Core group requirements	45
Sequence requirements	
Advanced Writing (Comp. 27-28)*	6
Secretarial Training: Shorthand (Econ. 37-38-39) ‡	9
Secretarial Training: Advanced Typewriting (Econ. 34) ‡	1
Office Management (B.A. 86)	3
Secretarial Procedure (Econ. 40-41-42) ‡	9
Senior Topics: Secretarial Practice (B.A. 180-181E)	6
Electives	11
	—
	90

RECOMMENDED ELECTIVES

	Credits
Life Insurance (B.A. 59)	3
Advertising (B.A. 88)	3
Investments (B.A. 146)	3
Use of Books and Libraries (Lib. Meth. 1)	2
Cost Accounting Survey (B.A. 130)	3
Personnel Administration (B.A. 167)	3
Geography of Commercial Production (Geog. 41)	5
Speech	5 to 10
Psychology in Personnel Work (Psy. 160)	3
Psychology of Advertising (Psy. 56)	3
Business Cycles (Econ. 149)	3
Introduction to Sociology (Soc. 1)	5

X. INDUSTRIAL ADMINISTRATION †

Adviser, Mr. Filipetti

This sequence follows the two-year prebusiness curriculum given in the Institute of Technology. The program is designed primarily for students who expect to engage in purchasing, sales, employment, production control, or cost accounting work in manufacturing establishments.

* A student may substitute nine credits in speech or nine credits in journalism for the requirement in Advanced Writing.

‡ A laboratory fee of \$2.50 per quarter will be required of students who register for one or more of the courses in Secretarial Training.

† A minimum of 187 credits is required for graduation from this sequence.

	Credits
Core group requirements	45
Sequence requirements	
Strength of Materials (M. & M. 85).....	3
Materials Testing Laboratory (M. & M. 87).....	1
Transportation: Services and Charges II (B.A. 72).....	3
Principles of Accounting (Econ. 26).....	3
Cost Accounting Survey (B.A. 130).....	3
Personnel Administration (B.A. 167).....	3
Senior Topics: Production Management (B.A. 180-181-182G)	9
Business Cycles (Econ. 149).....	3
Tabulating Equipment Laboratory (B.A. 91).....	1
Electives	16
	90

RECOMMENDED ELECTIVES

	Credits
Economic History (Hist. 80-81-82, 83-84-85).....	9
Finance Management (B.A. 156).....	3
Theory of Statistics (Econ. 113-114).....	6
Geography of Commercial Production (Geog. 41).....	5
Casualty Insurance (B.A. 61).....	3
Fire and Marine Insurance (B.A. 60).....	3
Senior Topics: Marketing (B.A. 180C).....	3
Contracts and Specifications (G.E. 101).....	3
Estimating (G.E. 81).....	3

XI. FIVE-YEAR COMBINED COURSES IN ENGINEERING AND BUSINESS ADMINISTRATION

Adviser, Mr. Filipetti

The School of Business Administration and the Institute of Technology offer five-year combined courses which enable a student to complete the requirements for the Bachelor's degrees in both fields. A similar combination has been arranged with the Division of Agricultural Engineering. For this purpose the School of Business Administration will accept seventy-four (74) credits in business subjects in conjunction with one of the regular engineering curricula to satisfy the requirements for the degree of bachelor of business administration as provided in the sequence which follows. Freshmen or other students considering this program should consult Mr. Filipetti.

COURSES OF STUDY

29

SECOND YEAR

	Credits
General Economics (Econ. 8-9).....	6
Business Law (Econ. 28).....	3
	9

THIRD YEAR

Elementary Accounting: Combined Course (B.A. 54-55).....	8
Survey in Marketing (B.A. 77).....	3
	11

FOURTH YEAR

Labor Problems and Trade Unionism (Econ. 161).....	3
Personnel Administration (B.A. 167).....	3
Cost Accounting Survey (B.A. 130).....	3
Statistics Survey (B.A. 70).....	3
Business Statistics (B.A. 112)‡.....	3
Transportation: Services and Charges I (B.A. 71).....	3
Advanced Money and Banking (B.A. 142).....	3
Elements of Public Finance (B.A. 58).....	3
Production Management (B.A. 89)*.....	3
	27

FIFTH YEAR

Senior Topics: Production Management (B.A. 180-181-182G).....	9
Business Cycles (Econ. 149).....	3
Corporation Finance (B.A. 155).....	3
One of the following:	
Advanced General Accounting (B.A. 139)‡	}
Cost Accounting Methods (B.A. 133)	
Senior Topics: Marketing (B.A. 180-181C)	
Advanced General Economics (B.A. 101-102).....	6
Economics of Public Utilities (B.A. 165).....	3
	27
Total five years.....	74

XII. STATISTICS

Adviser, Mr. Mudgett

This sequence is designed for students who wish to become technical statisticians.

Trigonometry (Math. 6) and College Algebra (Math. 7) are Junior College prerequisites for this sequence.

* Mechanical engineering students may substitute Elementary Industrial Engineering (M.E. 171), 3 credits; chemical engineering students may substitute Chemical Engineering Economics (C.E. 121), 3 credits.

‡ A fee of \$1 is charged for this course.

It is advisable, wherever possible, for the student to take Analytic Geometry (Math. 30) during the sophomore year, thereby giving opportunity to take Calculus I and II (Math. 50, 51) as a junior and Mathematical Theory of Statistics (Math. 121-122-123) as a senior.

The student will be required to take the core group of courses required of all juniors and seniors in the School of Business Administration with the exception of Labor Problems and Trade Unionism (Econ. 161), Production Management (B.A. 89), and Transportation: Services and Charges I (B.A. 71), for which suitable courses in mathematics may be substituted.

	Credits
Core group requirements	36
Sequence requirements	
Theory of Statistics (Econ. 113-114).....	6
Analytic Geometry (Math. 30).....	5
Calculus I and II (Math. 50, 51).....	10
Senior Topics: Statistics (B.A. 180-181-182F)	9
Cost Accounting Survey (B.A. 130).....	3
Business Cycles (Econ. 149).....	3
Tabulating Equipment Laboratory (B.A. 91).....	1
Mathematical Theory of Statistics (Math. 121-122-123).....	9
Electives	8
	90

RECOMMENDED ELECTIVES

	Credits
Intermediate Calculus (Math. 105).....	5
Logic (Phil. 2).....	5
Foreign Exchange (B.A. 145).....	3
History of Economic Ideas (Econ. 105, 106).....	6

XIII. TRAFFIC AND TRANSPORTATION

Adviser, Mr. Schmidt

This sequence is designed for those persons who wish to prepare for traffic work with shippers and carriers or work with regulatory agencies. A sufficient number of general courses are included to meet the needs of those who expect to obtain executive positions involving only an incidental amount of traffic work.

	Credits
Core group requirements	45
Sequence requirements	
Geography of Commercial Production (Geog. 41).....	5
Trade Routes and Trade Centers (Geog. 102).....	3
International Commercial Policies (Econ. 176).....	3
Sales Management (B.A. 68).....	3
Transportation: Services and Charges II (B.A. 72).....	3
Cost Accounting Survey (B.A. 130).....	3
Fire and Marine Insurance (B.A. 60).....	3
Senior Topics: Public Utilities and Transportation (B.A. 180-181I)	6
Foreign Trade (B.A. 177).....	3
Electives	13
	90

XIV. INSURANCE

Adviser, Mr. Graves

This sequence is recommended to those who expect to enter one of the several branches of the insurance business or who plan to associate themselves with insurance departments of banking, commercial, or industrial organizations. The courses offered provide adequate academic preparation for those who plan to take the examinations for the certificate of chartered life underwriter, which is granted to those who satisfy the requirements of the American College of Life Underwriters.

General Psychology (Psy. 1-2), Commerce Algebra (Math. 8), and Mathematics of Investment (Math. 20) are Junior College prerequisites for this sequence.

	Credits
Core group requirements.....	45
Sequence requirements	
Life Insurance (B.A. 59).....	3
Fire and Marine Insurance (B.A. 60).....	3
Advertising (B.A. 88).....	3
Psychology of Advertising (Psy. 56).....	3
Casualty Insurance (B.A. 61).....	3
Investments (B.A. 146).....	3
The Securities Market (B.A. 148).....	3
Senior Topics: Insurance (B.A. 182H).....	3
Business Cycles (Econ. 149).....	3
Electives	18
	90

RECOMMENDED ELECTIVES

	Credits
Social Psychology (Psy. 140).....	3
Sales Management (B.A. 68).....	3
State and Local Taxation (Econ. 193).....	3
Economic History.....	9
Personnel Administration (B.A. 167).....	3
Introduction to Sociology (Soc. 1).....	5
Introduction to the Mathematics of Life Insurance (Math. 21)	3

XV. DEPARTMENT STORE TRAINING

Adviser, Mr. Chute

This sequence is designed for students who plan to qualify as junior executives in either selling or nonselling departments of merchandise institutions. A broad foundation training in art and in home economics is recommended and actual store experience will be arranged in addition to courses in business administration.

After the completion of one or more quarters of work in this school under the direction of the adviser, candidates in this sequence will be interviewed by the executives of one of the co-operating department stores. If results of the interviews are satisfactory, arrangements will be made for the

student to spend either the fall or spring quarter in each of the junior and senior years in full-time work in the store, receiving three credits per quarter and the minimum wage for regular store employees engaged in similar work. The student will receive both selling and nonselling experience and will submit project or experience reports.

The credits necessary for graduation may be earned in one or more quarters additional to the basic two years, or work in summer sessions may be applied to shorten this time.

General Psychology (Psy. 1-2) and Secretarial Training: Typewriting (Econ. 32-33 or equivalent experience) are Junior College prerequisites for this sequence.

Students in this sequence need not take Transportation: Services and Charges I (B.A. 71) and Production Management (B.A. 89).

	Credits
Core group requirements	39
Sequence requirements	
Introduction to Textiles (H.E. 2)	3
Applications of Color and Design (H.E. 56A-56B)	6
Art History and Appreciation (H.E. 120)	3
Retail Store Management (B.A. 69)	3
Psychology of Advertising (Psy. 56)	3
Advertising (B.A. 88)	3
International Commercial Policies (Econ. 176)	3
Business Cycles (Econ. 149)	3
Drawing (either Art Ed. 4, 6, or 8 or Arch. D.P.-I.)	2
Senior Topics: Marketing (B.A. 182C)	3
Practice Course (B.A. 183)	6
Electives	13
	—
	90

RECOMMENDED ELECTIVES

	Credits
Selected courses in art, composition, English and American literature, history, and psychology	
Senior Topics: Marketing (B.A. 180-181C)	6
The Co-operative Movement (Econ. 140)	3
Personnel Administration (B.A. 167)	3
Credits and Collections (B.A. 76)	3
Office Management (B.A. 86)	3

XVI. OFFICE MANAGEMENT

Adviser, Miss Donaldson

The sequence is designed for students who expect to become coordinators and managers of the clerical activities of large offices.

General Psychology (Psy. 1-2) and Secretarial Training: Typewriting (Econ. 32-33) are Junior College prerequisites for this sequence.

	Credits
Core group requirements	45
Sequence requirements	
Cost Accounting Survey (B.A. 130)	3
Psychology in Personnel Work (Psy. 160)	3
Office Management (B.A. 86)	3
Scientific Management in Industry (B.A. 184)	3
Motion Economy (B.A. 170)	3
Production Standards (B.A. 171)	3
Tabulating Equipment Laboratory (B.A. 91)	1
Senior Topics: Secretarial Practice (B.A. 180-181E)	6
Senior Topics: Office Management (B.A. 182J)	3
Electives	17
	—
	90

RECOMMENDED ELECTIVES

	Credits
Personnel Administration (B.A. 167)	3
Psychology of Advertising (Psy. 56)	3
Sales Management (B.A. 68)	3
Business Cycles (Econ. 149)	3
Finance Management (B.A. 156)	3
Advanced Writing (Comp. 27-28)	6
Practice Course (B.A. 183)	3
Retail Store Management (B.A. 69)	3

XVII. FIVE-YEAR COMBINED COURSES IN PHARMACY AND BUSINESS ADMINISTRATION

Adviser, Mr. Chute

The School of Business Administration and the College of Pharmacy offer a combined five-year course in pharmacy and business administration leading to the degrees of bachelor of science in pharmacy and bachelor of business administration. This course is open to students in the College of Pharmacy who can present evidence of better than average ability. Students who are permitted to register for this course of study must take the professional courses in pharmacy and business administration in the sequence in which they are offered. The requirements of 66 credit hours of work in the School of Business Administration are to be fulfilled as outlined below. Any inquiries from students should be addressed to the College of Pharmacy or to the business adviser, Mr. Chute.

FIRST YEAR

	Credits
General Economics (Econ. 8-9)	6
Business Law (Econ. 28)	3
	—
	9

SCHOOL OF BUSINESS ADMINISTRATION

SECOND YEAR

	Credits
Elements of Accounting (Econ. 20)	3
Principles of Accounting (Econ. 25)	3
	—
	6

THIRD YEAR

Elements of Public Finance (B.A. 58)	3
Statistics Survey (B.A. 70)	3
Production Management (B.A. 89)	3
Survey in Marketing (B.A. 77)	3
	—
	12

FOURTH YEAR

Retail Store Management for Pharmacy Students (B.A. 67)	3
Cost Accounting Survey (B.A. 130)	3
Business Cycles (Econ. 149)	3
Labor Problems and Trade Unionism (Econ. 161)	3
Business Statistics (B.A. 112) ‡	3
Advertising (B.A. 88)	3
Corporation Finance (B.A. 155)	3
	—
	21

FIFTH YEAR

Senior Topics: Marketing (B.A. 180-181C, 182C)	9
Advanced General Economics (B.A. 101-102)	6
Advanced Money and Banking (B.A. 142)	3
	—
	18
	—
Total five years	66

XVIII. SEVEN-YEAR COMBINED CURRICULUM IN LAW
AND BUSINESS ADMINISTRATION

Adviser, Mr. Reighard

This program consists of two years of prelaw and prebusiness work followed by approximately one and one-half years in Business Administration instead of the full two-year program, and approximately three and one-half years in Law instead of the full four-year program and permits the candidate to qualify for both the bachelor of business administration and bachelor of laws degrees at the end of the seventh year.

The detailed program of courses to be followed in this curriculum is prepared by advisers in the Law School and in the School of Business Administration. Students planning to complete the combined curriculum should consult the adviser during their freshman year.

‡ A fee of \$1 is charged for this course.

DESCRIPTION OF COURSES

- Econ.1. Introduction to Economics. The growth of modern industrial society; the influence of mechanical inventions and the development of sources of power; the part played by business management in the utilization of capital, labor, and resources in the production and selling of goods; the origin and nature of modern social control. (5 cred.; fr. only; no prereq.)
- Econ.3. Elements of Money and Banking. The basic principles of money and a description of the various types of financial institutions, their functions and relations to the whole economic organization. (5 cred.; 2nd and 3rd qtr. fr., soph.; no prereq.)
- Econ.5. Elements of Statistics. Elementary concepts in statistical method; averages, ratios, errors, sampling, index numbers, graphic representation, collection of material. (5 cred.; 3rd qtr. fr., soph.; no prereq.)
- Econ.6-7. Principles of Economics. A course in the fundamental principles of economics intended to serve as a foundation for advanced courses in business administration and economics. (10 cred.; soph., jr., sr.; no prereq.)
- Econ.8-9. General Economics. Principles of economics with special emphasis upon their application to current problems such as money, banking, conservation, insurance, international commerce, monopolies, transportation, labor, socialism, public ownership, and finance. Open to Institute of Technology and College of Pharmacy students with consent of adviser. (6 cred.; soph., jr., sr.; no prereq.)
- Econ.10. An Introduction to Economic Analysis. Fundamental principles of economics with respect to production and value. Law of diminishing returns; markets prices; prices and cost of production; monopoly and monopolistic competition; regulation of industry. (3 cred.; no prereq.; open to College of Pharmacy students only.)
- Econ.20. Elements of Accounting. The principles underlying bookkeeping and accounting. Sufficient practice in technical processes will be given to serve as a background for more advanced work. Preparation of statements. (3 cred.; 3rd qtr. fr., soph.; no prereq.)
- Econ.25-26. Principles of Accounting. The principles underlying the accounting statements; the accounts; principles of valuation; depreciation, and preparation and analysis of statements. (6 cred.; soph., jr., sr.; prereq. Econ. 20.)
- Econ.27. Accounting Survey. A course designed for prelegal and legal students. Special emphasis on accounting for corporations and for income. (5 cred.; no prereq.; open to prelegal students only.)
- Econ.28. Business Law. A practical course on the law of contracts, agency, partnership, corporations, negotiable instruments, real estate, deeds, mortgages, fixtures, leases, mechanics' liens, workmen's compensation. Open to Institute of Technology and College of Agriculture, Forestry, and Home Economics students, and College of Pharmacy students with consent of adviser. (3 cred.; soph., jr., with 6 cred. in econ. or seniors without econ. cred.)

- Econ.29. Principles of Accounting. Purpose and principles of account classification; capital and revenue; accruals; valuation; depreciation; preparation and interpretation of balance sheets, income accounts, and other statements. Open to Institute of Technology students only. (3 cred.; soph., jr., sr.; no prereq.)
- Econ.30. Elements of Retail Accounting. The elements of accounting and their application in retail stores. Open to College of Pharmacy students only. (3 cred.; prereq. Econ. 10.)
- Econ.32-33.‡ Secretarial Training: Typewriting. Keyboard technique; letter writing; secretarial procedure; dictating machine transcription. (2 cred.; 2nd qtr. fr., soph., jr.; prereq. consent of instructor.)
- Econ.34.‡ Secretarial Training: Advanced Typewriting. Tabulation; rough draft; dictating machine transcription; operation of duplicating machines. (1 cred.; soph., jr., sr.; prereq. Econ. 33 and consent of instructor.)
- Econ.35. Office Practice for Dental Hygienists. Survey of basic principles and procedures of office practice for dental hygienists; filing; communications; simple record keeping. Open to dental hygienists only. (3 cred.; jr., sr.; prereq. Econ. 32-33 or equiv.)
- Econ.37-38-39.‡ Secretarial Training: Shorthand. An elementary course in Gregg shorthand. A large vocabulary of high-frequency words is developed with emphasis placed upon dictation and transcription. (9 cred.; soph., jr.; prereq. Econ. 33 or consent of instructor.)
- Econ.40-41-42.‡ Secretarial Procedure. A vocabulary of frequent words and technical terms is developed for use in dictation and transcription. Students are trained in the secretarial procedure characteristic of various lines of business. (9 cred.; soph., jr., sr.; prereq. Econ. 33 and 39 or consent of instructor.)
- B.A.51.* Business Law: Contracts. A discussion of the law of contracts. (3 cred.; jr., sr.; prereq. Econ. 6-7.)
- B.A.52.* Business Law: Agency Partnership, and Corporations. The law of agency and a consideration of problems of partnerships and corporations. (3 cred.; jr., sr.; prereq. B.A. 51.)
- B.A.53.* Business Law: Sales and Negotiable Instruments. A discussion of the law of sales and of negotiable instruments. The case method is used in B.A. 51, 52, and 53. (3 cred.; jr., sr.; prereq. B.A. 51.)
- B.A.54-55. Elementary Accounting: Combined Course. A combination of Econ. 20, Elements of Accounting, and Econ. 25 and 26, Principles of Accounting, for School of Business Administration students and for five-year combined Engineering and Business students. (8 cred.; jr., sr.; no prereq.)
- B.A.56. Business Law: Property Rights and Obligations. Legal principles governing the transfer of title to, control of, and mortgaging of property, real and personal, including abstract examination; also related principles of trusts and liquidation. Some time will be reserved for current statu-

* No credit will be allowed for B.A. 51, 52, or 53 until all three are completed.

‡ A laboratory fee of \$2.50 will be required of students who register for one or more of the courses in Secretarial Training.

- tory developments. Case method and special readings. (3 cred.; jr., sr.; prereq. B.A. 53.)
- B.A.57. Money and Banking. Designed for students in the School of Business Administration who have not had an elementary course in this field. Principles of money and banking. Types and functions of financial institutions. (3 cred.; jr., sr.; no prereq.)
- B.A.58. Elements of Public Finance. Public expenditures, revenues, and debts. Special attention is given to tax principles, practices, and burdens. This is a condensed course given especially for School of Business Administration students. (3 cred.; jr., sr.; prereq. Econ. 6-7.)
- B.A.59. Life Insurance. The economic significance of life insurance. Types of policies and the analysis of the policy contract. Principles underlying the determination of premiums and reserves. Industrial, fraternal, and group insurance. (3 cred.; jr., sr.; prereq. Econ. 6-7.)
- B.A.60. Fire and Marine Insurance. The fire risk and fire prevention. Fire insurance and insurance carriers. The standard policy. Methods of rate making. State regulation and supervision. Marine risks and insurance. (3 cred.; jr., sr.; prereq. Econ. 6-7.)
- B.A.61. Casualty Insurance. A detailed study of the risks, insurance coverages, and policy provisions in the more important lines of casualty insurance. Accident and health insurance; employers' liability and workmen's compensation; automobile; robbery and theft; plate glass; miscellaneous liability and damage types of insurance. (3 cred.; jr., sr.; prereq. Econ. 6-7.)
- B.A.64. Graphic Arts I: Elementary Principles of Design. With special reference to their application in packaging and advertising. Discussion of materials, styles, techniques, and media. Exercises in use of illustration to reinforce copy ideas, and in layout construction. (3 cred.; jr., sr.; prereq. permission of adviser in School of Business Administration or in Department of Journalism.)
- B.A.65.‡ Graphic Arts II: Processes. Study of graphic reproduction, including engraving and printing, as it relates to present-day advertising, news illustration, and printing. Emphasis is given to technical information on line engravings, halftones, four-color plates, electrotypes, stereotypes and the relief, offset, and intaglio methods of printing. (3 cred.; jr., sr.; prereq. permission of adviser in School of Business Administration or in Department of Journalism.)
- B.A.67. Retail Store Management for Pharmacy Students. The principles of retail store management including the planning and control of store operation, the nature of consumer demand, and the analysis of retailing cost. Open to College of Pharmacy students only. (3 cred.; jr., sr.; prereq. Econ. 10 and 30.)
- B.A.68. Sales Management. Organization and direction of sales methods and men from the sales manager's point of view; determination of selling policy; product and market research; sales planning and research; selec-

‡ Journalism course. A fee of \$1 per quarter is charged students registered for Journalism courses except Journalism 5.

tion of distribution methods; sales campaigns and quotas; incentives and compensation for salesmen; training in salesmanship; supervision and control. Case studies and discussions. (3 cred.; jr., sr.; prereq. B.A. 77.)

B.A.69. Retail Store Management. Organization; location, layout, and equipment; buying and sales budgets and sales planning; sales promotion; interior and window display; stock and expense control; finance and general policy; credits and collections; personnel; store operation and services. Case studies, problems, and discussions. (3 cred.; jr., sr.; prereq. B.A. 77.)

B.A.70. Statistics Survey. The tools and devices which facilitate the use of business data are surveyed in this course. Statistical information is collected by questionnaires, consolidated into tables, summarized in averages, and illustrated by graphic devices. Current index numbers are compared in form and application. The logical interpretation and limitations of statistical data are stressed throughout the course. (3 cred.; jr., sr.; prereq. Econ. 6-7.)

B.A.71. Transportation: Services and Charges I. A survey of rail, highway, air, and water transportation facilities, services, rates, and regulation, supplemented by lectures on current transportation problems. (3 cred.; jr., sr.; prereq. Econ. 6-7.)

B.A.72. Transportation: Services and Charges II. Analysis of and problems involving the principles, construction, interpretation, and use of rail, highway, express, and water classifications and tariffs for the handling of freight, express, and mail shipments. The analysis of rate structures. (3 cred.; jr., sr.; prereq. B.A. 71.)

B.A.76. Credits and Collections. Study of the nature and types of credit and of credit instruments and agencies; qualifications and work of the credit manager; valuation and use of financial statements and credit reports; collection methods and correspondence; bankruptcy and adjustments; credit limits and control. (3 cred.; jr., sr.; prereq. B.A. 77.)

B.A.77. Survey in Marketing. Survey course including descriptive analysis of (1) marketing institutions and their control; (2) market areas; (3) marketing costs; (4) the operation of supply and demand in marketing. (3 cred.; jr., sr.; prereq. Econ. 6-7.)

Econ.82.* Competition and Monopoly in Modern Industry. This course and Econ. 83 are offered for Senior College students who wish a general course in modern economics. The organization of modern industry; the effect of concentration of ownership on economic conditions; the effects of monopoly and monopolistic competition on prices; the general level of prices; inflation and control by the state. (3 cred.; jr., sr.; no prereq.)

Econ.83.* The Inequality of Incomes. Theories of inequality; the earnings of land, labor, and capital. The unequal income of economic strata. Government interference for the modification of inequality; taxation;

* This course may not be included as a part of the Senior College work required for a minor in economics in the College of Science, Literature, and the Arts.

- minimum wage laws; bonuses; controlled earnings. (3 cred.; jr., sr.; prereq. Econ. 82.)
- Econ.84. Comparative Economic Systems. The modified system of individualism; state socialism; communism; fascism; freedom and the economic order. Emphasis is placed not upon historical development, but upon the vital economic functions to be achieved under any economic system and a critical analysis of the ability of the various systems to perform these functions. (3 cred.; jr., sr.; prereq. Econ. 6-7 or 83.)
- B.A.86. Office Management. The office as a producing unit; office organization, equipment, and layout; development of office standards and routines; relation of the office to operating divisions; scientific management of office work. (3 cred.; jr., sr.; prereq. Econ. 6-7.)
- B.A.88. Advertising. The course covers two important phases of advertising: (1) the place of advertising in business, (2) advertising procedure. Attention is given to planning an advertising campaign, including market research, appropriation, choice of media, scheduling, preparation of copy, and layout. (3 cred.; jr., sr.; prereq. B.A. 77 and Psy. 56.)
- B.A.89. Production Management. Location and layout of industrial plants; types of operating organization; shop personnel; standards of operation; purchasing and inventory control; routing, scheduling, and dispatching of product; scientific management; practical problems in production control. (3 cred.; jr., sr.; no prereq.)
- B.A.91. Tabulating Equipment Laboratory. The basic functions of tabulating equipment; illustrations of its use in special accounting, statistical, and production analysis; and its use for general accounting and statistical control of business operations. (1 cred.; jr., sr.; prereq. Econ. 26 and either Econ. 5 or B.A. 70.)
- B.A.92. Accounting Practice Laboratory. A laboratory in advanced accounting designed to give practice in certain accounting techniques and tools, methods of calculation, uses of the slide rule; work sheets. Open to accounting majors only. (1 cred.; jr., sr.; prereq. Econ. 26.)
- B.A.93. Accounting Laboratory. A long practice problem will be worked under supervision. Required of majors in accounting and in commercial education. (1 cred.; jr., sr.; prereq. Econ. 26.)
- B.A.94. Cost Accounting Laboratory. A job order set will be worked under supervision. (1 cred.; jr., sr.; prereq. B.A. 152 or concurrent.)
- B.A.95. Auditing Laboratory. An auditing problem and audit report will be prepared under supervision. (1 cred.; jr., sr.; prereq. B.A. 135 or concurrent.)
- Econ.97,98,99. Honors Course in Economics. This course is offered to specially qualified students who are majors in economics and who wish to pursue a course of specialized reading and research. (Cred. ar.; jr., sr.; prereq. consent of major adviser.)
- B.A.97,98,99. Honors Course in Business Administration. This course is arranged for those students whose scholastic records are of such a character as to warrant encouraging them to carry on independent study in the field of business administration. (Cred. ar.; jr., sr.; prereq. permission of the dean.)

- B.A.101-102. Advanced General Economics. A study of some of the more important theoretical problems of economics; competitive and monopoly prices; equilibrium prices and costs; theories of valuation of producers' goods; capital earnings and interest rates; profits. (6 cred.; sr., grad.; prereq. Econ. 6-7.)
- Econ.103-104. Advanced Economics. An advanced course in general economics. The first part is concerned with the determination of prices under competition, monopoly, and imperfect competition. The second part is concerned with the distribution of wealth and the distribution of the national income. (6 cred.; jr., sr., grad.; prereq. 20 cred. in soc. sci. including Econ. 6-7 or 83.)
- Econ.105. History of Economic Ideas: The Classical Economists. The development of the doctrines of classical economics by English and French writers from 1750 to 1850. Economic and political influences giving rise to doctrines of population, distribution, governmental interference. (3 cred.; jr., sr., grad.; prereq. B.A. 101-102 or Econ. 103-104 or consent of instructor.)
- Econ.106. History of Economic Ideas: The Critics of the Classical Economists. A survey of the leading critics of the classical economists, including the German Historical School, the institutionalists, the statistical economists, the welfare economists, and the theoretical socialists. The methodology of neoclassical economics is also studied. (3 cred.; jr., sr., grad.; prereq. B.A. 101-102 or Econ. 103-104 or consent of instructor.)
- Econ.108. Applications of Economic Theory. Detailed applications of formal economic theory to current problems in social policy, such as monopoly prices, conservation, and justice in taxation. Each student will prepare a report on a problem of his own selection. (3 cred.; jr., sr., grad.; prereq. B.A. 101-102 or Econ. 103-104.)
- B.A.109. Business Policy. This course is devoted to the study of problems of a general administrative character. It deals with the integration of management, the methods of analysis and budgetary control used to establish policies with respect to recurring and new developments. Case studies and student reports. (3 cred.; sr., grad.; prereq. B.A. 101.)
- Econ.110. Industrial Price Control. The subject is the methods by which the prices of industrial products are determined under actual competitive conditions. Price policies, combinations, administered prices, price leadership, price associations, and other methods of price control and government intervention will be considered. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83 and 15 additional credits in economics and/or business administration. Econ. 160 or B.A. 155 is a desirable preceding course.)
- B.A.112.‡ Business Statistics. Survey and criticism of methods used in analyzing time series, with special applications to the study of cyclical fluctuations of economic phenomena. (3 cred.; jr., sr., grad.; prereq. Econ. 5 or B.A. 70.)

‡ A fee of \$1 is charged for this course.

- Econ.113-114. Theory of Statistics. An advanced course in statistical analysis, covering methods of statistical description and the theory of sampling. (6 cred.; jr., sr., grad.; prereq. Econ. 5 or B.A. 70.)
- Econ.115. Probability and Statistics. This course deals with the probability basis of statistical methods. The analysis is centered upon the Continental School of Lexis-Bortkiewicz-Tschuprow. The purpose of the course is the evaluation of mathematical statistics in the field of economics, emphasizing interpretation rather than mathematical techniques. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83.)
- Econ.117. Contemporary European Economic Problems. Development of the economic situation in Europe since the War of 1914-18 and the economic conditions in Germany and Great Britain during the present war. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83.)
- Econ.124. Comparative Banking: British Systems. A study of the existing financial institutions of the various members of the British Empire with regard to development, functions, methods, and problems. Constant comparison is made with the American system. (3 cred.; jr., sr., grad.; prereq. Econ. 141 or B.A. 142.)
- Econ.125. Comparative Banking: European Systems. (3 cred.; jr., sr., grad.; prereq. Econ. 141 or B.A. 142.)
- Econ.127. Comparative Banking: South American Systems. (3 cred.; jr., sr., grad.; prereq. Econ. 141 or B.A. 142.)
- Econ.128. Business Cycle Theory in European Literature. Introduction to the writings of the leading German and Scandinavian authors in the field of business cycle theory. This course is particularly designed for students who are not able to read foreign languages. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83.)
- B.A.130. Cost Accounting Survey. A general survey of cost accounting from the point of view of the executive who must use cost information in the conduct of his business. (3 cred.; jr., sr., grad.; prereq. Econ. 25-26.)
- Econ.131. Introduction to Mathematical Analysis in Economics. This course is intended to serve as a general introduction to mathematical economics for students who do not have a mathematical training. A brief survey of the elements of calculus is followed by an analysis of mathematical applications to static and dynamic economics. The analysis deals with the principal ideas of Cournot, Jevons, Walras, Pareto, Edgeworth, and Irving Fisher, as well as those of H. L. Moore and his school. A knowledge of calculus is not required. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83.)
- B.A.133. Cost Accounting Methods. Standard costs; the establishment of standards and their results as reflected in the cost accounts. The application of standards in distribution. (3 cred.; jr., sr., grad.; prereq. B.A. 130 or 152-153.)
- B.A.134. Income Tax Accounting. The principles involved in determining taxable net income and the computation of federal and state income taxes for corporations, individuals, and trusts. (3 cred.; jr., sr., grad.; prereq. B.A. 139 or 150-151.)

- B.A.135. Auditing and Public Accounting. The application of principles and technical methods used in professional auditing practice. Typical frauds and errors in accounting records, auditors' working papers, financial exhibits, certificates, and reports are studied. (3 cred.; jr., sr., grad.; prereq.; B.A. 139 or 150-151.)
- B.A.136. Internal Auditing and Accounting Control. Accounting systems and methods as related to internal check and audit control of routine transactions and the establishment of administrative and budgetary control. (3 cred.; jr., sr., grad.; prereq. B.A. 139 or 150-151.)
- B.A.139.‡ Advanced General Accounting. A course intended particularly for the general student of business. Interpretation of accounts and statements; statement preparation and analysis. Utilization of the statements by the executive. Accounting methods and statements in a number of business fields. (3 cred.; jr., sr., grad.; prereq. Econ. 25-26.)
- Econ.140. The Co-operative Movement. The history and philosophy of various co-operative developments. Similarities and contrasts between such movements as agricultural marketing co-operatives, consumer co-operatives, trade unions, and others. Consumer co-operation as a medium for economic control. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83.)
- Econ.141. Monetary and Banking Policy. An advanced course in money and banking. Banking policy viewed from the social standpoint with primary reference to the problems of the Federal Reserve system. Selected problems in monetary policy; monetary reconstruction and monetary reform. (3 cred.; jr., sr., grad.; prereq. Econ. 3 and either Econ. 6-7 or 83.)
- B.A.142. Advanced Money and Banking. The problems of a central bank and the theory of the value of money. Includes control of reserves, providing a scientific currency, regulation of credit, fluctuations of the general price level—their causes and possible reduction. (3 cred.; jr., sr., grad.; prereq. Econ. 3 and 6-7.)
- Econ.144. Cartels and Trusts. Comparative description of cartels and trusts in Germany and Great Britain; international cartels; economic effects of cartels and trusts and their sociological significance. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83.)
- B.A.145. Foreign Exchange. The drawing and handling of international bills of exchange of all kinds; relations of correspondent banks; acceptance accounts; calculation of bankers' buying and selling prices; investment, speculation, and arbitrage in exchange; exchange and the money market; exchange control. (3 cred.; jr., sr., grad.; prereq. B.A. 142.)
- B.A.146. Investments. A general or "cross cut" survey of the external and internal factors influencing the prices of securities, and of the principles of an investment policy for the individual investor. Emphasis is placed upon objective analysis from source materials of factors explaining price differentiation. (3 cred.; jr., sr., grad.; prereq. B.A. 155.)

‡ A fee of \$1 is charged for this course.

- B.A.147. Bank Administration. Designed for students intending to enter the field of commercial banking. Less emphasis is placed upon the routine of bank operation than upon the problems of the bank executive. (3 cred.; jr., sr., grad.; prereq. B.A. 142.)
- B.A.148. The Securities Market. Consideration of behavior over time or "longitudinal" analysis of prices of individual, and groups of, securities. Emphasis is placed upon the relationship of economic conditions to security values, particularly the effects of cyclical fluctuations. (3 cred.; sr., grad.; prereq. B.A. 146 and Econ. 149.)
- Econ.149. Business Cycles. Analysis of factors involved in business fluctuations. Comparison of theories of the cause of prosperity and depression. Introduction to the statistical data and methods of business forecasting. (3 cred.; sr., grad.; prereq. Econ. 141 or B.A. 142 or consent of instructor.)
- B.A.150-151.‡ Accounting Practice and Procedure. A course in the practice and technique of accounting for students who intend to specialize in accounting. (6 cred.; jr., sr., grad.; prereq. Econ. 25-26.)
- B.A.152-153. Cost Accounting. Cost accounting practices and procedures. (6 cred.; jr., sr., grad.; prereq. Econ. 25-26.)
- Econ.154. Public Utilities. A general course that deals with the problem of government regulation of the rates, services, and finances of public utilities. Valuation, service standards, holding companies, and government ownership are among the specific topics considered. (3 cred.; jr., sr., grad.; prereq. 20 cred. in soc. sci. including Econ. 6-7 or 83.)
- B.A.155. Corporation Finance. Incorporation. The various types of corporate securities and their uses. Financial plans for industrial, utility, and other types of corporations. Financial affairs of an established business. General financial problems of the holding company, consolidations, mergers, and reorganizations. (3 cred.; jr., sr., grad.; prereq. Econ. 3 and 6-7.)
- B.A.156. Finance Management. The duties of the financial manager of a modern business. The various sources from which capital may be secured, the best use of a company's funds, and special financial problems which arise in the typical business. (3 cred.; jr., sr., grad.; prereq. B.A. 155.)
- B.A.158. Governmental Accounting. Use of budgetary and financial accounts; fund accounting and statements; consolidated municipal statements; accounting for fixed properties, depreciation, improvements, special assessments, and revolving funds; debt service and sinking fund. (3 cred.; sr., grad.; prereq. B.A. 139 or 151.)
- B.A.159. Public Utility and Railroad Accounting. This course aims to acquaint the student with the system of accounts prescribed by the several federal and state regulatory commissions. Some attention will be devoted to the question of consolidated statements incident to the regulation of public utility holding companies. (3 cred.; jr., sr., grad.; prereq. B.A. 139 or 151.)

‡ A fee of \$1 is charged for this course.

- Econ.160. The Modern Corporation. A survey of the simpler financial activities and of the social problems arising out of the corporate form of business organization. (3 cred.; jr., sr., grad.; prereq. Econ. 3 and either Econ. 6-7 or 83.)
- Econ.161. Labor Problems and Trade Unionism. A discussion of employment, hours, wages, types of unionism, policies and practices of labor organization; special emphasis upon economic implications of modern working conditions. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83.)
- Econ.162. Labor and Socialist Movements. Analysis of structure and operation of American labor unions. An interpretation of leading labor movements in Europe and the United States during the last century. (3 cred.; jr., sr., grad.; prereq. Econ. 161.)
- Econ.164. Labor Legislation and Social Insurance. A course dealing with the economic aspects of labor legislation, including minimum wage laws; hours legislation; factory acts; accident, health, old age, and unemployment compensation; mothers' pensions. (3 cred.; jr., sr., grad.; prereq. Econ. 161.)
- B.A.165. Economics of Public Utilities. A general course on the economic aspects of government regulation of the finances, rates, and services of municipal public utilities. Economic characteristics, legal position, regulation, valuation, and government ownership are the principal topics covered. (3 cred.; jr., sr., grad.; prereq. Econ. 3 and 6-7.)
- Econ.166. International Economic Problems. A survey of current problems including monetary stabilization; reparations; international debts; international capital movements; tariff barriers; international wage levels; and programs of international economic co-operation. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83.)
- B.A.167. Personnel Administration. Evaluation of managerial policies and devices designed to secure the co-operation and efficient participation of employees in business, industry, and government. Attention is directed especially to the determination of labor needs, job analysis and classification, methods of recruiting workers, selective devices, training and safety programs, service rating, employment stabilization, collective bargaining, and compensation. (3 cred.; jr., sr., grad.; prereq. Econ. 161.)
- B.A.170. Motion Economy. Fundamental principles and techniques of motion economy, workplace layout, motion picture applications, operation analysis, output standards, stopwatch procedure, and cost-savings estimates. Materials: Text, readings, motion picture films. (3 cred.; jr., sr., grad.; prereq. B.A. 184.)
- B.A.171. Production Standards. Laboratory projects selected from, and contributory to improvement of, basic clerical, office practice, and merchandising procedures, emphasizing application of motion economy principles. Final report required for each project. (3 cred.; jr., sr., grad.; prereq. B.A. 170.)
- Econ.172. Economics of Transportation. An analysis of the economics of the leading methods of modern transportation including railway, waterway, truck and bus, pipe line, and airway. The relative advantages of

each will be stressed and a careful account given of the regulation, taxation, and place of each type. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83.)

- Econ.176. International Commercial Policies. Theory of international commerce; protective tariffs, free trade, reciprocity, subsidies, preferential treatment, the open door, international finance, commercial treaties, foreign politics, and other governmental and organized efforts to affect trade. American problems emphasized. (3 cred.; jr., sr., grad.: pre-req. Econ. 6-7 or 83.)
- B.A.177. Foreign Trade. Theories of international trade; character of United States foreign trade and the world market. Commercial organization and foreign trade financing; foreign shipments—export and import. Transportation and shipping problems; governmental regulation; and individual markets. (3 cred.; jr., sr., grad.; prereq. Econ. 176.)
- B.A.181A. Senior Topics: Accounting. Application of accounting theory, practice, and analysis to special fields of industry and finance. Term reports; solution of C.P.A. problems. (3 cred.; sr.)
- B.A.181-182B. Senior Topics: Business Finance. Individual research and discussion of important current financial developments. (6 cred.; sr.)
- B.A.180-181C. Senior Topics: Marketing. Selected topics in (1) market structure, (2) manufacturers' sales problems, (3) market research, (4) market prices and price policies. (6 cred.; sr.)
- B.A.182C. Senior Topics: Marketing. Selected topics in retail store management, in co-operation with Twin City department store executives. (3 cred.; sr., open to students who have had B.A. 180-181C or to students in the Advertising and the Department Store Training sequences, and, with permission of the instructor, to a limited number of other advanced students: prereq. B.A. 69.)
- B.A.180-181-182D. Senior Topics: Personnel Management. Discussion of personnel problems exemplified in cases, together with individual investigations of various phases of personnel administration. Special attention to actual conditions in the Twin City area. (9 cred.; sr.)
- B.A.180-181E. Senior Topics: Secretarial Practice. Business correspondence; analysis and criticism of business letters; construction of single letters and series. Filing; organization and management of filing departments; a study of alphabetic, numeric, geographic, and subject filing, including charge, follow-up, and transfer systems. (6 cred.; sr.)
- B.A.180-181-182F. Senior Topics: Statistics. Intensive study of original sources dealing with selected topics in the theory of statistics. Both oral and written reports are prepared by the students. (9 cred.; sr.)
- B.A.180-181-182G. Senior Topics: Production Management. Selected problems in management; studies in the technique of executive control in manufacturing enterprises; field research and surveys in the organization and methods of management of Northwest industrial concerns. (9 cred.; sr.)
- B.A.182H. Senior Topics: Insurance. Reports on selected problems in the field of insurance. (3 cred.; sr.)

- B.A.180-181I. Senior Topics: Public Utilities and Transportation. Selected problems in the regulation and management of utilities and transportation agencies. Industrial traffic management. (6 cred.; sr.)
- B.A.182J. Senior Topics: Office Management. Research, standardization, and control of the quantity and quality of office service. (3 cred.; prereq. B.A. 180-181E.)
- B.A.183. Practice Course. Students engaged in outside work on the co-operative plan may register for this course for credit under the following conditions: The type of employment to be undertaken must be approved in advance by the major adviser. The student must register* for the course at the beginning of the term during which the work is to be done. Grades are based upon a report from the student's employer and a formal written report presented by the student not later than mid-term following his return to the University. Applications for positions on the co-operative plan and admission to the course may be made at any time at the dean's office. (Cred. ar.; jr., sr., grad.; prereq. consent of adviser.)
- B.A.184. Scientific Management in Industry. A study of the origin and development of the movement to apply the methods of science to the management of industrial enterprises; the effects upon individual plant management and the influence upon "rationalization" in industrial society. (3 cred.; sr., grad.; prereq. Econ. 6-7.)
- Econ.185. Economics of Marketing. A course dealing with (1) the role of market distribution in our total economy; (2) the costs of market distribution; (3) regional specialization and market distribution; (4) public, quasi-public, and corporate control of market distribution; (5) the role of the consumer in market distribution. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83.)
- Econ.191-192. Public Finance. Public expenditures, revenues, and debts. Special attention is given to tax principles, practices, and burdens. (6 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83.)
- Econ.193. State and Local Taxation. Main problems of state and local finance and proposed solutions therefor. (3 cred.; jr., sr., grad.; prereq. Econ. 191-192 or B.A. 58.)
- B.A.194. Advanced Advertising Procedure. Problem and case work in advertising research. Preparation and criticism of advertisements and of advertising campaigns. (3 cred.; jr., sr., grad.; prereq. B.A. 88.)
- Econ.203-204. Seminar in Economic Theory. (6 cred.; grad.)
- Econ.206. Seminar in Market Prices. (3 cred.; grad.)
- Econ.207. Theory of Demand. (3 cred.; grad.)
- Econ.208. Production and Distribution. (3 cred.; grad.)
- Econ.233-234. Seminar in Public Finance. (6 cred.; grad.)
- Econ.243-244. Seminar in Money and Banking. (6 cred.; grad.)
- Econ.251. Seminar in Industrial Relations. (3 cred.; grad.)
- Econ.257. Seminar in Accounting Theory. (3 cred.; grad.)

* Student may register on the credit hour basis and thus avoid the payment of full tuition fees for the term.

The Bulletin of the
University of Minnesota

*Minnesota School
of the Air*

V. XLVII

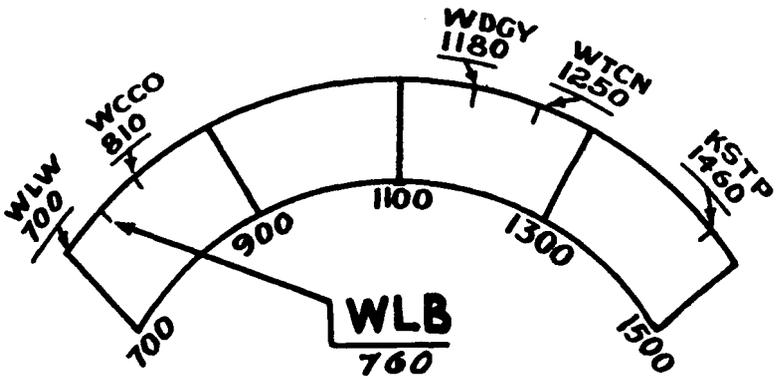
II. 8

Jan. 27, 1940

Second Semester 1939-40



RADIO STATION WLB
760 Kilocycles—5000 Watts



VOL. XLIII NO. 8 JANUARY 27, 1940

Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minn. Accepted for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized July 12, 1918.

"There is not the slightest doubt in my mind that radio will become one of the most powerful constructive forces for the education of our people if we devote adequate attention to the development of truly educational programs."

JOHN W. STUDEBAKER
United States Commissioner of Education
and Chairman, Federal Radio Education Committee

Minnesota School of the Air

The Minnesota School of the Air consists of the formally organized broadcasts for schoolroom reception presented by WLB. Eleven programs planned especially to supplement classroom work are included. During the past semester approximately 42,000 Minnesota students listened to these broadcasts each week.

The programs for classroom reception are organized on a semester basis. They run for 16 weeks, commencing with the week of February 5, through the week of May 20. The programs, with the exception of the band clinic and music appreciation, will begin at 11:05 in the morning and at 2:05 in the afternoon.

The Minnesota School of the Air is broadcast by the University of Minnesota Radio Station WLB. With a frequency of 760 kilocycles, and 5,000 watts power, WLB may be heard in most of Minnesota, as well as in parts of Iowa and Wisconsin. The diagram on the preceding page indicates WLB's location on your radio dial.

UNIVERSITY OF MINNESOTA

General Extension Division—RICHARD R. PRICE, Director

Radio Station WLB—BURTON PAULU, Manager

Minnesota School of the Air—E. W. ZIEBARTH, Program Director

Suggestions to Teachers

If these programs are to be used effectively, it is important that students listen under conditions insuring good reception. Unless the technical problems of reception are adequately solved, the finest programs will fail. The choice of receiving apparatus is very important, and the advice of a competent audio-education expert should be followed. Be sure to tune to WLB from two to five minutes before the program begins. This allows time to adjust the radio set, and insures against the possibility of missing the first part of the program. The class will also have a few minutes during which to adjust to the radio situation. Experience has demonstrated that it is preferable for students to listen in ordinary sized classes; for most purposes large groups of students in assembly rooms cannot benefit greatly from radio programs.

It is the aim of the organizers of the Minnesota School of the Air to provide programs which will, as far as possible, fit into the approved state courses of study; and if maximum results are to be obtained, the teachers should try to correlate their class work with the radio broadcasts. Remember that a program which is used without preparation will be of little value. We suggest that the teacher discuss the story, drama, historical episode, or other material before the broadcast. Students should be motivated to discuss these radio presentations after each lesson. In the case of travel discussions, students should be encouraged to make maps and to be prepared to discuss the peoples and customs of the foreign lands visited.

The ideas and suggestions of superintendents, principals, teachers, and all people interested in education by radio, are invited. Repeat broadcasts, arranged at times convenient to schools which cannot hear the programs during their regularly scheduled periods, will be arranged at the request of teachers, whenever possible. Additional copies of this bulletin are available, free, upon request.

These programs are approved by the State Department of Education and the Radio Committee of the Minnesota Education Association, and are integrated with the approved state courses of study.

Countries and Cities Around the World

Monday, 11:05 to 11:20 a.m.—Junior and Senior High School

Each Monday we leave port on a cruise through the western hemisphere, stopping to view interesting places and to learn about the peoples and customs of these lands. The countries and cities to be visited on these trips will be discussed so that the student will be stimulated to read about them for himself. Map work will also be encouraged.

February	5	A Cruise to South America
February	12	Port of Santos
February	19	Brazil
February	26	Lima
March	4	Valparaiso
March	11	Buenos Aires
March	18	Argentina
March	25	Montevideo
April	1	Venezuela
April	8	Caracas
April	15	Santiago
April	22	Bolivia
April	29	Haiti
May	6	Mexico City
May	13	West Indies
May	20	Jamaica

Vocational Orientation—Choice of Occupation

Monday, 1:30 to 2:20 p.m.—Senior High School and
Junior College

The lecture meetings of the course in Vocational Orientation are broadcast from the classroom each Monday from 1:30 to 2:20 p.m. This is a General College course which meets each Monday, Wednesday, and Friday.

Because Vocational Orientation as taught in the General College is a two-quarter course, the titles used in the fall quarter will be repeated in the spring for the convenience of those schools which did not have an opportunity to hear the fall programs, and also for those which did hear the first series but wish the information with different emphasis from a different group of speakers. This is pointed out in order to avoid the impression that the spring program will be an exact duplication of the fall series.

The complete series will be conducted by Malcolm S. MacLean, director of the General College; Royal Embree, chief counselor, and Milton E. Hahn, co-ordinator, Vocational Ori-

entation, both of the General College. Other speakers will be presented from time to time.

February	5	Homemaking and Kindred Occupations—Ivol Spafford, Curriculum Director, General College	
February	14	Trade and Mechanical Jobs—H. T. Widdowson, Assistant Professor of Industrial Education	
February	19	Jobs in Handling Other People's Money—To be announced	
February	26	Jobs in Education—Marcia Edwards, Assistant to the Dean, College of Education	
March	4	Clerical Work—Ernestine C. Donaldson, Assistant Professor of Secretarial Training	
March	11	Request Program—Milton Hahn, Instructor of Vocational Orientation, General College	
March	18	Request Program—Malcolm S. MacLean, Director of General College	
March	25	Jobs and Agriculture—Edward M. Freeman, Dean of College of Agriculture, Forestry, and Home Economics	
April	1	Introduction—Milton Hahn, Instructor of Vocational Orientation, General College	
April	8	What College?	} Speakers to be panelled
April	15	Success in College	
April	22	Matching Human Patterns to Job Patterns	
April	29	Problems in Finding a Vocational Choice	
May	6	Costs of Failure in Your Chosen Field	
May	13	Human Abilities and Job Classification	
May	20	Making Sure of Your Choice	

Current Events

**Tuesday, 11:05 to 11:20 a.m.; Friday 2:05 to 2:20 p.m.—
Grades Six to Eight**

It is especially important during times of international conflict to present to the younger students objective analyses of the important news of the week. This program will help pupils take an active interest in the news of the state, the nation, and the world, and will encourage careful evaluation of current news. Up-to-the-minute news dispatches, as they come to our studios, will be presented in simplified form when they are of sufficient interest and importance. The program will be broadcast twice each week from February 6, through May 21.

Art for You

Tuesday, 2:05 to 2:20 p.m.—Junior and Senior High School

The title of this course is not misleading. This is your course, designed to help you increase your resources for enjoyment, particularly if you have never studied art and are not at present enrolled in an art course.

If you have some understanding of what is going on in art today, it will help you to live a richer and more interesting life. Every day in your life you are called upon to make some decision in which a knowledge of art would help you. Perhaps it is the purchase of just the right hat to be worn on some very important occasion. Perhaps you are having difficulty in selecting a color scheme or wallpaper for the living room.

This course is not a history of art, nor does it aim to make professional artists of talented students. It is for people who want to overlook no opportunity for enjoying the life going on around them today. It is particularly recommended for students having free periods. Teachers of English, home economics, social studies, and other subjects will find the programs useful for correlation with their courses.

February	6	Of What Importance Is Art to You?
February	13	Your Clothing and Personality
February	20	How Can You Improve Your Home?
February	27	Art Enters the Garden
March	5	Art at Work in Our School
March	12	Building a Better Community
March	19	Art and the Job You Will Have
March	26	Art in Industry
April	2	Art and Printing
April	9	Minnesota Painters
April	16	American Painters Today
April	23	Foreign Painters of Importance
April	30	Contemporary Sculpture
May	7	The Architecture of Our Times
May	14	Are Motion Pictures Art?
May	21	Request Program

Old Tales and New

Wednesday, 11:05 to 11:20 a.m.—Primary Grades

The stories in this series have been chosen with attention to the interests and vocabulary level of pupils in the primary grades. They have been selected by Miss Nan Scallon with the advice of Miss Neith E. Headley, head kindergarten teacher and instructor in child welfare, University of Minnesota. The stories to be narrated will be presented by Miss Marion Latta. The programs marked with an asterisk (*) will be presented in dramatic form.

February	7	*How Brer Rabbit Met Lil' Tar Baby
February	14	Picture Tales from the Russian: Hungry Wolf
February	21	*The Gingerbread Man
February	28	Mary and the Cootah
March	6	*Willy Nilly
March	13	The Boy Who Discovered the Spring

March	20	* <i>The Tale of Peter Rabbit</i>
March	27	Story Poems
April	3	* <i>Little Black Sambo</i>
April	10	<i>Crunch the Squirrel</i>
April	17	* <i>Peter Rabbit Decides To Change His Name</i>
April	24	<i>Alexander the Gander</i>
May	1	* <i>Singing Fever</i>
May	8	Story Poems
May	15	* <i>The Little Engine That Could</i>
May	22	<i>Mrs. Mallaby's Birthday</i>

German and French

Wednesday, 2:05 to 2:20 p.m.—High School and College

High school and college classwork in these two languages will be supplemented by programs which include readings, songs, and plays in the two languages, and will afford an authoritative example of good pronunciation. The texts of the French and German material used will be available at cost to schools and to adult listeners. The price of the complete set of texts for either series is 15 cents. These programs are approved by the American Association of Teachers of French, and the American Association of Teachers of German.

February	7	German: <i>Schneewittchen</i> (reading)
February	14	French: Molnaux, <i>Les Deux Sourds</i> (play)
February	21	German: <i>Lieder</i> (music)
February	28	French: Bernard, <i>L'Anglais Tel Qu'on Le Parle</i> (play)
March	6	German: <i>Wilhelmi, Einer muss heiraten</i> (play)
March	13	French: Bizet, <i>Carmen</i> (opera)
March	20	German: German Easter customs (reading)
March	27	French: Dondo, (15th century) <i>La Farce de Maitre Pierre Pathellin</i> (play)
April	3	German: German Folk Music
April	10	French: Dondo, (15th century) <i>La Farce de Maitre Pierre Pathellin</i> (play) continued
April	17	German: Thoma, <i>Die kleinen Verwandten</i> (play)
April	24	French: Duvernois, <i>La Dame de Bronze et le Monsieur de Cristal</i> (play)
May	1	German: Humperdinck, <i>Hansel und Gretel</i> (opera)
May	8	French: Hugo, <i>Les Miserables</i> (dramatized reading)
May	15	German: Poems and Ballads (reading)
May	22	French: Folk Songs

Band Clinic

Wednesday, 4:15 to 4:45 p.m.—All School Bands

In co-operation with the Minnesota Music Project of the Work Projects Administration, the Minnesota School of the Air is inaugurating a radio band clinic. These programs are planned especially to be heard by members of school bands.

The broadcasts will consist of performances by the Minnesota Symphonic Band of most of the compositions on the 1940 Selective Competition List for the State and National School Music Festivals. As far as possible, the Minnesota Symphonic Band will use the editions played by high school bands. During the broadcasts, comments will be given on the selections, with suggestions on interpretation. The selections chosen for the broadcasts are listed below, and when time permits, additional pieces from the Selective Competition List or the Cumulative Competition List will be played.

Date	Composer	Title	Class
February 7	Flotow	<i>Stradella Overture</i>	B
	Busch	<i>Brass sextet, Prelude and Choral</i>	4
	Bach-Moehlman	<i>Prelude and Fugue in G Minor</i>	C
February 14	Leidzen	<i>Autumn Overture</i>	B
	Tschaikowsky and Schumann	<i>Two Petite Marches (for four clarinets)</i>	2-3
	Holmes	<i>Dreadnaught</i>	D and E
February 21	St. Clair	<i>Achilles Overture</i>	B
	Johnson	<i>Seeds of Cadmus—Tone Picture, Op. 33</i>	D and E
February 28	Bennett	<i>Scenes from the Sierras</i>	B
	Balay	<i>Petite Suite (Woodwind quintet)</i>	3
	Wood	<i>Manx Overture</i>	A
March 6	Russell	<i>Young America Overture</i>	D and E
	Bennett	<i>Moderne (E flat alto saxophone solo)</i>	4
March 13	Buchtel	<i>Judy's Dream</i>	D and E
	De Rubertis	<i>Niobe Overture</i>	B
	Boieldieu	<i>Calif of Bagdad Overture</i>	C
March 20	St. Clair	<i>Chevalier Overture</i>	D and E
	Busch	<i>Brass Quintet</i>	3
March 27	Buchtel	<i>Traveller Overture</i>	C
	Scarlati	<i>Tempo di Ballo (three clarinets)</i>	3
April 3	Elgar	<i>Sea Pictures Suite, No. 3</i>	B
	Hadley	<i>Prelude from Suite Ancienne</i>	C
April 10	Skornicka	<i>Overture Hongroise</i>	B
	Hume	<i>Inspiration (brass quartet)</i>	3
	Wood	<i>Manx Overture</i>	A
April 17	Thomas	<i>Westward Ho!</i>	D and E
	Grieg	<i>Selection of Melodies</i>	C
	De Rubertis	<i>Niobe Overture</i>	B
April 24	Guentzel	<i>Festival Overture in F</i>	B
	Bright	<i>Andante and Polacca</i>	2
	Johnson	<i>Hero Overture</i>	C
May 1	Falaguerra	<i>Fugal Overture</i>	B
		<i>Downtfall of Paris (3 snare drums, cymbals, bass drum, bell lyra, and piano)</i>	6
May 8	Thiele	<i>Characteristic Overture</i>	C
	Liszt-Smith	<i>Liebstraum</i>	3
May 15	Thomas	<i>On Shawnee Road Overture</i>	D and E
	Suppe	<i>Light Cavalry Overture</i>	B
May 22	Weidt	<i>Gloriana</i>	D and E
	Bell	<i>Jig Elephantine (tuba solo)</i>	1-2

Music Appreciation

Thursday, 11:00 to 11:30 a.m.—Junior and Senior High School

The music appreciation programs, now in their ninth consecutive year, are the oldest educational feature originated by any Minnesota radio station. Since this series is complete in itself, it is recommended to schools which do not have music courses, but it may be used also to supplement organized music curricula. A thirty-six page bulletin, containing song texts, musical themes, program notes, and other information concerning the selections played, is available free upon request; additional copies of this bulletin for use by study groups or classes are available at 15 cents each. These programs are prepared and presented by Burton Paulu.

The Instruments of the Orchestra

February 8 The Conductor and the Symphony Orchestra

Listening to Vocal Music

February 15 The Human Voice
February 22 Vacation Program
February 29 A Concert of French Songs
March 7 The Art Song and Johannes Brahms
March 14 The *St. Matthew's Passion*, by Johann Sebastian Bach
March 21 The *St. Matthew's Passion*, by Johann Sebastian Bach (continued)

Music for Keyboard Instruments

March 28 Listening to Organ Music
April 4 The Piano and Its Predecessors
April 11 Piano Music of Franz Liszt
April 18 A Piano Concerto, by Robert Schumann

Eight Concerts: From Bach to Prokofieff

April 25 The *St. Matthew's Passion*, by Johann Sebastian Bach
May 2 The *Symphony No. 8*, by Ludwig van Beethoven
May 9 The *Symphonie Fantastique*, by Hector Berlioz
May 16 The *Symphonie Fantastique*, by Hector Berlioz (continued)
May 23 The *Concerto in A Minor*, Opus 54, by Robert Schumann

Representative Authors

Thursday, 2:05 to 2:30 p.m.—High School English Classes

These programs make it possible for the busy teacher of English literature to make available to students dramatizations and readings from the recommended and supplementary lists

provided in the State Course of Study. Since most of these programs will be presented in dramatic form, they will be slightly longer than most Minnesota School of the Air broadcasts. (The average time will be 25 minutes.) The programs marked with an asterisk (*) will be presented in dramatic form.

February	8	Hamlin Garland	* <i>Under the Lion's Paw</i>
February	15	Edgar Allan Poe	<i>The Tell-Tale Heart</i>
February	22	Thomas Hardy	* <i>The Three Strangers</i>
February	29	Robert Louis Stevenson	* <i>Will of the Mill</i>
March	7	Frank R. Stockton	<i>The Lady or the Tiger</i>
March	14	Alexandre Dumas, père	* <i>Zoderminsky's Duel</i>
March	21	Joseph Conrad	* <i>The Inn of Two Witches</i>
March	28	William Wilkie Collins	<i>A Terribly Strange Bed</i>
April	4	Arthur Conan Doyle	* <i>The Adventure of the Speckled Band</i>
April	11	O. Henry	* <i>The Third Ingredient</i>
April	18	Nathaniel Hawthorne	<i>Dr. Heidegger's Experiment</i>
April	25	Francis Gilchrist Wood	* <i>Turkey Red</i>
May	2	Mark Twain	<i>A Dog's Tale</i>
May	9	William Wymark Jacobs	* <i>A Monkey's Paw</i>
May	16	Ambrose Bierce	<i>An Occurrence at Owl Creek Bridge</i>
May	23	Shakespeare	* <i>Romeo and Juliet</i>

Guidance for the Future Worker

Friday, 11:05 to 11:20 a.m.—Senior High School

Our program for the second semester of the 1939-40 school year will continue along the lines established for the first semester. The emphasis changes from that concerned with the making of vocational choices, to related information about the broad fields and occupational labels included in these fields. Specific labels were selected from a check list which contained high school choices in order of frequency, and the most usual choices are discussed.

May we call your attention to the final program of the series. This "request" program will deal with those occupations about which most listener interest centers. Teachers and students who do not find their field of interest listed in the series are urged to write to the Minnesota School of the Air giving the occupations they feel should be included in the request program.

Mr. Milton Hahn, co-ordinator of Vocational Orientation, for the General College of the University of Minnesota, will conduct the program, assisted by Harold Pepinsky, counselor

and research assistant in the General College. The programs marked with an asterisk (*) will be presented in dramatic form.

February	9	Introduction and Recapitulation
February	16	*Proprietary Schools
February	23	Engineering
March	1	Law
March	8	*Medicine
March	15	Nursing
March	22	(No program—Good Friday)
March	29	*Music
April	5	*Selling for a Living
April	12	Clerical Jobs
April	19	Social Service
April	26	Teaching
May	3	Civil Service
May	10	*Jobs in Aviation
May	17	Earning Your Living in English
May	24	Request Program

Current Events

Friday, 2:05 to 2:20 p.m.—Grades Six to Eight

(See announcement for Tuesday, Current Events program)

NOTE.—Other programs of interest to school and adult listeners will be found in the WLB program schedule for the winter quarter. This schedule will be sent free upon written request.

The Bulletin of the
UNIVERSITY of MINNESOTA

Biological Station Summer Session at Lake Itasca
Douglas Lodge, Minnesota

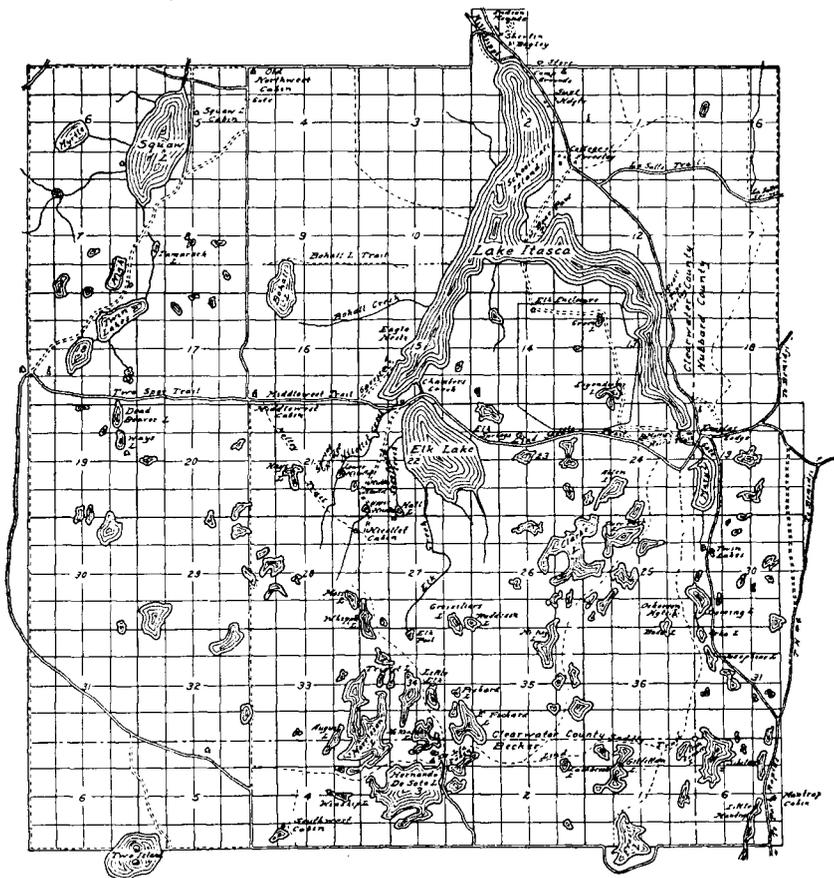
Second Term, Summer Session July 29 to August 30, 1940



Volume XLIII, Number 9

January 29, 1940

*Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota.
Accepted for mailing at special rate of postage provided for in Section 1103, Act of
October 3, 1917, authorized July 12, 1918*



Map of Itasca State Park

BIOLOGICAL STATION SUMMER SESSION
of the
UNIVERSITY OF MINNESOTA

Second Term, Summer Session—July 29 to August 30, 1940

FACULTY

ADMINISTRATION

GUY STANTON FORD, Ph.D., LL.D., Litt.D., L.H.D., President
WALTER C. COFFEY, M.S., LL.D., Dean and Director of the Department of
Agriculture
EDWARD M. FREEMAN, Ph.D., Dean of the College of Agriculture, Forestry,
and Home Economics
THOMAS A. H. TEETER, B.S.(C.E.), Director of the Summer Session
EDWARD E. NICHOLSON, M.A., Dean of Student Affairs
ANNE D. BLITZ, M.A., LL.D., Dean of Women
FRANK K. WALTER, M.A., M.L.S., University Librarian
RODNEY M. WEST, B.A., Registrar
WILLIAM T. MIDDLEBROOK, B.A., M.C.S., Comptroller

BOTANY

C. OTTO ROSENDAHL, Ph.D., Professor
MURRAY F. BUELL, Ph.D., Assistant Professor, University of North Caro-
lina
DONALD B. LAWRENCE, Ph.D., Instructor

ENTOMOLOGY AND ECONOMIC ZOOLOGY

ALEXANDER A. GRANOVSKY, Ph.D., Associate Professor
GUSTAV A. SWANSON, Ph.D., Assistant Professor

FORESTRY

MURRAY F. BUELL, Ph.D., Assistant Professor, University of North Caro-
lina
THORVALD SCHANTZ-HANSEN, Ph.D., Associate Professor, Director of
Station

PLANT PATHOLOGY AND BOTANY

CLYDE M. CHRISTENSEN, Ph.D., Assistant Professor

ZOOLOGY

WILLIAM A. RILEY, Ph.D., D.Sc., Professor
SAMUEL EDDY, Ph.D., Associate Professor
JOHN P. TURNER, Ph.D., Assistant Professor
FRANKLIN G. WALLACE, Ph.D., Instructor

GENERAL INFORMATION

In 1908 the University of Minnesota established a Forest School summer session at Itasca State Park for field instruction in forestry. The facilities were originally used only for instruction in forestry altho staff members have for years conducted research studies in forestry, botany, and entomology at Itasca Park. In recent years there has been an increasing demand that these facilities be made available to interested students and teachers of biological subjects during the second term of the University's Summer Session. Because of the rich and varied flora and fauna of the region, Itasca Park provides a most suitable locality for the study of biological problems of the midwestern states. Probably no other area in this region is better suited to the location of a field station of terrestrial and fresh-water biology.

To satisfy this demand, the Biological Station of the University of Minnesota was organized. Classes were first conducted during the second term in the summer of 1935 with an encouraging registration. In the last five years unusually fine progress has been made and the Biological Station of the University of Minnesota at Itasca State Park bids fair to become one of the leading terrestrial and fresh-water biological stations in the United States.

LOCATION AND OPPORTUNITIES FOR BIOLOGICAL WORK

Coniferous and hardwood forests merging into prairie, sand dunes, glaciated and unglaciated areas, thousands of fresh-water lakes both large and small, and swamps from the heavily forested types to the open muskeg



At the Source of the Mississippi River

all combine to give Minnesota a highly diversified flora. Biologists and students of nature and conservation find here an unexcelled opportunity for much fundamental field work.

The Biological Station of the University of Minnesota is situated on the east shore of Lake Itasca in Itasca State Park. The source of the Mississippi River is only a mile away. Park Rapids, Bemidji, and Walker are practically equidistant from the station. The normal points of entry to Itasca Park by rail are Park Rapids and Bemidji, some twenty-five miles away. A Greyhound bus line reaches Douglas Lodge on the south end of Lake Itasca, four miles from the Biological Station.



Forest Trail Along the Inviting Lake Shore

Itasca State Park, one of Minnesota's more primitive areas, is seven miles square and covers an area of approximately 32,000 acres. The numerous lakes, both large and small, have an area of about 5,000 acres. Lake Itasca is 1,460 feet above sea level. Only a short distance away is a continental divide with an elevation of 1,670 feet. From the watersheds of the park, waters flow north through the Red River of the North to Hudson Bay and south through the Mississippi to the Gulf of Mexico.

The wooded shores of the lakes, the primeval forests, the dense swamps and open bogs, beaver dams, eagle nests, prehistoric Indian mounds, herds of elk and deer, and other features of interest are all accessible over well-marked trails. White, red, and jack pine, white and black spruce, balsam,

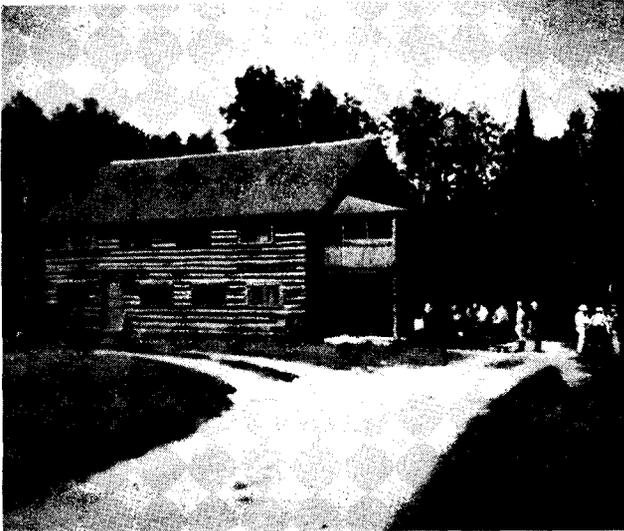


One Is Never Too Tired To Watch the Rainbow of Colors Each Evening from the
Shore of the Station



Amidst the Whispering Pines

larch, and, to a lesser extent, white cedar are found in pure and mixed stands of all age classes from the majestic veterans of virgin stands to the newly planted and reproduced areas. The hardwood forests are characterized by such trees as hard and soft maple, white and yellow birch, large- and small-toothed aspen, balm of Gilead, various oaks and elms, basswood, and other species. The variety of forest types and age classes brings about a corresponding variation in the subordinate vegetation. The recently established state forest adjoining the park affords a splendid opportunity to study the ecology of the flora and fauna of the various successions characteristic of cut-over and burned-over lands. Only twenty miles east, with



A Class in Field Botany Assembled Near Laboratory for Field Trip

headquarters at Cass Lake, lies the Chippewa National Forest. This national forest is perhaps one of the best developed national forests in the United States. A little more than twenty miles to the west is the old Lake Agassiz basin with its famous Red River Valley wheat lands. Just north of Bemidji lies the Red Lake Indian Reservation. Upper and Lower Red Lake together make one of the largest bodies of fresh water, excepting the Great Lakes, within the boundaries of the United States. On the shores of these relatively shallow lakes are found coniferous and hardwood forests of all age classes and conditions. All of these features are readily accessible from the Biological Station and offer an unsurpassed opportunity for a wide variety of biological studies.

The wealth of flora and fauna makes possible the study of systematic botany, zoology, entomology, parasitology, and mycology through living rather than dried and preserved specimens. The number of species makes

possible the monographing of higher plants, algae, lichens, mosses, insects, terrestrial and aquatic invertebrates and parasites of both plants and animals. The abundance of fish, birds, and wild animals in their native habitat offers an unusual laboratory for studying ecology, limnology, parasitology, and game conservation and management. The field courses, as offered at the Biological Station Summer Session, make the plant and animal life vividly real, acquainting the student with the wide variety of plant and animal life living and struggling under natural conditions.

INSTRUCTION

The Biological Station of the University of Minnesota at Lake Itasca was established for the advancement of fundamental knowledge of terrestrial and fresh-water biology. To this end it promotes and provides oppor-



What a Thrill To Study Plants on a Field Trip with a Well-Informed Instructor

tunities for instruction and research in the various fields of biology. Through these activities it hopes to add to the knowledge of the rich flora and fauna of the Lake States and midwestern region having a similar geological history.

This station is conducted co-operatively by various departments in the College of Agriculture, Forestry, and Home Economics and the College of Science, Literature, and the Arts of the University of Minnesota.

It offers elementary and advanced courses in the fields of biology under

competent instructors. Opportunities are also offered for research and investigation in the several fields of biology. While formal instruction is given only during the second term of the Summer Session (July 29 to August 30) qualified students can make arrangements for the use of the facilities for the entire field season to enable them to carry on a better research program.

The Biological Station in its summer session offers unusual opportunities to various groups of students.

1. To graduate students in the field of biology it offers a field laboratory for research in terrestrial and fresh-water biology.

2. To students of game management it offers an opportunity for the study of life histories and ecology of game animals which is fundamental to game management practices.



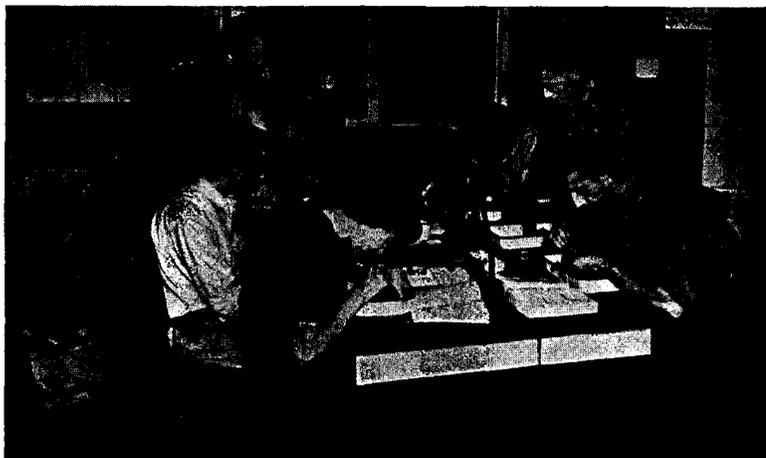
A Group of Students on Their Field Trip

3. To high school teachers it offers an opportunity for advanced study and improvement. Attention is called to the fact that a study of the conservation of natural resources will probably become a part of the junior high school curriculum. The station offers an unexcelled opportunity for the training of teachers in this field.

4. To undergraduate students in all fields of biology it offers an opportunity for advanced instruction. For those who are not certain in which field their major interest lies it may serve as a help in orienting them.

5. To students in agriculture and home economics who contemplate a career in extension work it offers an opportunity for training in conservation and nature study. These subjects are becoming an important phase of all rural extension work.

6. To teachers of botany, zoology, and biology in all schools and colleges it offers an opportunity for improvement through independent research.



Laboratory Class in Limnology



Students in Field Entomology Classifying Daily Collections of Insects in the Indoor Laboratory

Courses, consisting of field trips and indoor laboratory work, are given on designated days. In the field the students visit typical habitats and gather specimens for laboratory study, supplemented by informal lectures by the instructor. The scholastic standards of the University are maintained at the station, and university credit is given for work satisfactorily accomplished in the courses registered.

FACILITIES FOR INSTRUCTION AND RESEARCH

The buildings and equipment of the Biological Station of the University of Minnesota at Lake Itasca, while not elaborate, are adequate for all purposes. Its log dormitories and laboratories are located in an attractive forest setting on the shores of Lake Itasca. The main Forestry Lodge, with its large assembly room and fireplace, is used for some classes and



Wildlife Is Abundant and Varied in Itasca Park

These raccoons lived under a faculty cabin at the station.

evening symposia. The main laboratory of the station is a large, well-lighted, two-story log building, provided with laboratory tables, desks, chairs, a fine herbarium of the region, insect and fungus collections and other specimens for study. The entire camp is electrically lighted with 110-volt A.C. current.

Since the major part of the instruction is in the field, the laboratory equipment is not elaborate. It is, however, adequate for all ordinary purposes, and arrangements can be made to have special equipment available if the needs can be anticipated. The normal equipment includes a library, all necessary compound and dissecting microscopes, binoculars, various types of nets, rowboats, launches, and a supply of accessories and minor equipment indispensable for adequate instruction and research purposes.

The upper story of the main laboratory building is equipped with tables and shelves for advanced students and independent research workers, espe-



A Row of New Log Cabins Used for Women's Dormitories



White Paper Birches Bedeck the Cottage Trail

cially for those who may reserve such space in advance. It is hoped that the various colleges and universities of this state and neighboring states may reserve a few research tables by the establishment of scholarships at the Biological Station for their most promising students in the various fields of biology.



Hungry Students after Field Trip Entering the Dining Hall

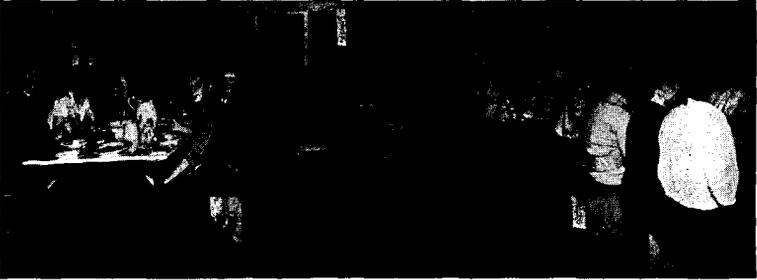
BOARD AND LODGING

The Forestry Lodge is provided with roomy screened-in porches on both the first and second floors. This building can easily accommodate fifty students. Cottages, each accommodating eight students, are assigned for women's dormitories. All dormitories are provided with cots and mattresses, electric lights, stoves, running water, and toilet facilities. Students are asked to bring with them their own bed linen, two or three double wool blankets, a pillow, if desired, towels, and toilet articles. The following personal equipment is essential: suitable shoes or boots for field work, a slicker or other waterproof garment, heavy socks, field suit or dress, swimming suit, flashlight, desk lamp, the recommended and necessary textbooks, notebooks, pocket field books, pencils, hand lenses, dissecting sets and pins, vials and corks, and other articles for field trips, laboratory work, and camp life. When possible, it is recommended that the student write the instructor to secure information on needed texts and equipment. Since the station is far from a source of supply, it is costly in both time and money to secure the necessary equipment after arriving at camp. It is difficult to take care of trunks.

Meals are served in a completely equipped log dining hall operated under the direction of the administration of the station in consultation with the officers of the attending students. The meals are carefully planned, well balanced, and well prepared by experienced cooks and are attractively

served in ample quantities. Fresh meat, vegetables, and fruit are served daily.

It is estimated on the basis of past experience that the cost of board should not exceed \$30 for the five-week session. A payment of \$30 to the treasurer of the commissary is required during the first few days of the session. It must be understood that a rise in food prices may necessitate additional payments. So far this has not been necessary. Should there be any balance remaining in the commissary treasury it will be disposed of by action of the entire student group.



Dining Hall at the Biological Station

Limited laundry facilities are available, but it is possible to have laundry done at nearby towns. Students are expected to keep their own living quarters clean and orderly.

An infirmary has been constructed where a part-time nurse takes care of minor injuries and ills. It is possible to accommodate anyone who may become ill, and medical attention is easily secured from the nearby towns.

About one mile south of the station the State Park Service maintains a large public camp ground. Students with families may avail themselves of the facilities here which include tenting or trailer space, water, fuel, and a well-developed beach. There are numerous resorts in the vicinity of the station where it is usually possible to secure reduced rates for extended stays. These resorts can provide excellent accommodations for families of graduate students and guest investigators. It is hoped that the station will eventually be able to provide adequate housing for this class of students.

FEES AND EXPENSES

The following fees are payable by each registrant on or before July 29 and must be paid before registration is completed:

Tuition fee	\$25.80
Health fee	1.00
<hr/>	
Total tuition fee	\$26.80
General deposit fee	2.00
Equipment fee	10.00
<hr/>	
Total fees for the term	\$38.80

The equipment fee covers the use of microscopes, reference books, nets, boats, various class supplies, and accessories.

Charges for lockers, laboratory breakage, library fines, etc., will be deducted from the \$2 deposit and the balance will be refunded by mail after the close of the term.



The Wealth of Protozoa and Algae Is Enjoyed by Students

The estimated cost of \$68.80 includes \$38.80 registration fee and \$30 for board for the five-week session. It does not include traveling expenses, laundry, and incidental personal expenses.

Tuition and fees are payable at the time of registration directly to the registrar of the University of Minnesota on or before July 29. After July 29 the late registration fee will be charged as follows:

Tuesday, July 30	\$2.00
Wednesday, July 31	3.00
Thursday, August 1	4.00
Friday, August 2	5.00

No registration will be accepted after August 2 without the approval of the professor in charge and the payment of the \$5 late registration fee.

The courses will begin Monday morning, July 29, and close Friday, August 30. Special arrangements, not, however, at the sacrifice of the quality of the work, will be made for those whose school or other duties make it impossible to remain during the entire final week of the session.

ADMISSION AND REGISTRATION

The courses in the Biological Station Summer Session are open to all qualified graduate and undergraduate students who have had the usual preliminary courses in biological subjects, and to properly qualified high

school graduates. Certain courses are especially designed for the teachers of biological subjects in the colleges, high schools, and public schools, and others interested in plant and animal life. Those desiring college credit should submit their credentials, consisting of official transcripts of their high school, normal school, or college work.



Class Returning from Field Trip

Registration may be completed at any time during the months of June and July, but not later than July 29, at the registrar's office on either the Minneapolis or University Farm campus of the University. Application for admission should be made on forms which may be secured by mail from the registrar's office. Registration may also be completed by mail by sending the properly filled out registration blank together with the tuition fee directly to the registrar.

Graduate registration must be approved by the major department and then submitted to the Graduate School for final approval.

Most of the courses are offered on a three-credit basis per session. Each three-credit course will occupy two days from 8:00 a.m. to 4:30 p.m. An adequate noon hour is provided for. Ordinarily students take from six to nine credits of quarter value per session, depending upon their interests, need for credits, and ambition. The minimum load is considered to be six credits, and students will not be permitted to carry a lighter load without the consent of the faculty. It is considered that the nine-credit load is too heavy for most students. Many students prefer to take six credits and audit a third course for review or self-improvement. Advanced students are advised to take two subjects and in addition take one or two credits of a well-delimited research problem.

Opportunities are also offered to graduate students to pursue their re-

search problem work under the supervision and guidance of the staff without attending regular classes.

Special arrangements may be made with the director of the station by qualified independent guest investigators for the use of the facilities of the station for research in various fields of terrestrial and fresh-water biology.

The graduate students should note that only courses numbered 100 and above are considered of graduate value. The courses below 100 carry only undergraduate credit. Many teachers and graduate students find it desirable to take these courses in order to improve their teaching methods, remove prerequisite subjects, and equip themselves for future work toward advanced degrees.



Along the Shore Near the Biological Station

COURSES OF INSTRUCTION

The courses offered at the station will be given according to the following schedule:

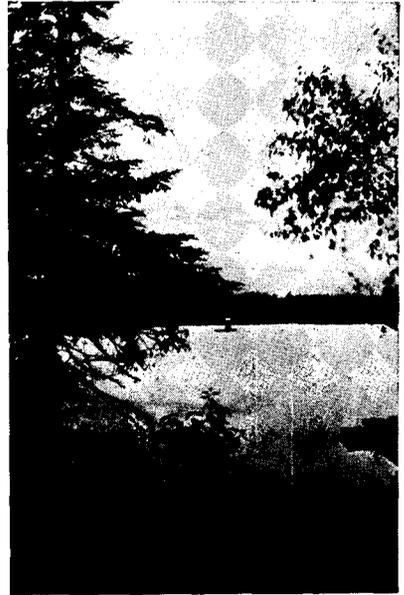
SCHEDULE OF COURSES

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Bot. 11	Bot. 62	Bot. 8	Bot. 11	Bot. 62	Bot. 8
Bot. 20	Ent. and	Bot. 116	Bot. 20	Ent. and	Bot. 116
Ent. and	Econ.	Bot. 135	Ent. and	Econ.	Bot. 135
Econ.	Zool. 59	Ent. and	Econ.	Zool. 59	Ent. and
Zool. 62	Ent. and	Econ.	Zool. 62	Ent. and	Econ.
Zool. 107	Econ.	Zool. 76	For. 145	Econ.	Zool. 76
Zool. 115	Zool. 68	For. 11	Zool. 107	Zool. 68	For. 11
Zool. 116	Ent. and	Zool. 55	Zool. 115	Ent. and	Zool. 55
Zool. 147	Econ.		Zool. 116	Econ.	
	Zool. 168		Zool. 147	Zool. 168	
	For. 145			Pl.Path. 50	
	Pl.Path. 50			Zool. 54	
	Zool. 54			Zool. 108	
	Zool. 108				



**Examining the Rich Catch of Aquatic
Animals**

**A Dock and Diving Board with Clean,
Cool Water**



The schedule for other courses and research problems will be arranged to suit individual needs.

For the 1940 session not more than one hundred (100) applicants can be admitted, and the priority of registration will govern admission.

The Biological Station at Itasca Park can be reached by railroads either to Park Rapids or Bemidji, Minnesota, and then by bus to Douglas Lodge at Itasca State Park. It can also be reached by bus line since the regular north and south bound busses stop at Douglas Lodge. Arrangements will be made to provide transportation from Douglas Lodge to the station at a minimum cost.

Mail to the students should be addressed to the Biological Station Summer Session of the University of Minnesota, Douglas Lodge, Minnesota.



View from the Windows of Students' Dormitories

COURSES OF INSTRUCTION

The following courses are offered in the Biological Station Summer Session for the year 1940 at Itasca State Park. The University of Minnesota reserves the right to cancel any course in which, in the opinion of the director of the Summer Session, the registration is insufficient to warrant a continuation of such course.

BOTANY

8su. Elements of Field Taxonomy. The identification of common wild flowers, and a general study of the classification and relationship of flowering plants. Field work in forest, swamp, bog, lake, and prairie. (3 cred.; prereq. Bot. 1, or consent of instructor; WS.) Mr. Buell.

- 11su. Field Botany. A general elementary field course in plant life. Fundamental facts of structure, growth, reproduction, relation of plants to each other and to their environment. Excursions with lectures and demonstrations to meet the needs of teachers of elementary botany and nature study, scout and camp leaders, and all who would know more about Minnesota plant life. (3 cred.; no prereq.; MTh.) Mr. Buell.
- 20su. Elementary Field Ecology. An outline of the fundamental concepts of ecology illustrated directly by examples in the field. A study of the mature plant communities and the various lines of succession leading to them. (3 cred.; no prereq.; MTh.) Mr. Lawrence.
- 62su.‡ Bryophytes and Pteridophytes. A study of the structure, life histories, and classification of liverworts, mosses, and ferns. Textbook: Coulter, Barnes, and Cowles, *Textbook of Botany*, Vol. 1. (3 cred.; jr., sr.; prereq. bot. 10 cred., or consent of instructor; TF.) Mr. Rosendahl.
- 116su. Advanced Field Taxonomy. A course designed to take advantage of the favorable local conditions for a systematic study of taxonomically difficult groups, particularly the pondweeds, grasses, sedges, rushes, and composites. Text required: *Gray's New Manual of Botany* or any other manual approved by instructor. (3 cred.; jr., sr., grad.; prereq. 10 cred. incl. 7 or equiv.; WS.) Mr. Rosendahl.
- 135su.‡ Field Research Methods in Ecology. An advanced course in field ecology dealing chiefly with methods of studying community characteristics, rate of vegetational change, and the technique of measuring environmental influences. (3 cred.; prereq. bot. 18 cred. incl. Bot. 21 or equiv.; WS.) Mr. Lawrence.
- 196su. Special Problems in Ecology or Taxonomy. Advanced studies in ecology or taxonomy with opportunity for individual field work and research. (Cred. ar.; adv. students with proper qualifications.) Mr. Rosendahl, Mr. Lawrence.

ENTOMOLOGY AND ECONOMIC ZOOLOGY

- 59su. Field Entomology. A study of the insect fauna in various natural habitats of the park and surrounding areas. The course includes field trips, collection and classification of insects, as well as studies of general morphology, life histories, and habits of local species under ecological conditions governing the distribution of insect fauna of the region. (3 cred.; jr., sr.; prereq. Zool. 1-2-3 or equiv.; TF.) Mr. Granovsky.
- 62su. Wildlife Conservation Principles and Administration. A general course dealing with the various values of wildlife, the nature of the biological mechanism involved in its conservation, and the economic, administrative, and legislative consideration of a conservation program. Treats of the values of wildlife, attitudes toward this resource, the essentials of wildlife environments, the requirements of the various species, and species and population properties. The class will visit federal wildlife refuges, a national forest, and a state wildlife refuge to observe the

‡ A fee of \$1 is charged for this course.

- game management work being accomplished. Text recommended: Connery, *Governmental Problems in Wildlife Conservation*. Lectures, laboratory, and field work. (3 cred.; prereq. Zool. 1-2-3 or equiv.; MTh.) Charges for car mileage for field trips in this course will average \$4 to \$5. Mr. Swanson.
- 68su. Natural History of the Higher Vertebrates. Life histories, habits, economic importance, and identification of amphibians, reptiles, birds, and mammals, with special reference to the local species. Texts: Peterson, *A Field Guide to the Birds*, and Hatfield, *A Checklist of the Mammals of Minnesota with Keys for Their Identification*. References: Pratt, *Manual of Vertebrate Animals of the United States*; Wright, *Handbook of Frogs and Toads*. (3 cred.; prereq. Zool. 1-2-3 or equiv.; no credit for students who have had Zool. 46-47, Ornithology, or Ent. 163, Mammalogy, or equiv.; TF.) Charges for car mileage for field trips in this course will average \$1 to \$2. Mr. Swanson.
- 76su. Techniques of Field Biology. A study of available flora and fauna including the methods of collection, preservation, arrangement, and demonstration of illustrative material and effective presentation to classes. Lectures, laboratory, and field work by the entire staff of the station, each instructor presenting the selected methods in his respective field. This course is primarily designed to meet the needs of teachers of biological subjects. (2 cred.; prereq. bot. or zool. 10 credits or consent of instructor; WS.) Mr. Granovsky and staff of the station.
- 168su. Advanced Natural History of the Higher Vertebrates. Detailed study of the life histories, habits, food habits, and classification of the higher vertebrates of northern Minnesota with special reference to the birds and mammals. Preparation of museum study specimens. Texts recommended: Peterson, *A Field Guide to the Birds*; Anthony, *Field Book of North American Mammals*. Lectures, laboratory, and field work. (3 cred.; prereq. Zool. 46-47, Ornithology, or Ent. 163, Mammalogy, or equiv.; TF.) Charges for car mileage for field trips in this course will average \$1 to \$2. Mr. Swanson.
- 196su. Special Problems in Entomology or Economic Zoology. Advanced work in entomology and economic zoology with ample opportunity for individual research, especially in various phases of faunistic studies in terrestrial, aquatic, and forest entomology and economic zoology. (Cred. ar.; adv. students with proper qualifications.) Mr. Granovsky, Mr. Swanson.

FORESTRY

- 11su. Field Dendrology. Trees and shrubs found in the Itasca Park region, with special reference to identification by means of constant characters. (Not open for credit to students in Forestry.) Text required: Rosendahl and Butters, *Trees and Shrubs of Minnesota*. (3 cred.; prereq. bot. 10 cred., or consent of instructor; WS.) Mr. Buell.
- 145su. Conservation of Natural Resources. A general course surveying our natural resources, the past treatment and changes in the public attitude towards their use. Designed principally as an informational course for

those who will teach conservation in junior high school. Suitable exercises for junior high school students will be demonstrated and carried out. (1 cred.; prereq. one year of biol. sci.; TTh.) Mr. Schantz-Hansen.

PLANT PATHOLOGY AND BOTANY

- 50su. Field Mycology. Taxonomy and classification of fungi, particularly mushrooms, wood rotting fungi, and those which cause disease of forest trees. Field collections, laboratory work, and lectures. (3 cred.; prereq. one year of bot. or equiv., or consent of instructor; TF.) Mr. C. M. Christensen.
- 210su. Research in Mycology. Research work along following suggested lines: taxonomy of natural groups, fungus flora of particular regions, localities, or habitats; investigation of fungi involved in special industrial or natural processes; morphology or physiology of special forms. (Cred. ar.; grad.; prereq. 105-106-107.) Mr. C. M. Christensen.

ZOOLOGY

- 54su.‡ Parasitology. A study of animal parasites and parasitism in lecture, laboratory, and field work, with special emphasis on local forms. Text required: Riley, *Introduction to the Study of Animal Parasites and Parasitism*. References: Hegner, Root, and Augustine, *Animal Parasitology with Special Reference to Man and Domesticated Animals*, and Brumpt, *Précis de Parasitologie*. (3 cred.; prereq. zool. 15 cred.; TF.) Mr. Wallace.
- 55su.‡ Natural History of Invertebrates and Fishes. A taxonomic and ecological survey of the local fauna, including life histories and habitats. Text required: Needham and Needham, *Guide to the Study of Fresh Water Biology*. References: Ward and Whipple, *Fresh-Water Biology*. (3 cred.; prereq. Zool. 1-2-3 or equiv.; WS.) Mr. Eddy.
- 107su.‡ Protozoology. A survey of the Protozoa, with special reference to their structure and life histories. Text (not required): Kudo, *Handbook of Protozoology*. (3 cred.; prereq. zool. 15 cred.; MTh.) Mr. Turner.
- 108su.‡ Advanced Protozoology. Continuation of 107, with emphasis on methods of collection, cultivation, and preparation of free-living and some parasitic forms. Introduction of cytology of Protozoa also included. (3 cred.; prereq. 107, or may be taken with 107; TF.) Mr. Turner.
- 115su.‡ Advanced Natural History of Invertebrates and Fishes. An advanced taxonomic and ecological survey of the local fauna including a detailed and independent ecological study of several taxonomic groups. Text required: Ward and Whipple, *Fresh-Water Biology*. (3 or 4 cred.; prereq. 15 cred. in Zool.; MTh.) Mr. Eddy.
- 116su.‡ Limnology. A study of the conditions of life and the distribution of organism in the lakes of the Itasca region. Text required: Welch, *Limnology*. (3 cred.; prereq. zool. 15 cred.; MTh.) Mr. Eddy.

‡ A fee of \$1 is charged for this course.

- 147su.‡ Helminthology. A survey of the worm parasites of local animals with special emphasis on classification and the study of life cycles by the experimental method. (3 cred.; prereq. Zool. 51, 54, or 144; MTh.) Mr. Wallace.
- 198su. Problems in Parasitology, Ecology, Limnology, or Protozoology. Principles and further work in special lines adapted to needs of individual students. (Cred. ar.; prereq. Zool. 1-2-3, and special requirements; adv. students.) Mr. Riley, Mr. Eddy, Mr. Turner, Mr. Wallace.

For further information address the registrar of the University of Minnesota, the director of the Summer Session, 235 Administration Building, University of Minnesota, Minneapolis, Minnesota, or the director of the Biological Station, University of Minnesota, University Farm, St. Paul, Minnesota.

‡ A fee of \$1 is charged for this course.



Recreation Hours on Beautiful Lake Itasca



Advanced Students Reach the Most Inaccessible Places by Light and Safe Boats



A Group of Students and the Staff in Attendance

Workshop in Higher Education

PURPOSE OF THE WORKSHOP

The University of Minnesota, through the College of Education, announces a Workshop in Higher Education for the first term of the 1940 Summer Session. The purpose of the project is to enable mature persons from universities, liberal arts colleges, teachers colleges, and junior colleges to work intensively, under laboratory conditions, on problems of especial concern to them and to their institutions. The workshop is open, not only to administrative officers and personnel workers, but also to members of instructional staffs who are working on problems in the fields of curriculum, instruction, counseling, teacher education, and institutional research.

Few if any universities possess a greater variety of facilities for the study of problems in higher education than the University of Minnesota. Through its Committee on Educational Research, the University constantly experiments with its own educational procedures, with the purpose of serving more adequately the widely varying needs of its constituents. The General College of the University, with its experimental program of general education and its research into student needs and student counseling, has attracted nation-wide attention. The Center for Continuation Study is a pioneering development in adult education. Through the University College, programs of study which may cut across all the divisions of the University are arranged to meet the needs of individual students. The Testing Bureau, the agency for clinical diagnosis and counseling in the University, has become a model for the development of comparable services in other institutions. The University Health Service is one of the most complete in the United States. The centralized Visual Education Service, the newly established position of co-ordinator of student personnel services, and the new curriculum for training recreation leaders are other illustrations of recent outstanding developments in the University's educational program. Members of the administrative and instructional personnel of the University who are actively engaged in the work of these agencies are included in either the central or the consulting staff of the workshop.

FIELDS OF STUDY

The workshop will guide study of problems in the following four major areas: (1) Curriculum and Instruction, (2) Student Personnel Services, (3) Teacher Education, and (4) Planning of Research. While

the needs of the participants will determine the emphasis in each field, the following outline will indicate the topics in each area for which specific consultation or laboratory assistance is available in the University.

Curriculum and Instruction

1. Bases for organizing programs of general education
2. The development of survey and orientation courses
3. Relating general education to vocational or other specialized training
4. Evaluation of general education
5. Institutional organization for curriculum revision
6. Methods of improving instruction

Student Personnel Services

1. Psychological diagnosis and counseling
2. The utilization of teaching staff and the co-ordination of instruction with personnel work
3. The co-ordination of personnel services
4. The selection and training of personnel workers
5. Personnel records
6. Student housing

Teacher Education

1. General education for teachers
2. The reorganization of professional courses and curricula
3. Development of five-year curricula
4. Student teaching and the development of laboratory schools at the secondary level
5. Selection of teacher-training candidates
6. Development of nonintellectual factors in teacher-education
7. Placement and in-service adjustment

Planning of Research

1. Design of experiments in curriculum, instruction, and student personnel
2. The selection of statistical techniques for experimental analysis and interpretation
3. The organization of a program of institutional research
4. A critical examination of research in higher education

WORKSHOP ACTIVITIES

The workshop activities will include four types of experience: (1) consultation with individual staff members, (2) participation in informal seminars, (3) enrolment in a general course on problems in higher education, and (4) observation and investigation of the University's own services.

Individual conferences with staff members constitute one of the most important aspects of the workshop procedure. One of the features of the Minnesota workshop is the large consulting staff available for expert assistance on specialized problems. Faculty members from the several colleges who have participated in the development of new curricula, administrative officers, counselors, and research technicians will co-operate with the central staff of the workshop.

In addition to these individual conferences, workshop members studying the same or closely related problems, may work together informally as this proves profitable. Furthermore, a seminar will be organized, to meet as often as the members desire, in the four areas to be included in the workshop program. This will enable each member to relate his own project to other developments in the same area.

Altho the core of the program is attention to individual problems, experience at other centers has shown the importance of relating specific projects and the work of the area seminars to a systematic consideration of current developments and broad issues in higher education. Therefore, members of the workshop and the central staff will meet together for one hour each day, from Monday to Friday, to participate in a rather systematic survey of college and university problems. Several members of the workshop staff will co-operate in conducting these lectures and discussions.

One of the most unusual and important phases of the workshop program is the opportunity for firsthand observation of the activities of the varied and unique organizations and services of the University, which have been illustrated above, and which are listed in more detail later in this bulletin. Actually, the entire University will become a laboratory for the summer workshop.

The daily program will run about as follows:

- | | |
|----------------------|---|
| 9:00 a.m. | General meeting for lectures and discussions on Contemporary Problems in Higher Education. |
| 10:30 a.m.-12:00 m. | Seminars in each of the four areas meeting as often as any group desires. This period can be used for appointments with the consulting staff on nonseminar days. |
| 2:00 p.m.- 4:00 p.m. | Appointments with the central staff can be scheduled, or arrangements made to observe university functions, or appointments made with the consulting staff, or group conferences planned. |

The daily program is quite flexible and the interests of the group may make modifications desirable. The plan is, however, to limit the definite events of the day to a few hours and leave ample opportunity for members to take part in whatever other physical, cultural, social, or intellectual activities may appeal to them. A bulletin on the recreational and cultural program of the Summer Session will be available about March 15, 1940. Rather than attempt to provide any special evening lectures, the staff has decided to encourage workshop members to take advantage of the extensive program of lectures, plays, and musical events provided in the regular Summer Session program. The university golf course is near by, as are many opportunities for swimming in Minneapolis lakes, or for enjoying her 140 parks. Excursions and industrial trips are common. Minnesota's 10,000 lakes lure many fishermen away for week ends. Both the workshop and the university libraries will be open for afternoon reading, and the University Library will be open in the evening.

LABORATORY AND OBSERVATION FACILITIES

In the opening paragraphs of this bulletin, attention was called to the many unique developments of the University which provide opportunities for observation and laboratory experience. For those interested in the fields of curriculum and instruction, there is the University Committee on Educational Research, with a varied program of studies in this area and a history of productive work throughout the past eighteen years. There is also the curriculum research and organization program of the General College, subsidized for five years by the General Education Board and now undergoing an evaluation by Dr. Ruth Eckert. The unusual adult education program of the Center for Continuation Study, the University College

plan for individualized four-year curricula, the Visual Education Service with its program of research, production, and instructional activities, the Newsreel Theater and the Listening Hours of the General College, and numerous curriculum and instructional studies in the various colleges should be cited as developments in this area.

Among the student personnel services are the Students' Health Service, the Speech Clinic, the Reading Clinic, and the Testing Bureau with a yearly case load of 3,000 to 4,000 students tested and counseled. Valuable for study are the personnel programs of the General College, the University High School (a laboratory school for teacher-training), and the College of Science, Literature, and the Arts; the program of apprenticeship for training professional personnel workers; the recent exhaustive survey of student personnel services throughout the University; and the office of the co-ordinator of student personnel services. The activity program of the new two-million-dollar Coffman Memorial Union, and numerous other specific personnel services such as the extensive program of the University YMCA and YWCA for student social development and self-determination may also be studied.

In the area of teacher education, there is available for study the varied program of the College of Education, in which active committees are at work on the reorganization of the entire undergraduate sequence, the student personnel program of the college, the graduate curriculum, the new five-year curricula (with three of these now in operation in the areas of physical education, music education, and art education), the research program of the college, and related problems. There are also the University High School and other student-teaching centers, the Bureau of Recommendations, the Curriculum Laboratory, a program of research in reading, and several studies under way on the extra-classroom development of students.

Workshop students interested in research planning will find assistance from many of the agencies mentioned in earlier paragraphs. In particular, the University Committee on Educational Research, the General College, the University Testing Bureau, and the University Visual Education Service should be designated as outstanding centers of educational research. The majority of all educational research in the University clears through the above-named research committee.

INSTITUTE IN HIGHER EDUCATION

The workshop will culminate in an Institute in Higher Education, to be held July 22-25 (the final week of the workshop) in the Center for Continuation Study. Persons interested in higher education who have not been members of the workshop will also be invited to attend these sessions. Visiting lecturers, the workshop faculty, and members of the group who are engaged in projects of general interest and significance, will participate in the institute.

STAFF OF THE WORKSHOP

The staff listed below is grouped into two classifications, altho there is no assumption of a difference in the essential qualifications of the members of the two groups. The central staff is so designated because its

members are able to devote a larger share of their time to the workshop participants. Any member of the central staff can be sought out directly by workshop students but the consulting faculty should be approached through some member of the central staff. The consultant staff should not be considered as limited, however, to those designated in the list below. Altho these particular faculty members have indicated in advance their desire to participate in the workshop, any other member of the university staff can be seen if an approach is made through the appropriate members of the central staff.

In particular, the assistance of Dr. McConnell and Dr. Wrenn, co-directors of the workshop, should be sought if students wish to gain access to university faculty members, offices, or laboratories. The leaders of the various seminars will also take the initiative in establishing contacts between students and university resources.

CENTRAL STAFF

Earl J. McGrath, Ph.D., (Curriculum and Instruction, Research Planning), specialist in higher education for the American Council on Education, member of the Committee on the Survey of Higher Education in Utah, executive secretary of the Survey of Louisiana State University. Dr. McGrath was formerly assistant to the chancellor and assistant dean of the Evening School of the University of Buffalo. He was a member of the staff of the New York State Regents Inquiry. Through his activities in the American Council on Education, Dr. McGrath has a wide acquaintance with the programs of colleges and universities throughout the United States and has given special attention to the problem of the curriculum in general education.

J. J. Oppenheimer, Ph.D., (Curriculum and Instruction, Research Planning), dean of the College of Liberal Arts and head of the Department of Education, University of Louisville. Dr. Oppenheimer was dean of the faculty and assistant director of research at Stephens College from 1920 to 1930, and was at one time chairman of the Conference of Academic Deans of the Southern States, and a member of the Commission on Higher Education of the National Society for Curriculum Study. Dr. Oppenheimer is versed in matters of both junior college and senior college curriculum and administration. He is teaching a course in the regular University Summer Session on the junior college as well as devoting time to the workshop.

Wesley E. Peik, Ph.D., (Teacher Education), dean of the College of Education. Dean Peik was the curriculum specialist for the National Survey of Teacher Education, staff member of the New York State Regents Inquiry and of the Survey of the Iowa State Teachers College, and director of the well-known study of teacher supply and demand in North Dakota. He is the author of *Professional Education of Secondary Teachers*, and is outstanding in his field, both for national contributions and for the development of an aggressive program of teacher education in his own college.

Malcolm S. MacLean, Ph.D., (Curriculum and Instruction), director of the General College. Dr. MacLean was the Inglis lecturer at Harvard in 1938, and is chairman of the American Council on Education Committee on General Education. He is editor of the Henry Holt series in General Education, a contributor to the yearbook on *General Education in the American College* and similar publications, a popular lecturer on general education, and teacher of education. Dr. MacLean's greatest contribution probably lies in the development of the curricular, student personnel, and research program of the General College, which he has headed since its inception in 1932.

T. Raymond McConnell, Ph.D., (Curriculum and Instruction, Research Planning), professor of education, chairman of the University Committee on Educational Research, chairman of the University Senate Committee on Education, and member of the University Personnel Council and the Board of Admissions. Dr. McConnell was formerly dean of Cornell College. There, and at the University of Minnesota, he has had extensive experience with a great variety of curricular, instructional, and research problems. He is editor of the Crofts series in Education, and was a contributor to the recent yearbook *A Study of College Instruction*. Dr. McConnell is the graduate adviser for students in higher education.

C. Gilbert Wrenn, Ph.D., (Student Personnel, Teacher Education), professor of educational psychology, chairman of the College Student Personnel Committee, member of the Student Publications Board, the Freshman Week Committee, and the Planning Committee for the Coffman Memorial Union, and consultant in student personnel of the American Council on Education Commission on Teacher Education. He was formerly assistant director of the General College, assistant registrar for student personnel at Stanford University, an associate of the American Youth Commission, and chairman of the Commission on Reorganization of the American College Personnel Association. Dr. Wrenn is on the editorial boards of *Occupations* and the *Vocational Guidance Digest*, and has been a contributor to yearbooks on guidance, college personnel work, and college instruction. He is the graduate adviser in student personnel work.

William S. Carlson, Ph.D., (Teacher Education), director of teacher training, associate professor of education, secretary of the Minnesota Association of Secondary School Principals. As a former fellow of the American-Scandinavian Foundation, Dr. Carlson has studied at the University of Copenhagen and has visited many universities in continental Europe. He was formerly director of the Training School at Michigan State College and has been principal of several public high schools. Dr. Carlson is the major adviser for students in methods and directed teaching.

CONSULTANT STAFF

- Edward M. Freeman, Ph.D., Dean of the College of Agriculture, Forestry, and Home Economics, and Chief of the Division of Plant Pathology and Botany
 Julius M. Nolte, B.A., LL.B., Director of the Center for Continuation Study
 Ruth E. Boynton, M.S., M.D., Director of the Students' Health Service and Professor of Preventive Medicine and Public Health
 J. William Buchta, Ph.D., Professor of Physics and Chairman of the Department of Physics
 Palmer O. Johnson, Ph.D., Professor of Education
 Edgar B. Wesley, Ph.D., Professor of Education
 Walter W. Cook, Ph.D., Associate Professor of Education
 Ruth E. Eckert, Ed.D., Associate Professor and Specialist in Evaluation
 Edmund G. Williamson, Co-ordinator of Student Personnel and Associate Professor of Psychology (available only until July 1)
 Francis S. Appel, M.A., Assistant Professor of English and Director of the General College Writing Laboratory
 Clifford P. Archer, Ph.D., Assistant Professor of Education, Director of the Bureau of Recommendations, College of Education, and President of the Minnesota Education Association
 John G. Darley, Ph.D., Assistant Professor of Psychology and Director of the University Testing Bureau
 Marcia Edwards, Ph.D., Assistant Professor of Education and Assistant to the Dean of the College of Education
 Horace T. Morse, Ph.D., Assistant Professor of Education and Assistant to the Dean of the Graduate School
 James W. Thornton, M.A., Assistant Professor and Assistant Director of the General College
 Spencer F. Brown, Ph.D., Instructor in Speech and Assistant to the Director of the Speech Clinic
 Willis E. Dugan, M.A., Instructor and Personnel Director, University High School
 Royal B. Embree, Jr., M.A., Instructor and Research Counselor, General College
 Hedwig Ylvisaker, Ph.D., Instructor in Social Studies, General College
 Nicholas Fattu, M.S., Research Statistician, University Committee on Educational Research

WORKSHOP CENTER

Living and working quarters for members of the workshop have been planned in terms of comfort and convenience. Residence and dining arrangements, library facilities, and conference and consultation rooms will be centralized in Pioneer Hall. This building is a large new residence hall for men, and is divided into relatively small "houses" so that separate

sections can be set aside for members of the workshop only. This arrangement also makes it possible to house both the men and the women who attend the workshop in separate but adjoining divisions of the building. Such a plan makes possible, not only pleasant recreational associations, but also informal discussion of common problems.

Pioneer Hall is beautifully located on a bluff overlooking the Mississippi River. It is only two blocks from the Main campus (including the General University Library and most of the laboratory facilities which have been mentioned in this bulletin). Nearby street car lines make both cities easily accessible.

The residence sections of Pioneer Hall include three-room suites for two students (separate bedrooms and a common study), double rooms, and single rooms. Individual study desks and arm chairs, beds with inner spring mattresses, a deep cushioned lounge chair, drapes, bedspreads, rugs, bed linen, and commodious individual wardrobes are provided. Towels and all bedding other than linens must be furnished by occupants. Comfortable lounge rooms and recreational facilities are available. A separate section of the dining room will be reserved for members of the workshop.

A library primarily devoted to problems in higher education will be assembled in a ground floor room in Pioneer Hall, with an attendant on duty during the day who will also arrange appointments and handle administrative details. Rooms for seminars, individual consultation, and individual study, together with the library, will provide, in one large suite, the principal working quarters for the workshop.

CREDIT

For those who find it essential to continue work toward an advanced degree, individual arrangements can be made for university credit up to a maximum of nine quarter credits. Those desiring to receive credit in the Graduate School should submit credentials in advance to Dean W. S. Miller, 234 Administration Building, in application for admission. Request Graduate School Bulletin for information regarding requirements for advanced degrees. Credentials need not be submitted unless credit is desired.

COST AND APPLICATION

The tuition, incidental fee, and deposit fee for the full term of the workshop will be \$32.* The complete cost for room and meals in Pioneer Hall for the duration of the workshop will be \$60. This provides for dinner only on Sundays, served in Sanford Hall (a residence for women), but for all three meals the other six days of the week.

Application blanks are enclosed with this bulletin. They should be filled out and returned not later than May 15 if admission to the workshop is to be insured. Only a comparatively small group will be admitted since the purpose of the workshop is to provide for intimate contact and personal consultation with the staff and with each other. Altho the workshop is primarily for experienced college staff members, a limited number of advanced students in higher education will be accepted. It is important that the nature of the applicant's problem or specific field of interest be outlined in whatever detail is possible in the application blank.

* Of this amount, \$2 is deposit, refundable at the close of the summer term.

REGISTRATION AND PAYMENT OF FEES

Participants in the Workshop in Higher Education should register in the University Armory on Monday-Tuesday, June 17-18. Fees must be paid on the registration days. See Summer Session Bulletin.

REQUESTS FOR INFORMATION

Correspondence with reference to the Summer Session and requests for circulars and additional information may be addressed to the Director of the Summer Session or to the Registrar, University of Minnesota, Minneapolis, Minnesota.



Clubhouse, Recreation Field

BULLETIN OF
UNIVERSITY OF MINNESOTA

Training for
Student Personnel Work in
Schools and Colleges

During
SUMMER SESSION
and
ACADEMIC SCHOOL YEAR



Burton Hall

Vol. XLIII

No. 12

February 17 1940

Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota. Accepted for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized July 12, 1918

Training for Student Personnel Work in Schools and Colleges

SUMMER SESSION

The Summer Session opportunities for training in the field of personnel work at the University of Minnesota are extensive because it is recognized that many personnel workers in service find it impossible to take work at any other time during the year. A wide variety of courses and an opportunity for clinical practice in personnel work are offered as indicated in the Summer Session Bulletin which will be mailed upon request. A summer workshop and a one-week institute in higher education, in which the problems of personnel work in higher education will be given major consideration, are planned for the first term of the 1940 Summer Session. This workshop experience may be taken either with or without credit. In either case the facilities and offices of the entire University will provide laboratory opportunities for students concerned with given problems in higher education. A special bulletin describing the workshops is available upon request. One-week summer institutes in guidance and personnel procedures have been held at the University Center for Continuation Study for the three summers, 1937, 1938, and 1939. There will be no such institute in the summer of 1940, but doubtless one will be planned again for the summer of 1941.

A student who wishes to work toward an advanced degree may do so through Summer Session attendance. It is possible to secure a Master's degree entirely through such attendance, but it is not desirable to work toward a Doctor's degree through the Summer Session only. At least one year of consistent residence for the doctorate is expected. The Graduate School Bulletin should be consulted for the specific requirements of advanced degrees.

GRADUATE PROGRAM DURING THE ACADEMIC SCHOOL YEAR

It will be later stated in this bulletin that strictly professional training for personnel work is to be reserved for the graduate level of education. In this connection it is to be remembered that at the University of Minnesota the Master's degree can be taken either with or without a thesis (Plan A and Plan B), altho the program with thesis is considered preferable for those training in the field of personnel work. A program of work leading to the doctor of philosophy degree is also available in this field, often in combination with a sequence of courses in higher education. In either the M.A. or the Ph.D. program a major in educational psychology is most frequently advised, with a minor in psychology, education, or sociology. A major in education is also possible with a minor in psy-

chology or educational psychology. Students who contemplate a program leading toward a graduate degree in education or educational psychology are ordinarily expected to have had at least 18 quarter credits of education and psychology in undergraduate standing. The program of any individual student is left quite flexible with arrangements to be worked out between the student and his graduate adviser. Certain intellectual and personality characteristics are desirable for professional personnel workers, and the selection of those who are to do advanced work in this field is a function of the appropriate graduate adviser. Students contemplating a graduate program leading to personnel work in educational institutions should address inquiries on matters not covered in this bulletin to Professor C. Gilbert Wrenn, graduate adviser in this field, altho applications for admission to the Graduate School should be sent directly to the office of that school.

LEVELS OF TRAINING

There are two levels of personnel work for which training must be provided, that of the normal in-class and out-of-class counseling which is ordinarily performed by teachers and other educational workers and that of specialized personnel functions and their co-ordination which becomes the responsibility of the professional personnel worker. This statement of at least two levels of personnel work is based upon the assumption that certain personnel functions exist throughout the institution and are the responsibility of all education workers, while still others are to be reserved for the more carefully trained worker. In the first instance an understanding of, and a limited training in, the counseling functions of teachers should be a part of every teacher-training program. Some of the theoretical implications involved in counseling, as well as the establishment of beginning skills in the actual counseling of students, is a normal part of a progressive teacher-education program. This provision is now being made in the undergraduate program of the College of Education at the University of Minnesota, both in the provision of several undergraduate courses in guidance and in the use by all student teachers of the University High School as a laboratory school for the examination of case records and the interpretation of simple diagnostic materials that will lead to better counseling upon the part of all teachers.

It is the belief of responsible individuals at the University of Minnesota that adequate training for what may be called professional personnel work must be undertaken at the graduate level of education, altho attention should also be given to the normal counseling functions of teachers and all educational workers. Intermediate between the personnel responsibilities of a thoroly trained general counselor and that of the classroom teacher are the functions of the home-room counselor, the part-time counselor, and the faculty or registration adviser. These individuals spend more time than does the average teacher in counseling and should have more emphasis upon training for these functions than is secured in an ordinary teacher-training program. The remainder of this bulletin will be devoted to the consideration of the graduate training of the part-time or full-time general personnel worker in secondary schools and in institutions of collegiate rank.

FIVE AREAS OF PREPARATION

A rounded preparation for professional personnel work must include adequate background in each of the following five areas:

A. The psychology of the individual, including a thoro understanding of developmental factors—physical, intellectual, and emotional. Course work in the psychology of individual differences, child and adolescent development, mental hygiene, and like fields exemplify the type of training demanded in this area.

B. Measurement of the achievement and personality characteristics of the individual. Adequate skills in psychological measurements of all sorts and in the statistical interpretation of educational data are requisite for every personnel worker. His knowledge of measurement and statistical techniques in themselves must, of course, be predicated upon an adequate understanding of the individual and his problems, but since measurement and statistical courses are often understood to represent a special type of knowledge, they are listed here as a separate area of preparation. Their significance lies in their use in counseling and program-making situations rather than as ends in themselves.

C. A knowledge of personnel principles and procedures. This includes the courses that are formally listed as guidance and personnel courses, both those involving the theory of personnel work and those which deal with definite procedures and skills in diagnosis, counseling, and group guidance.

D. The purpose and organization of the school and college. It is essential that individuals who deal with students and their problems should understand the educational milieu out of which these problems arise. Therefore, an understanding of, and experience in, the public school or the college in which the individual expects to work is a necessity for personnel workers. The counselor must understand not only the individual and the methods of psychological appraisal, but he must also understand the educational program which may be either the cause of difficulties or a resource for remedying them. He should have had instructional experience and understand the objectives of the curriculum if he is to assist the pupil in making wise choices in the educational world.

E. Knowledge of the community and of the social influences in the life of the individual. Not only must the educational personnel worker understand the economic and social influences that affect the student and his family, but he must also understand the influences that contribute to the program and the support of the school in which both the student and the counselor work. It is essential that the counselor see both the student and the school in an enlarged social and economic perspective if his work with the individual is to be effective.

Two further emphases in the training program need to be made: namely that of the need for practice in the actual skills of diagnosing and counseling and that of an opportunity for conducting and evaluating personnel research. A training program for personnel workers should include the opportunity to engage in the study of actual case records, the analysis of diagnostic information, and the preliminary counseling of students, all under the supervision of a skilled personnel worker. Usually it is desirable that such experience involve two or more guidance agencies rather

than a concentration upon an apprenticeship experience in one type of agency alone.

A number of laboratory or internship opportunities exist in connection with the University of Minnesota training program. The University Testing Bureau provides opportunity for an extensive, as well as an intensive, experience extending over from one to three quarters. Experience in this guidance agency as well as in the University High School (the laboratory school of the College of Education), the General College, or any one of the several junior and senior high schools of St. Paul and Minneapolis, is provided under skilled supervision. These opportunities are an essential part of the training of a personnel worker. Any student interested in college personnel work in particular has additional opportunities for observing or working in certain of the university personnel units.

The opportunity to conduct and evaluate personnel research is again found in the University Testing Bureau, as well as in the office of the co-ordinator of student personnel services. There are, in addition, research programs in the University High School and the General College, either of which may be used as a resource for research studies. In particular should be mentioned the University Committee on Educational Research which conducts studies for various university agencies including research studies in the personnel field.

OUTLINE OF COURSES AVAILABLE IN EACH OF THE FIVE TRAINING AREAS AT THE UNIVERSITY OF MINNESOTA

It should be understood that the arbitrary division of courses into these five areas is merely one method that might be used in so classifying and describing courses. One might use the straight departmental classification for listing such courses or a statement of required courses and elective courses if such were the provision of the curriculum. Since adequate training for personnel work cuts through a number of academic departments and fields of study, an array of the most desirable courses available in each of the five areas is presented below. None of these courses is arbitrarily required nor is the list inclusive of all the possibilities. The selection of courses for a Master's or a doctorate program is the joint responsibility of each student and his graduate adviser, subject to the approval of the Group Committee of the Graduate School. In general each student's program is built upon a study of his individual background and professional needs.

PSYCHOLOGY OF THE INDIVIDUAL

- *Ed.Psy.158. Psychology of Adolescence.
- *Ed.Psy.159. Personality Adjustments in Education.
- *Ed.Psy.291. Individual Differences.
- *Ed.Psy.183. Psychology of Gifted Children.
- Ed.Psy.184. Education of the Slow-Learning Child.
- *Ed.Psy.193-194. Psychology of Learning.
- Ed.Psy.146-147. Child Guidance.
- *Psy.125-126-127. Psychology of Individual Differences.
- *Psy.140. Social Psychology.
- *Psy.144-145. Abnormal Psychology.
- *C.W.131. Personality, Emotional, and Social Development of the Child.
- *Soc.Work170. Introductory Psychiatry.

* Ordinarily offered in summer sessions as well as during the regular school year.

MEASUREMENT AND STATISTICS

- *Ed.Psy.120. Principles of Measurement.
- *Ed.Psy.141. Construction and Use of Group Aptitude Tests.
Ed.Psy.142. Construction and Use of Individual Aptitude Tests.
- *Ed.Psy.116-117 and 216-217-218. Statistical Methods in Education.
Ed.Psy.149-150-151. Psycho-Educational Clinic.
Ed.254. Measurement and Evaluation in Higher Education.
- *P.M.&P.H.110-111 and 120-121. Biometric Principles and Correlation Analysis.
Psy.230-231-232. Field Work in Psychometrics.

PERSONNEL PRINCIPLES AND PROCEEDINGS

- *Ed.133. Guidance in the Secondary Schools.
- *Ed.233. Problems in Guidance and Personnel Work.
Ed.252. Student Personnel Work in Colleges and Universities.
- *Ind.110. Guidance in the Schools.
- *Ed.C.I.135. Teaching of Occupations and Group Guidance.
- *Ed.Psy.225. Diagnosis and Counseling in the Guidance Program.
- *Ed.Psy.281. Practice in Personnel Work.
Psy.130. Vocational Psychology.
- *Psy.160. Psychology in Personnel Work.
(Business and Industrial)

SCHOOL AND COLLEGE

- Ed.177. Philosophic Foundations of Modern Education.
- *Ed.167. The Junior High School.
- *Ed.C.I.169. Extra-Curricular Activities.
- *Ed.250. Higher Education in the United States.
Ed.251. Curriculum and Instruction in Higher Education.
Ed.253. Administration in Higher Education.
Ed.287. Instruction and Administration in Teacher Education Institutions.
- *Ed.C.I.113. High School Curriculum.
- *Ed.Ad.124. Public School Administration.
- *Ed.Ad.264-265. High School Administration.

SOCIAL AND ECONOMIC INFLUENCES

- *Ed.180. The School and the Social Order.
Soc.101. Social Organization.
Soc.103. Sociology of Conflict.
- *Soc.119. The Family.
- *Soc.120. Social Life and Cultural Change.
- *Soc.146. Community Organization and the Social Setting of Recreation.
Soc.Work109. The Field of Social Work.
- *Econ.161. Labor Problems and Trade Unionism.
Econ.164. Labor Legislation and Social Insurance.
- Pol.Sci.120. Municipal Functions.
- *Pol.Sci.144. American Political Parties.
Pol.Sci.170. Problems of Democracy.

In addition to the courses listed above there should be noted the rather unusual opportunities for apprenticeship in personnel work and for experience in personnel and other educational research at the University of Minnesota, described in earlier paragraphs of this bulletin.

* Ordinarily offered in summer sessions as well as during the regular school year.

GRADUATE FACULTY WHO TEACH PERSONNEL AND BASIC RELATED COURSES IN EDUCATION AND PSYCHOLOGY

Wesley E. Peik, Ph.D., Dean of the College of Education

John E. Anderson, Ph.D., Professor of Psychology and Director of the Institute of Child Welfare

Charles Bird, Ph.D., Professor of Psychology

Palmer O. Johnson, Ph.D., Professor of Education

T. Raymond McConnell, Ph.D., Professor of Education

Wilford S. Miller, Ph.D., Professor of Education

Mervin G. Neale, Ph.D., Professor of Educational Administration

Donald G. Paterson, M.A., Professor of Psychology

Homer J. Smith, Ph.D., Professor of Industrial Education

C. Gilbert Wrenn, Ph.D., Professor of Educational Psychology

William S. Carlson, Ph.D., Associate Professor of Education and Director of the Training School

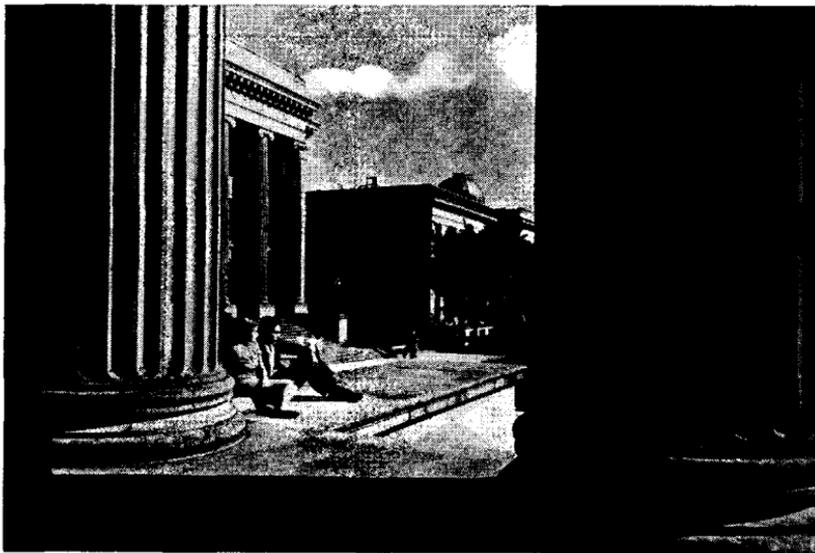
Walter W. Cook, Ph.D., Associate Professor of Education

Marvin J. Van Wagenen, Ph.D., Associate Professor of Educational Psychology

John G. Darley, Ph.D., Assistant Professor of Psychology and Director of the University Testing Bureau

Marcia Edwards, Ph.D., Assistant Professor of Education and Assistant to the Dean of the College of Education

Howard P. Longstaff, Ph.D., Assistant Professor of Psychology



Vista from Colonnade of Northrop Memorial Auditorium

The Bulletin of the
UNIVERSITY of MINNESOTA

General Information for the Year 1940-1941



Volume XLIII, Number 13

February 24, 1940

*Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota.
Accepted for mailing at special rate of postage provided for in Section 1103, Act of
October 3, 1917, authorized July 12, 1918*

UNIVERSITY OF MINNESOTA

MAIN CAMPUS

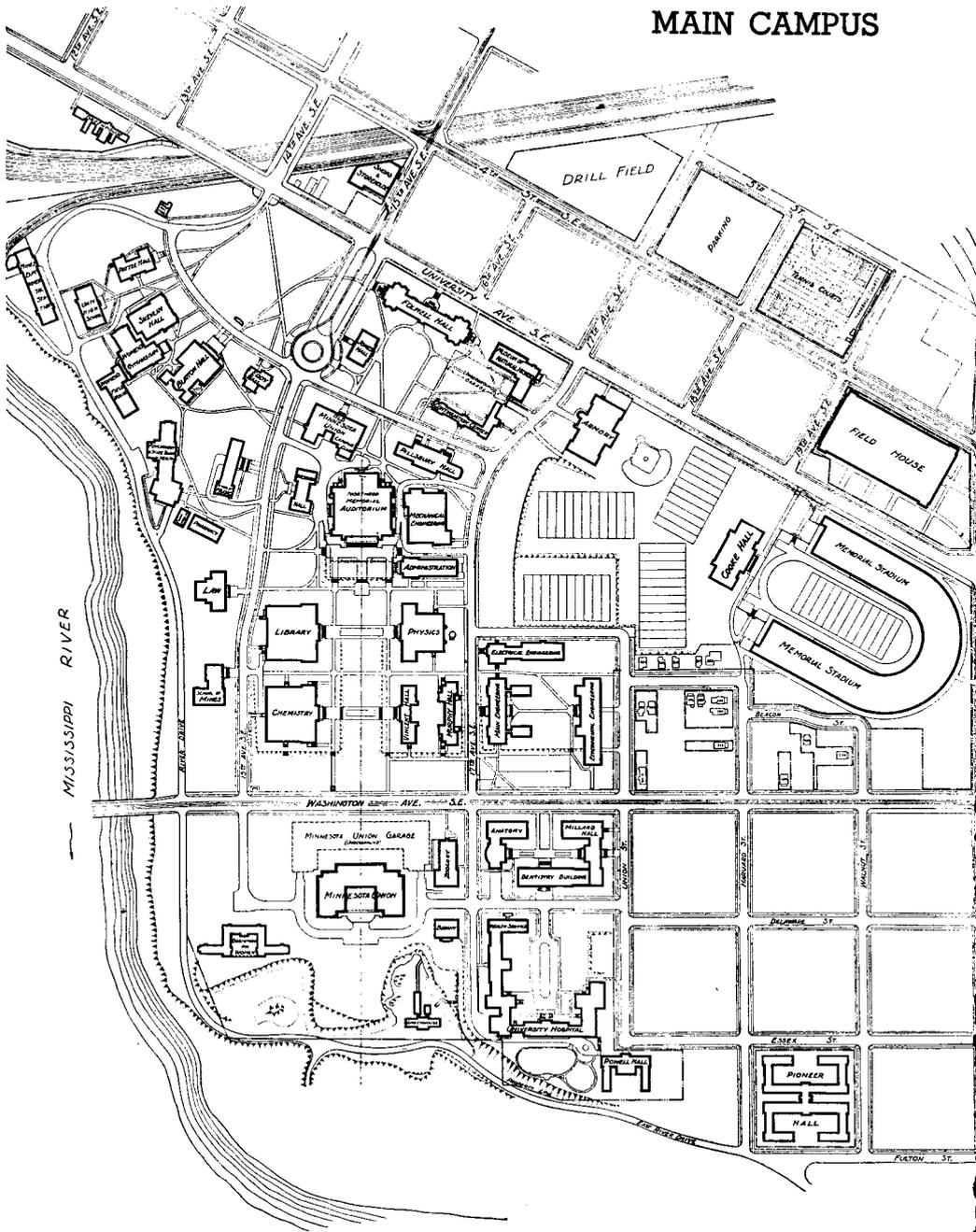


TABLE OF CONTENTS

	Page
Map of the Main campus	2
The purpose of college training	4-6
Notice to prospective students	7-8
Freshman students	7
Students entering with advanced standing	8
Freshman Week	9
Courses and degrees	10-33
University Summer Session	27
Lake Itasca Forestry and Biological Station	27
University Extension	28
University Library	29
Speech Service	29
Students' Health Service	30
Vocational information	30-31
Military Science and Tactics	31-32
Naval Science and Tactics	32-33
Admissions	34-41
General	34-35
Applications for admission	34
Admission from high school	34-35
Special requirements of the individual colleges	36
Recommendations of the colleges	36-38
Admission by examination	38
University of Minnesota entrance tests	38-39
Admission to advanced standing	39-40
Adult special students	40
Admission of nonresident undergraduates	40
Expenses	42-50
Estimate of expenses	42-48
Board and room	43
Aids for students	48-49
Intercampus car	49
University Employment Bureau	49-50

APPENDIX

Organization of the University	51
Board of Regents	52
Administrative officers	52
University calendar	53-55
University fees	55-60
Tuition fees	56-58
Incidental fee	58
Matriculation deposit	58-59
Special fees	59-60
Privilege fees	60
Refunds	60
Accredited preparatory schools	61-63
Accredited colleges	65
Regulations	66
Governing the granting of degrees	66
Governing public announcements and placards	66
Index	67
Map of the University Farm campus	68

Gen'l Info 1940-41.

THE PURPOSE OF COLLEGE TRAINING

Each high school senior must decide which of four things he can and should do: go to work, if work be available, in the type of job for which he is already trained and which will give him satisfaction and success; enter a vocational school for such work as mechanical, secretarial, clerical, or general business; enter college to prepare for a profession; attend college for a year or two to secure that cultural and social training which will make life richer and more satisfying and assist in the making of a vocational choice. This decision can be made only after a student has determined accurately just what kinds and how much ability he has; and then he must discover in which part of the world's work he can use his ability with success and satisfaction to himself and others.

Each student must decide for himself whether he may profit from college training; this decision is to be made only in the light of his interests, desires, skills, and abilities, and by determining what he wants out of life. Human beings differ markedly from each other. A few are best suited for life-long study and research in library and laboratory; some for public service as in teaching, law, and governmental work; some for science as in medicine and engineering; some for management and administration in business; some for a combination of these with outdoor interests as in agriculture and forestry. But there is no short road to success in any of these. A college degree in any of these fields guarantees neither job nor success in the job if one is procured. Particularly is this true in modern society wherein unemployment is widespread and competition is keen. To meet such competition in the professions, a student must devote all his time and energy over a considerable period of years to both general and special preparation, to building himself up in knowledge, skill, and power to analyze and apply what he learns to real situations and problems.

College, university, and graduate professional study are offered primarily for those who have these qualities and who want intensely to become leaders in the field of their choice. But that many people do not really want to become leaders is indicated by the fact that even in college, a large proportion do not concentrate on preparation for leadership. There is much truth in the statement that most people fundamentally desire to live simply. They do not want to assume heavy burdens of responsibility. They really wish rather to strike a balance in their living, using their job as support for their marriage, home, social, and recreational activities.

On the other hand, some students desire to become leaders in a special field but do not have the combination of special skills and abilities which may be trained by the educational process for accomplishment. It is, therefore, necessary for each student to find

out all he can about himself. This may be done by thinking carefully about various tryout experiences in summer and part-time work, about the school courses he has liked best, found most profitable, and in which his achievement is of a high level. He should consult with his teachers to find out the answer to the questions: "What kind of a person am I? What are my special interests and my weaknesses?" And finally, each student should take as many of the achievement and aptitude tests as he can. Out of such an analysis is likely to come a judgment as to what he wants and can do.

Altho students should attempt to make a vocational decision before leaving high school, that choice need not, and in many cases should not, be too definite. Many have not had opportunity to try out their abilities adequately and others have not been well advised in judging what their experiences mean. For these students it is well to make a tentative choice and then to seek more experiences and advice before finally deciding.

Those students who decide to enter the University will find here facilities for helping them make a more definite vocational choice. After they have consulted high school teachers they should feel free to call upon the University for this service. Bulletins of the various colleges in the University contain descriptions of the general and professional training offered. The deans and advisers of the colleges are available for consultation. The University Testing Bureau also offers its services in deciding upon an occupation. It is advisable to visit the University during the summer to discuss vocational and other problems.

As each student attempts to understand himself, he probably will discover certain handicaps or weaknesses of which he was unaware. It is all too easy to hide weaknesses under a cloak of self-confidence. For example, some students discover that their ability to handle the mathematics of engineering subjects is less than they thought they possessed. Frequently these handicaps are so serious as to make necessary a change of vocational plans. In other cases it is necessary to take steps to overcome these handicaps through additional training. Some may be forced to recognize that it will be extremely difficult, if not impossible, to reach as high a professional goal as is desired. It is only by facing the results of such an analysis that students are prepared to understand serious professional training.

Some students choose a vocation, not because of interest or demonstrated ability, but because they have heard there are more opportunities for jobs in one vocation than in others. This is not a sensible way of making a choice. No one can guarantee that four years hence there will be plenty of jobs in such fields of work. Everyone recognizes that some fields are overcrowded now but he who can predict the future is indeed a prophet.

Because some students make the mistake of overemphasizing financial rewards as a measure of professional success, it is well to emphasize the fact that the state of Minnesota provides inexpensive professional training with the expectation that college graduates will contribute to social progress through better citizenship, civic and political leadership, or contributions to knowledge. In this connection, a number of students become interested in the occupation of research and teaching. Their desire to make a social contribution through training youth or through research should be encouraged and recognized as equal in importance to success in other professions.

After deciding upon an occupation and also where to get the necessary professional training, students should recognize that the University expects them to assume certain responsibilities in return for this training opportunity. The transition from high school to college may prove difficult for some if they fail to recognize they are undertaking a distinctly new type of work. College differs from high school in a number of respects. Instruction is given by means of lectures, textbooks, laboratory work, assigned reading to be done in the library, theme writing, translations and composition in foreign languages, class recitations and discussions, written quizzes, and final examinations. Various combinations of these methods of instruction are used in different subjects and by different instructors. Probably every student will have lectures in a considerable part of his work and will therefore need to develop skill in taking notes. Every student will find also that, as compared with the high school, more responsibility is left to him to do the assigned reading, to read and review his notes, to study the textbook, and to do all the things necessary to master each subject as presented by the instructor.

Students are especially urged not to allow themselves to fall behind in assignments but to work systematically day by day and week by week. They will be judged by the results of examinations and other required exercises. The efforts which the college makes at admission to help students to avoid work for which they are not fitted, are intended to save them from discouragement and failure. Every student is offered further advice and help as he goes along, but eventually those who cannot do the work or will not make the necessary effort must fail. College students are young men and women and must learn to assume responsibility.

NOTICE TO PROSPECTIVE STUDENTS

FRESHMAN STUDENTS

Every new student must file an application blank and an official copy of his record from the last school attended.

Application blanks may be obtained at any Minnesota high school, or from the registrar, University of Minnesota.

Applicants are advised to file these papers with the registrar not later than July 1.

Later applications will be accepted, but late applicants may be refused entrance through lack of time to make up discrepancies between the credits they present and the University's requirements for admission.

Whenever possible, credentials should be sent in directly by the proper official at the school last attended, and should not be presented in person by the student.

The university year is divided into four quarters. The fall, winter, and spring quarters make up the college year from September to June. The fourth quarter includes two summer terms.

Students may enter any college of the University at the opening of the fall quarter. The admission of new students at the opening of the winter and spring quarters is limited to those colleges of the University in which satisfactory programs can be arranged.

There is no restriction in the College of Science, Literature, and the Arts, General College, College of Agriculture, Forestry, and Home Economics, or College of Education.

Freshmen are advised not to enter the Institute of Technology, College of Pharmacy, or School for Dental Hygienists, except at the opening of the fall quarter unless merely a partial program of work is desired in preparation for regular admission in the fall.

Entering classes in Nursing are accepted at the opening of the fall and spring quarters. Applicants for the three-year course are admitted only at the opening of the fall quarter.

Following are the more important registration dates for 1940-41:

Fall quarter

Freshman Week—Registration.....	September 23-24
Freshman Week.....	September 25-28
Classes begin.....	September 30

Winter quarter

Registration.....	January 3-4
Classes begin.....	January 6

Spring quarter

Registration.....	March 28-29
Classes begin.....	March 31

A detailed calendar for the year 1940-41 will be found on pages 53-55.

Freshmen entering any college except that of the Institute of Technology (Engineering and Architecture, Chemistry, and Mines

and Metallurgy), the School of Nursing, and the School for Dental Hygienists are required to write the college aptitude test. Freshmen entering the College of Science, Literature, and the Arts, College of Education, College of Pharmacy, and Institute of Technology are required to write an English placement test and an English theme. Applicants from Minnesota high schools should take advantage of the opportunity to write these tests as offered during their senior year in high school. Other applicants may take tests at the University at any time and are urged to do so if possible before Freshman Week in order to avoid delays in registration.

Each applicant must present for registration:

- a. Admission certificate as issued by the Board of Admissions.
- b. The necessary test cards for the college for which he is applying.

Read the Instructions for Registration carefully noting: (a) the place to report; (b) the time of reporting; (c) the documents which must be presented and how they are to be obtained.

Instructions for Registration will be mailed with the admission certificate or, following the admission certificate, about a month before the opening of the quarter.

STUDENTS ENTERING WITH ADVANCED STANDING

Each applicant is required to file with the Board of Admissions:

- a. Application blank properly filled out. (Blanks may be obtained from any Minnesota state high school or from the registrar, University of Minnesota, Minneapolis.)
- b. An official transcript of record from any college previously attended.
- c. An honorable dismissal from the last institution attended.

Transcripts of record and letters of honorable dismissal should be sent direct from the institution concerned to the University of Minnesota and should not be presented in person by the applicant.

Applicants who are unable to present at least a full year of advanced standing will be considered for admission as freshmen on the basis of their high school credits and should present the same documents and follow the same procedure as outlined for freshmen in the foregoing section and in the Instructions for Registration.

Each applicant must present for registration:

- a. Admission certificate as issued by the Board of Admissions.
- b. Record of advanced standing.

Read the Instructions for Registration carefully noting: (a) the place to report; (b) the time of reporting; (c) the documents which must be presented and how they are to be obtained.

Instructions for Registration will be mailed with the admission certificate or, following the admission certificate, about a month before the opening of the quarter.

FRESHMAN WEEK

The University recognizes the need of giving its newly entering students an introduction to their work and to university life which is new and strange to them. For this purpose it requires freshmen to come to the University for part of the week before classes begin. This Freshman Week is devoted to efforts to help the freshman get a right start.

The period of September 25-28, inclusive, will be used by the freshman for the following duties :

- a. Making his living arrangements.
- b. Registration for classes and paying his fees.
- c. Physical examination. (Physical examinations for women are conducted by women physicians.)
- d. Aptitude tests.
- e. Other tests or examinations which will enable the faculty to place him in the class for which he is best fitted.
- f. Interviews with advisers.
- g. Hearing lectures on such subjects as :
 1. The use of the library.
 2. How to study.
- h. Making visits to acquaint himself with the University Library, scientific laboratories, and other points of interest in connection with his choice of studies and future occupations.
- i. Special exercises intended to acquaint him with the peculiar conditions or requirements of the college which he enters.
- j. Musical and social entertainment in the evenings arranged with the co-operation of the Student Council and the various religious bodies.

During the process of registration faculty advisers talk with all students, helping them to make the best selection of studies.

The University Testing Bureau is open for conferences with freshmen regarding their general vocational and educational problems.

Administrative officers, faculty, student government councils, upper class students, and organizations for religious work all co-operate to make Freshman Week a period during which the freshmen find themselves, learn how to go about their university work, and how to profit by the opportunities for recreation.

NOTE THAT ALL FRESHMEN MUST REGISTER FOR FRESHMAN WEEK BEFORE SEPTEMBER 25 AND MUST BE IN ATTENDANCE THROUGHOUT THE FRESHMAN WEEK PERIOD CLOSING ON SEPTEMBER 28.

All who have not completed the aptitude and English tests must report not later than Monday, September 23.

COURSES AND DEGREES

Brief summarized statements of the courses of study offered by the University of Minnesota, together with the degree to which each leads, are listed below.

The University does not issue a complete catalog of courses in one volume but a full outline of each of these courses of study together with descriptions of the subject-matter courses which they include will be found in the announcement of the college or school in which the course of study is offered.

These announcements may be obtained by addressing the Registrar, University of Minnesota, Minneapolis, Minnesota.

GENERAL COLLEGE

The General College is a new departure in education. Basically it provides a two-year curriculum of general education leading to the degree of associate in arts. A broad program of courses is available from which the individual student, under guidance plans his own curriculum. General education aims essentially to produce well-rounded individuals who will be able to meet and understand the variety of common activities and problems encountered in the business of earning a living, as a member of a home and family group, as an individual consciously or unconsciously seeking numerous personal values, and as a citizen of a community, a state, a nation, and a world.

To achieve these purposes, core courses have been set up directed toward individual, home life, social-civic, and vocational orientation. A wide variety of other courses is available from which electives may be chosen by the individual student in terms of his special needs and interests. In addition to study in the four orientation areas, students may elect two subject-matter fields of interests. Areas from which these may be chosen are general arts; euthenics; human development; literature, speech, and writing; the physical and the social sciences.

Emphasis is placed upon contemporary society throughout the teaching, with sufficient study of the past and of trends towards the future to understand the present and its problems. A wide variety of courses is available in economics; government; history; sociology; the biological and physical sciences; literature, speech, and writing; mathematics of business; psychology; human biology; euthenics; and the arts. The arts include study of film and drama, music today, and the graphic arts.

Vocational orientation offers field trips and special laboratory sections for a small group study of common problems. Individual help, discussion sections, visual education equipment, comprehensive examinations, a writing laboratory, and special work in speech offer the opportunity to every student to make his college work a real and vital part of his living now and in the future.

Combination programs of courses in special fields in other departments together with courses in the General College can be arranged to meet the needs of individual students. A limited number of students in other colleges may also be permitted to take work in the General College. The usual provision has been made to accommodate adult auditors.

The degree, associate in arts, is granted upon the passing of six comprehensive examinations. Exemptions from parts of this requirement, for comparable work in other colleges, may be granted by the director. Eligibility for transfer to other colleges is determined by the scope and quality of work done in this college. The evaluation of credits accepted for transfer is in the hands of the receiving college.

Provision is made for the counseling and guidance of individual students as this is needed in connection with personal, educational, or vocational problems. A carefully developed testing program aids in finding individual needs, desires, and abilities. The satisfaction of these, through a carefully planned program of courses and extra-curricular activities, are worked out with college counselors and program advisers. The counselors and instructors of the General College are available at all times to help students with their many problems and questions, in order that their university study may be made interesting, valuable, and meaningful.

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

The College of Science, Literature, and the Arts serves four main groups of students in the University: (1) students who are taking a four-year course as candidates for the degree of bachelor of arts or the degree of bachelor of science given by this college; (2) those who are taking the first four years of a course of study which requires five or more years and which prepares them for a definite vocation or profession; (3) those who are candidates for a bachelor of arts degree in a combined course consisting of three years of work in this college and of one or more years of work in a professional school; (4) those who are taking the minimum requirement of college work, from one to three years, for admission to a professional school.

I. The four-year course leading to the degree of bachelor of arts or bachelor of science.—The course of study is elective under certain broad limitations. It is expected that the four-year course will be a period of intellectual growth. Each student begins with relatively elementary studies in the freshman and sophomore years and goes on in the junior and senior years to more advanced and intensive studies. In the first two years the student is required to make suitable preparation for the advanced studies. At the beginning of the last two years, the student is expected to select a field of major interest and, with the help and approval of an adviser, to plan his program of studies around this as a nucleus. The student, however, who has a definite plan for his own college course, not involving specialization, may be given permission to pursue an individual program suited to his own needs and interests.

Altho the College of Science, Literature, and the Arts does not in general

give vocational training, students with a professional interest in music, journalism, library training, or public health, may specialize as follows:

Music.—A four-year course leading to the degree of bachelor of arts, in which the theoretical and practical work in music is combined with the study of psychology, modern languages, English literature, and history. The object is to provide a well-rounded cultural course for those who are preparing for professional work in music.

Journalism.—Professional training in this field is given by a major in the Department of Journalism together with required or advised work in other fields.

Library Service.—A four-year course including three years in this college and a full year (45 quarter credits) in professional library instruction subjects. At the end of the fourth year students may receive the degree bachelor of science. The same degree is also given to college graduates who take a complete year in Library Instruction.

Preventive Medicine and Public Health.—Students in this college may major in this field.

II. Specialized curricula of five or more years.—The following specialized curricula are offered in the College of Science, Literature, and the Arts:

Course in Training for Public Administration.—A six-year course, during the first four years of which the student pursues a program of liberal education with a major in political science and a minor in one of the other social sciences, or a major in some field of specialization represented in government service and a minor in political science. The fifth year is devoted to advanced studies in public administration, public law, and related subjects. Internship training with a governmental agency is arranged for the sixth year. The degree of bachelor of arts or bachelor of science is given at the end of four years; the degree of master of arts in public administration is conferred upon the completion of the sixth year.

Course in Training for Diplomatic and Consular Service.—A five-year course leading to the degree of bachelor of arts at the end of the first four years. At the end of the fifth year students whose programs satisfy the requirements of the Graduate School may receive the degree of master of arts.

Course in Training for Social Work.—A six-year course, during the first four years of which the student secures a broad education with special attention to history, economics, political science, and sociology. The fifth and sixth years are devoted to technical subjects and professional training in social work. The degree of bachelor of science is given at the end of four years; a special certificate and the degree of master of arts are conferred upon the completion of the sixth year.

III. Combined arts and professional courses.—The College of Science, Literature, and the Arts offers the following combined arts and professional courses:

Combined course in Arts and Medicine.—An eight-year course leading to the degrees of bachelor of science and doctor of medicine, and an eight-year course leading to the degrees of bachelor of arts and doctor of medicine.

Combined course in Arts and Laws.—A seven-year course leading to the degrees of bachelor of arts and bachelor of laws.

Combined course in Arts and Dentistry.—A six-year course leading to the degrees of bachelor of arts at the end of five years and doctor of dental surgery at the end of the sixth year.

Combined course in Arts and Architecture.—A six-year course in Arts and Architecture leading to the degree of bachelor of arts at the end of four years and bachelor of architecture at the end of the sixth year.

Combined course in Arts and Interior Architecture.—A four-year course leading to the degree of bachelor of interior architecture. The third and fourth years are spent in the Institute of Technology.

IV. Preprofessional training.—In this college is given also the academic work required for admission to the Medical School, the Law School, the School of Dentistry, the School of Business Administration, and the College of Education; and also the courses preliminary to (1) nursing education in the College of Education and (2) training for medical technologists in the Medical School.

INSTITUTE OF TECHNOLOGY

The Institute of Technology embraces the College of Engineering and Architecture, the School of Chemistry, and the School of Mines and Metallurgy.

The College of Engineering and Architecture offers professional courses of study in the following fields:

Aeronautical Engineering	Engineering and Business Administration (5 years)
Civil Engineering	Architecture (5 years)
Electrical Engineering	Interior Architecture
Mechanical Engineering	Engineering Prebusiness
Engineering Prebusiness	Agricultural Engineering (in co-operation with the College of Agriculture, Forestry, and Home Economics)

The School of Chemistry offers professional courses of study in the following fields:

Chemistry	Chemical Engineering	Physics
Chemistry or Chemical Engineering	and Business Administration (5 years)	

The four-year course leading to the degree of bachelor of physics (B.Phys.) includes a minimum of 55 credits in physics, 34 credits in mathematics, and 39 credits in chemistry. The course is designed for students who desire to enter the field of industrial physics or special graduate work in physics as a major.

Each of these courses leads to the Bachelor's degree in the respective field (as bachelor of aeronautical engineering or bachelor of chemistry). Optional groups of electives are available in some of the courses for students who desire to devote special attention to certain branches, such as Engineering Administration.

The School of Mines and Metallurgy offers professional four-year courses of study in the following fields:

Mining Engineering	Petroleum Engineering
Geological Engineering	Metallurgical Engineering

These courses lead to the respective degrees: bachelor of mining engineering, bachelor of geological engineering, bachelor of petroleum engineering, and bachelor of metallurgical engineering.

The Engineering Prebusiness Course requires the first two years of work in the Institute of Technology. This is followed by two years in the School of Business Administration upon the satisfactory completion of which the degree of bachelor of business administration is conferred.

Engineering and Business Administration.—Five-year combined courses are available for students who desire more extensive preparation for administrative positions while including one of the regular engineering or chemistry curricula. The student is thus able to obtain the degree of bachelor of business administration at the end of the fifth year, after having also completed his engineering or chemistry course for his Bachelor's degree.

Interior Architecture.—The first two years of the course are taken in the College of Science, Literature, and the Arts, and the last two years in the Institute of Technology.

Graduate work.—Work is also offered in the Graduate School leading to the Master's degree in the appropriate branch of engineering, architecture, or chemistry, or to the Doctor's degree.

The professional degree of aeronautical, agricultural, chemical, civil, electrical, or mechanical engineer will be conferred upon those who have received the Bachelor's degree in the corresponding field of engineering when they have completed the equivalent of one additional year's college work in that field, and four years of approved engineering experience in positions of responsibility, and have presented a satisfactory professional thesis. Graduates of this University may be granted permission to pursue the year of graduate study *in absentia* under the direction of the faculty. It is recommended, however, that this year be spent in residence at this or some other university and that the Master's degree be obtained in this manner. There are many advantages in taking this year of study immediately following graduation from the four-year course, thus making a five-year course leading to the Master's degree. Then after four years of approved experience and the preparation of the thesis, the professional degree may be obtained. This procedure is especially recommended to those students whose undergraduate work is of high grade and who desire additional preparation for the higher positions which require strong character and leadership. Candidates for the professional engineer degree register in the Graduate School.

The Engineering Experiment Station is a research organization, which provides facilities for studies, experiments, and investigations in the various fields of engineering and technology, under the direction of members of the staff. Several research assistantships are available for part-time

graduate students. Results of investigations are published in the Bulletin of the Engineering Experiment Station. Research funds are provided by industries in some cases to support special studies.

COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS*

The College of Agriculture, Forestry, and Home Economics offers (a) four-year courses in the fields of agriculture, forestry, and home economics, leading to the bachelor of science or equivalent degree, and (b) five-year curricula in forestry leading to the degree of master of forestry.

The following curricula are offered:

SCIENCE SPECIALIZATION CURRICULUM

This curriculum provides for more intense specialization, particularly in the sciences basic to many fields of agriculture, forestry, and home economics. Only that amount of technical training in practical fields is required which deals with the special science or field selected. Selection of the Science Specialization Curriculum should, in practically all cases, be followed by graduate study to at least the Master's degree. Students who do not have records in high school considerably above average should not attempt the Science Specialization Curriculum.

AGRICULTURE

Technical Agriculture Curricula.—These curricula are arranged for students who plan to enter one or more of the technical or applied fields of agriculture immediately upon graduation. Students may, however, continue in graduate work for further specialization. Training is offered for all types of farming in this area, for county agent and extension work, and for technical agricultural work in agricultural industries, in dairy and animal husbandry, agronomy and plant industries, horticulture, agricultural engineering, landscape gardening, farm management, agricultural economics, and agricultural business.

Food Technology Curriculum.—This curriculum provides special training in preparation for industrial fields such as meat packing; processing, storage, and distribution of fruits, vegetables, and other perishables; canning and pickling. It includes also milk products and the products of milling and related industries. Specialties in these fields may involve major subject-matter specialties in chemistry, bacteriology, and other special biological fields. Students intending to enter the Food Technology Curriculum should have a fairly definite professional or vocational program and must consult the special faculty advisory committee for this curriculum (see the registrar or the office of the dean of the college), with whose approval a program of subject-matter courses may be selected under the limits described. The curriculum presented is intended merely to show the wide range of available subject-matter courses, especially those basic to the whole field,

* See Organization of the University, page 51, for a statement of other activities of the Department of Agriculture.

from which the student must select those best suited for his particular program. While this is a normal four-year curriculum certain scientific specialties may demand graduate work.

While the employment possibilities are probably chiefly in the various food industries, additional opportunities exist in research and in teaching in connection with various federal, state, and municipal government bureaus and offices as well as in colleges and in private research institutions.

Wildlife Management Curriculum.—Open to students registering according to the various following curricular patterns in the fields of forestry and agriculture: Forestry (game management), Technical Agriculture, Agricultural and Forest Sciences. (See Wildlife Management Curriculum in the Bulletin of the College of Agriculture, Forestry, and Home Economics.) The curriculum or pattern will be selected and built up with the aid of an adviser for the special vocational or professional objectives which the student has in mind. The work involves a wide range of activities including the management of upland game, big game, waterfowl, fish, and fur bearers in parks and forests and on wildlife preserves and privately owned lands; it also includes the artificial propagation of game and fur species and the encouragement of nongame species. Students may also prepare themselves for teaching in colleges and universities, for research and experimental work in various state and federal departments, and for management and extension work in state and federal departments concerned with utilization of our natural resources. See also Lake Itasca Forestry and Biological Station, page 27.

Preveterinary Medicine Curriculum.—This curriculum of one year may vary in accordance with the veterinary college to be selected by the student. In general, the requirements would follow the plan of the Agricultural Science Curriculum, but special variations from this curriculum may be provided upon recommendation of the adviser. Because of the grade requirements for entrance to veterinary colleges an average grade of close to B in preveterinary medicine is essential.

Agricultural Education Curriculum.—Designed especially for those who plan to teach agriculture in the public schools. This curriculum (given jointly with the College of Education) follows in general the technical agriculture groups and permits emphasis on majors in special technical agricultural fields, such as dairying, horticulture, farm management, etc. In addition, it offers special training in education and leads to certificates for teaching agriculture and sciences in elementary and high schools of the state.

Agricultural Extension Curriculum.—Students planning to enter some field of agricultural extension can best prepare for this by selecting some major field and by arranging for their special extension training in the selection of minor groups or in the selection of electives with the cooperation of the advisers. The major field may be agricultural education or one of the technical divisions in the field of agriculture, such as animal husbandry, dairy husbandry, agronomy, or horticulture. Other majors are also possible. Selection of a major should be determined by the type of extension work which the student plans to follow and by the plans which

the student may have as to a continuation of his study and professional development after he has become engaged in extension work.

Agricultural Engineering Professional Curriculum.—Offered jointly with the Institute of Technology. This is a technical engineering course leading to the degree of bachelor of agricultural engineering. The first two years are spent largely in work in the Institute of Technology and the last two in work in the College of Agriculture, Forestry, and Home Economics and the Institute of Technology. High school mathematical preparation required for all engineering curricula is also required here. The Agricultural Engineering Professional Curriculum is designed to train specialists in various types of engineering fundamental to agricultural practices and industries.

Students desiring a major in agricultural engineering with special reference to the technical application and without the professional engineering training should register for a Technical Agriculture Curriculum.

Agricultural Engineering Business Administration Curriculum.—Offered jointly with the Institute of Technology and the School of Business Administration. This is a technical engineering and business curriculum with emphasis in the field of agriculture. The preliminary requirements are similar to those of the Agricultural Engineering Professional Curriculum. In addition to the professional work in engineering, a complete sequence of business courses is required together with a sequence of agricultural courses. Students completing this curriculum will receive the degree both of bachelor of agricultural engineering and bachelor of business administration.

Agricultural Business Administration Curriculum.—Offered jointly with the School of Business Administration. Designed for those who wish to prepare for some branch of agricultural business, such as marketing, finance, farm real estate, merchandising, etc. More opportunity is offered for business and economic courses than in the Technical Agriculture Curricula, where greater stress is on the agricultural subjects.

Agricultural Journalism Curriculum.—Offered jointly with the Department of Journalism of the College of Science, Literature, and the Arts. Designed for those who wish to prepare especially for some field of journalism relating to agriculture. The student is offered general courses in technical agriculture, but the major part of his college work is occupied with special preparation for technical journalism. Particular stress is also laid on economic and business courses related to agriculture.

FORESTRY

The Division of Forestry offers three five-year curricula in professional forestry leading to the master of forestry degree and two four-year technological curricula leading to the bachelor of science degree. On completing the requirements of the first four years of the various professional curricula, the student will receive the bachelor of science degree, which does not, however, complete the training for professional work in forestry. The professional degree of master of forestry is conferred only upon the completion of an additional year.

Five-Year Professional Curricula

General Forestry Curriculum.—Preparation for technical work in public and private forest management.

Range Management Curriculum.—Preparation for technical work in public and private forest range management.

Game Management Curriculum.—Preparation for technical work in public and private forest and game management. See also under Agriculture, page 16.

Four-Year Technological Curricula

Commercial Lumbering Curriculum.—Preparation for work in various phases of the lumber industry.

Wood Technology Curriculum.—Preparation for technical and research work in the pulp and paper and other wood-using industries, and in wood preservation.

HOME ECONOMICS

Curriculum for Dietitians.—For women expecting to become hospital dietitians. Students selecting this course should be sure of an aptitude for, and ability in, the physical and biological sciences and should have a high school record of better than average.

Curriculum for Home Economics Education.—Offered jointly with the College of Education for those who wish to teach home economics in the high schools and obtain a teacher's certificate. Students should have a high school record of better than average and should have an interest in, and an ability to work with, young people. A high scholastic average is required in college work.

Curriculum for Home Economics in Business.—For students planning to enter business fields that are closely related to home economics, such as foods and nutrition, related art, textiles and clothing. Given with the co-operation of the other colleges.

Curriculum for Institution Management.—Preparation for management of such institutions as tearooms, cafeterias, dormitories, institutional homes, etc.

Curriculum for General Home Economics.—A college course in Home Economics offering a broad, general education designed especially for the important function of homemaking.

Home Economics and Nursery School Education.—A combination course designed for those who have ability and interest in the two fields. Opportunities for placement are limited.

Curriculum for Preparation for Research in (a) Textiles and Clothing or (b) Foods and Nutrition.—An undergraduate preparation for graduate work as a basis for more intense specialization in these fields of home economics research. For those who plan a scientific research career. Students who do not have a high school record or a college freshman record considerably above the average should not attempt this course. Graduate work to at least the Master's degree is assumed.

Curriculum for College Teaching.—A specialized curriculum for undergraduate preparation for graduate work leading to teaching home economics at the college level. Previous teaching experience and special aptitude are essential. Graduate work is, of course, assumed.

Home Economics Related Science Curriculum.—Opportunity is offered for emphasis on the sciences basic to certain fields in home economics. It is assumed that the student will take graduate work at least to the Master's degree. This curriculum should be chosen only by those who have an excellent high school record and an aptitude for science.

LAW SCHOOL

The Law School offers courses leading to the degree of bachelor of science in law and the degree of bachelor of laws.

The course for the degree of bachelor of science in law is two years. To be admitted as a candidate for this degree a student must have completed two years (90 quarter, 60 semester credits) of college work, with the requisite honor points (see Admission). The college work is elective. No foreign language is required. The prebusiness course in this University will satisfy the college requirement. The law work may be either the regular first two years of the professional course, or selected law work for those who wish training only for business purposes. The degree of bachelor of science in law is conferred upon those candidates who maintain an average of at least 70 in the work of each of the two years in the Law School. This degree does not qualify for admission to the bar, but students who have completed this course may go on to the bachelor of laws degree upon the conditions stated below.

The course for the degree of bachelor of laws—the professional degree required for practice—requires two additional years of study in the Law School. To be admitted as a candidate for this degree, a student must have completed the college work required for the degree of bachelor of science in law, *including*, except for students who have a college degree when they begin the study of law, *the subjects specified in the prelaw course* (see the Bulletin of the College of Science, Literature, and the Arts or the Bulletin of the Law School), or substitutes approved by the dean of the Law School, and must also have completed the two years of law work required for the degree of bachelor of science in law with an average of not less than 75 in one of these two years, or of not less than 73 for all the work of these two years combined. The additional two years of study are devoted to advanced courses in law, including practice, pleading, evidence, judicial administration, administrative law, jurisprudence, and legislation. About half of the work of these two years is prescribed; the remainder is elective. Students are permitted to take some work in other departments of the University. Advanced courses in political science and economics are especially recommended. The course is designed to give a broad view of law and legal institutions, and to train the student not only to care for clients' interests, but also for public service in his profession and for public and legislative leadership.

The College of Science, Literature, and the Arts and the Law School offer a combined seven-year course in arts and law leading to the degrees of bachelor of arts and bachelor of laws. (See the Bulletin of the College of Science, Literature, and the Arts or the Bulletin of the Law School.)

The School of Business Administration and the Law School offer a combined seven-year course leading to the degrees of bachelor of business administration and bachelor of laws. (See the Bulletin of the School of Business Administration or the Bulletin of the Law School.)

The Law School affords an opportunity for a course leading to the degree of master of laws, under the direction of the Graduate School. Candidates must have completed two years of college work and must have secured the degree of bachelor of laws from a school which is a member of the Association of American Law Schools.

MEDICAL SCHOOL

The Medical School offers four principal courses: one for physicians, one for nurses, one for public health nurses, and one for medical technologists.

The Medical Course proper leads to the degree of doctor of medicine and the usual career of graduates is the practice of medicine. The minimum preparation for entering this course is three years of college work, including general zoology, genetics, psychology, inorganic, analytical, organic, and physical chemistry, physics, English, and a reading knowledge of German.

Altho three years of college work will constitute the minimum requirement for admission to the Medical School, a physician should have a thoro and broad education. Hence, students are advised to take four years of college work before beginning the medical course; and, other qualifications being approximately equal, the Admissions Committee will give preference to those applicants who have had the better educational background. The time during these three (or four) years of college work which is not taken up with specifically required subjects should be devoted to a program of studies, carefully selected to serve as a background for a liberal education. (See Medical School Bulletin for details of entrance requirements and for suggestions for elective studies.)

Premedical study may be pursued in any good college. The medical course is four years in length and leads, at Minnesota, to the degree of bachelor of medicine. After a further year as intern (that is, resident doctor) in some good hospital, the student is granted the degree of doctor of medicine. He may then engage in practice or undertake additional graduate work as preparation for the practice of a specialty or for a career in teaching and research.

It will be seen that the complete time of study for a physician is eight or nine years above the high school. The course is difficult and only competent students should undertake it.

The School of Nursing offers a five-year combined course leading to the degrees of bachelor of science and graduate in nursing. The first five quarters in this course may be spent in any good university and are

devoted to the study of biological and other sciences, and to additional cultural courses fundamental to nursing. The next two and one-half years are spent in the clinical field of hospital, outpatient, or other community nursing practice. The last three quarters (one academic year) are divided between the clinical field (a chosen elective), and academic work contiguous to nursing.

Students taking this course are prepared, depending upon their choice of elective in the last year, for positions of bedside nursing, administration, supervision, teaching, school nursing, public health nursing, and other similar types.

The work of present-day nursing demands a comprehensive preparation such as may be secured in the five-year combined course. Graduates of this course are in demand and hold excellent positions in the various representative nursing fields in this country and abroad.

The school offers, also, a three-year course leading to a diploma of graduate in nursing. High school graduates meeting the entrance requirements to the College of Science, Literature, and the Arts of the University are eligible for this course.

The School of Nursing co-operates with the College of Education in offering a course in nursing education for graduate nurses leading to a degree of bachelor of science.

The school provides, in addition, postgraduate courses in communicable disease, medical, surgical, operating room, pediatric, and obstetrical nursing. These courses are twelve months in length and include clinical experience within the hospital and in other phases of community nursing practice outside the hospital. Accredited School of Nursing graduates who have completed with a C average psychology and sociology, or in lieu thereof one year of college work, are eligible for this course. They are expected to carry the equivalent of one-half year of related scientific and other academic work during the year. Nurses completing these courses are prepared primarily for combined administrative and teaching head nurse positions.

The school receives students from affiliating schools for class and clinical experience in such fields as medical, surgical, obstetrical, pediatric, dietary, gynecological, communicable, and outpatient phases of nursing.

For extension and summer courses see bulletin of the General Extension Division and the Summer Session, respectively.

Public Health Nursing.—Courses in public health nursing are conducted in the Medical School under the direction of the Department of Preventive Medicine and Public Health. Graduate nurses who are eligible and seniors in the five-year nursing course may secure the degree of bachelor of science with a major in public health nursing. Graduate courses in public health leading to a Master's degree are also available for qualified public health nurses. Students who are interested should ask the registrar for application blanks including the nursing supplement and should direct special inquiry to the Director, Public Health Nursing Course, 121 Millard Hall, University of Minnesota, Minneapolis, Minnesota.

The Course in Medical Technology is four years in length and leads to the degree of bachelor of science. Three years are devoted to college

study with emphasis on courses in biological and chemical science. The fourth year of training is taken in a hospital laboratory gaining actual experience.

A medical technologist is trained to make accurate medical tests, such as chemical analyses, microscopic examination, X ray, etc. This work requires intelligence and reliability of high order.

The Course in Embalming.—See the Bulletin of the Course in Embalming. Much of this course is given in the Medical School under the administration of the General Extension Division.

Short courses for physicians are offered throughout the year by the medical faculty and other specialists under the administration of the General Extension Division and the Center for Continuation Study.

Graduate work in the medical sciences, in the various specialties of clinical medicine and in public health is offered by the Graduate faculty of the Medical School. See Graduate Medical Bulletin.

SCHOOL OF DENTISTRY

The School of Dentistry offers two principal courses—a four-year course for dentists and a two-year course for dental hygienists.

The course in dentistry leads to the degree of doctor of dental surgery and prepares graduates to engage in the practice of dentistry. The minimum requirement for admission to the School of Dentistry is the completion of a four-year high school course and two years of college work, sixty (60) semester or ninety (90) quarter credits. The two years of pre-dental work may be taken in the College of Science, Literature, and the Arts at the University of Minnesota or at any accredited university or college.

The pre-dental course must include English and the sciences of chemistry, physics, and zoology. All the other subjects are elective, but the student is advised to secure as broad and as cultural an education as possible by selecting courses such as psychology, sociology, history, economics, statistics, and government. Technical drawing is also recommended as valuable training for a prospective dentist.

A broad, cultural education is of such great value to the professional man that the University of Minnesota offers the opportunity for a student to secure both the bachelor of arts and the doctor of dental surgery degrees in seven years. To accomplish this the student completes three years' work with a satisfactory record in the College of Science, Literature, and the Arts, and then enters the School of Dentistry. Upon the completion of the accredited medical science subjects in the first two years of the dental curriculum, the student becomes eligible for the bachelor of arts degree from the College of Science, Literature, and the Arts. Upon the completion of the required curriculum of the School of Dentistry, the student is recommended by the faculty in dentistry for the degree doctor of dental surgery.

After graduation a dentist secures a license to practice by passing the State Board Dental Examination required by the state in which he desires to locate.

Graduate work in dentistry.—Graduate work leading to the master

of science degree in dentistry is offered under the direction of a joint committee in Dentistry and Medicine and under the supervision of the Graduate School of the University. Candidates for admission must be graduates of an accredited dental school and have had at least two years of preliminary general college work. Completion of the work for a degree will normally require three years of graduate work.

Extension courses.—Courses in Crown and Bridge Work, Oral Surgery, Orthodontia, and Prosthetic Dentistry are conducted from time to time by the General Extension Division, for the benefit of dental practitioners.

The School for Dental Hygienists.—The Course for Dental Hygienists is offered by the School of Dentistry. Admission is based upon the completion of a four-year high school course or its equivalent. It offers to young women a two-year university course leading to the degree graduate dental hygienist.

The subjects included in this course aim to prepare young women for educational and practical dental hygiene work in public schools, hospitals, industrial institutions, and private dental offices. The cultural subjects include English composition, sociology, psychology, and public speaking. Physiology, physiological chemistry, zoology, bacteriology, and elementary anatomy serve as the fundamental background for the specialized courses pertaining to dental hygiene and pathology. Dental prophylaxis, administration of anesthetics, X ray, and dental laboratory technic, and assisting at the dental chair are included in the course of training. Instruction in office methods, records, banking, typewriting, and correspondence helps to prepare the dental hygienist for the various duties she performs.

Upon graduation the dental hygienist is required to pass the Minnesota State Board Examination in order to secure a license to practice dental hygiene within the state. Thirty-four other states have similar laws governing the practice of dental hygiene.

COLLEGE OF PHARMACY

The College of Pharmacy offers one undergraduate course of four years' duration leading to the degree bachelor of science in pharmacy. This course includes one year of work in certain subjects in the College of Science, Literature, and the Arts, or other colleges of equal standing.

The College of Pharmacy and the School of Business Administration offer an optional combined five-year course in Pharmacy and Business Administration leading to the degrees of bachelor of science in pharmacy and bachelor of business administration. This optional course is open only to those students who register in the College of Pharmacy either with or without advanced standing and who can present evidence of better than average ability. Students who are permitted to register for this course of study must take the professional and business administration courses in the sequences in which they are offered.

Graduate study with major work in pharmacy, pharmaceutical chemistry, and pharmacognosy and pharmaceutical botany, leading to the degrees of master of science and doctor of philosophy, respectively, is offered by the

Graduate School. The graduate work is open to those who have received the degree bachelor of science in pharmacy from the four-year course of this or some other college of pharmacy of similar standing. Only those who have shown exceptional scholarship and capacity in the undergraduate course and possess unquestioned ability to carry on independent research will be accepted for advanced work.

COLLEGE OF EDUCATION

The College of Education offers many courses of study designed to train students for the different positions in public and private schools and in other educational agencies. The satisfactory completion of a four-year course leads to the bachelor of science degree and to a certificate for school work from the Minnesota State Department of Education. In many cases a five-year program leads to the master of arts or the master of education degree.

Some of the courses of study prepare the student to teach an academic subject in high school, as English, Latin, German, history, mathematics, or science, or to teach one of the special subjects as agriculture, art, business subjects, home economics, industrial arts, natural science, physical education, health subjects, or music education. Other courses of study entitle the graduate to the kindergarten-primary certificate, or to the elementary school or junior high school certificate, and prepare for positions in nursery schools, kindergartens, elementary schools, and junior high schools. There are also courses of study for school librarians, for teachers of subnormal children, for visiting teachers, for teachers of speech correction, and for those interested in public school health work, public health nursing, and nursing education.

At the graduate level specialized programs in administration and supervision prepare for positions as superintendents of schools, principals of elementary schools and high schools, supervisors of elementary and high school subjects, critic teachers in teachers colleges and practice schools, and teachers of professional education subjects. Special courses planned for certification in administration and supervision are available. Graduate courses are also offered in educational and vocational guidance, psychological testing, educational psychology, higher education, and many other fields.

Many school systems are now asking that their teachers have five years of university work and a Master's degree. To meet this demand for advanced training there are five-year courses of study leading to the master of education degree in physical education for men, physical education for women, in art education, and in music education.

In nearly all cases the student registers for two years in the College of Science, Literature, and the Arts and transfers to the College of Education at the beginning of the junior year. In certain courses of study, as in elementary education and commercial education, a number of prerequisite subjects must be completed during the junior college period. In art education, industrial education, physical education, and music education, the student registers in the College of Education as a freshman. In agriculture and home economics the freshman and sophomore years are taken in the College

of Agriculture, Forestry, and Home Economics. The programs in nursing education and public health nursing are based on preliminary work in the School of Nursing.

SCHOOL OF BUSINESS ADMINISTRATION

The School of Business Administration offers a two-year course leading to the degree of bachelor of business administration. This course requires as a prerequisite the completion of two years of work in the College of Science, Literature, and the Arts, the Institute of Technology, or the College of Agriculture, Forestry, and Home Economics in which certain prebusiness courses are prescribed.

In addition to the general courses in business, several specialized sequences are offered. Among them are courses in Accounting, Advertising, Agricultural Business, Finance, Insurance, Merchandising, Department Store Training, Foreign Trade, Personnel Management, Industrial Administration, Traffic and Transportation, Secretarial Training, Statistics, and Office Management. In each of these a sequence of courses has been arranged which enables the student to obtain the professional training essential for entrance into the specialized field. Instruction is directed toward the broader aspects of the business professions rather than detailed drill in various technical processes. The business courses are combined with a sufficient amount of instruction in other fields to afford a well-rounded university education.

Five-year combined courses in the Institute of Technology and the School of Business Administration are available for students preparing for administrative positions in industrial establishments that require technical training in both engineering and business. A student is enabled to obtain degrees in both engineering and business administration on satisfactorily completing one of the five-year curricula as approved by the official advisers of the School of Business Administration and the Institute of Technology. These combined courses are available to students in the various curricula in the Institute of Technology.

A five-year combined program in Pharmacy and Business Administration is available for students who are preparing for administrative positions in pharmaceutical or certain types of chemical plants. This course also affords training for those planning to enter a wholesale or retail pharmacy business.

A seven-year combined curriculum in Business Administration and Law was introduced in the fall of 1938. It is the purpose of this program to afford a training for several types of positions which require a knowledge in both the fields of law and business administration. These positions are found in certain types of law practice which involve appearance before governmental administrative boards and commissions and also in administrative positions in corporations which are subject to governmental regulation.

A limited number of positions are available to students in the junior and the senior years to supplement the university training. Students selected for these positions are employed by accounting firms, department stores, financial institutions, or other business concerns. The terms and period of employment are arranged to meet the needs of individual students by the

employing firms that are co-operating with the school. Employment under these conditions affords an excellent opportunity for laboratory experience. The positions available have been selected by the faculty with special consideration as to the educational value of the work. University credit is allowed for work which has been successfully carried under proper supervision.

The degree of master of business administration is awarded through the Graduate School to students who have completed certain specified course requirements beyond the Bachelor's degree. Students who have obtained the bachelor of business administration degree here or in another institution of equal standing may satisfy these requirements in one year. Students who have obtained a bachelor of arts degree from a liberal arts college will generally find it necessary to spend two years in completing this requirement.

LIBRARY INSTRUCTION

The Division of Library Instruction with a full year of professional training in librarianship for students of senior standing has a separate organization, but is under the direction of the university librarian and closely affiliated in its work with other departments of the University. Its full course is accepted by the College of Science, Literature, and the Arts, the College of Education, and the University College as the senior requirement for graduation. Certain courses will also be credited by the School of Business Administration and the College of Agriculture, Forestry, and Home Economics. Recent changes have been made in the curriculum to meet legislative changes in the certification of school librarians, and a course in hospital librarianship, involving six weeks of additional practice or internship in hospital libraries, is offered in the spring quarter.

INDIVIDUAL CURRICULA

In practically all of the colleges, students of mature age and adequate preparation are permitted to pursue, under the direction of the faculty, one or two distinct lines of study.

A student who is unable to find in any of the curricula of the colleges a program of study suited to his special intellectual interests or professional aims may, with the advice and approval of the University College Committee, arrange a course of study best adapted to his needs. Any course offered in the University may be drawn upon in making up such a program. The satisfactory completion of an approved curriculum entitles the student to the degree of bachelor of arts or bachelor of science.

GRADUATE SCHOOL

The Graduate School gathers into a single organization and unites for the purpose of administration all the activities of the University in all its schools and colleges in so far as they relate to advanced instruction offered for the second or higher degrees, namely, master of arts, master of science, master of business administration, electrical engineer, mechanical engineer,

civil engineer, chemical engineer, and doctor of philosophy. The privileges of this school are in general open to all who have received Bachelor's degrees from accredited colleges and universities, based on courses substantially equivalent to those at this University.

Graduate work in medicine is maintained jointly by the Medical School and the Mayo Foundation for Medical Education and Research (see special bulletin). The degrees of bachelor of science (or equivalent) and doctor of medicine and one year of intern service in an acceptable hospital are prerequisites for admission to the clinical departments. Properly qualified college graduates may be admitted to the medical laboratory departments (Anatomy, Physiology, Bacteriology, Biophysics, Pharmacology, and Pathology) without the medical degree and internship. A number of fellowships and scholarships are provided for selected students undertaking graduate courses in chosen specialties in medicine. These courses cover a period of three years and lead to the degree of master of science or doctor of philosophy in the various fields.

Graduate work in certain problems related to dentistry is offered to qualified students in the fundamental or laboratory departments mentioned above. Clinical material and opportunities to supplement this research are available from the Dental Clinic, the Medical Dispensary, and the University of Minnesota Hospitals.

UNIVERSITY SUMMER SESSION

The university Summer Session is organized for two terms, one of six weeks and one of five weeks, from June to September, under the authority of the Board of Regents, as a regular part of the University. Courses in the College of Science, Literature, and the Arts, Agriculture, Forestry, and Home Economics, and Education, the Institute of Technology, the Schools of Medicine, Dentistry, and Business Administration, the Institute of Child Welfare, the Division of Library Instruction, and the Departments of Physical Education, with special attention given to graduate work, are offered. These courses are, in the main, regular courses, the same as are offered during the academic year, but wherever necessary, are adapted to meet the needs of students in the Summer Session. Address your inquiries to the director of the Summer Session, 406 Administration Building, University of Minnesota, Minneapolis, Minnesota.

LAKE ITASCA FORESTRY AND BIOLOGICAL STATION

The Forestry and Biological Station at Itasca Park offers elementary and advanced courses in the fields of biology by various departments in the College of Agriculture, Forestry, and Home Economics, and the College of Science, Literature, and the Arts during the second term of the Summer Session. Instruction consists of field trips and indoor laboratory work. Opportunities are also offered for research and investigation in the midst of rich and highly diversified flora and fauna of the lake region of the state. The same scholastic standards are maintained at the station as on the campus

of the University and credit is given for satisfactory work. The courses are open to qualified graduate and undergraduate students. Certain courses are especially designed for the teachers of biological subjects in colleges, high schools, and public schools. Opportunities are open to experienced investigators for work on special field problems throughout the growing season by arrangement with the acting director. Address your inquiries to the acting director of the Lake Itasca Forestry and Biological Station, University Farm, St. Paul, Minnesota.

UNIVERSITY EXTENSION

The General Extension Division conducts late afternoon and evening extension classes in the Twin Cities, Duluth, and in some other communities for the benefit of those who are employed during the usual working hours and are, therefore, not able to attend the regular day classes of the University. It also conducts correspondence study courses which are available to anyone no matter where he may live. These classes and correspondence study courses cover a wide range of subjects, representing the offerings of the College of Science, Literature, and the Arts, the College of Education, the Institute of Technology, the School of Business Administration, and the General College.

Instruction, by both class and correspondence study methods, is also open to, and employed by, regularly matriculated students as a means of earning credits toward degrees. Extension classes conducted in Minneapolis, St. Paul, or Duluth are classed as residence work; credits earned in them satisfy residence as well as credit requirements. Credits earned by correspondence study do not classify as residence, but are accepted for a part of the credit requirements for most undergraduate degrees. (The Institute of Technology has special requirements which students must follow.) Students, therefore, who are temporarily out of residence (except dropped students) are privileged to register for either form of instruction.

The General Extension Division also provides a number of other educational facilities, such as: lectures by faculty members and others, lyceum courses, popular lectures, concerts and entertainments; it lends lantern slides and films for both entertainment and instruction; it maintains a Municipal Reference Bureau; it holds annual short courses in a number of subjects including a year course for embalmers; it gives advice to schools and other organizations on the selection and production of plays; and it administers the university radio broadcasting station for educational purposes.

For further information, and for bulletins of extension classes, correspondence study, lecture courses, and various community services, address the General Extension Division, 402 Administration Building, University of Minnesota, Minneapolis, Minnesota.

The work of the Agricultural Extension Division is entirely separate from the of the General Extension Division. See Organization of the University, page 51.

PHYSICAL EDUCATION FOR WOMEN

The Department of Physical Education for Women provides a wide program of sports and other activities to meet the varying interests and needs of all women students. The facilities of this department, including the 18-hole golf course, tennis courts, three gymnasias, two swimming pools, squash court, large indoor sports room, and outdoor playing fields, are available for use by all women students.

The activity program offers an opportunity for the development and maintenance of physical fitness and vigor and for harmonious posture, carriage, and other daily life skills. It provides an opportunity for the expression of creative ability in rhythm and the dance and for the acquisition of personal and recreational skills.

The Women's Athletic Association, sponsored by the Department of Physical Education for Women, carries on a rich intramural program for women students and affords an opportunity for student service and leadership.

The Department of Physical Education for Women offers professional curricula in the College of Education.

UNIVERSITY LIBRARY

The University Library comprises all the collections of books belonging to the University. It now contains nearly 1,100,000 volumes available for use.

The University Library Building, containing not only the general collection but also several important college and departmental collections, houses almost 900,000 available volumes.

In addition to the General Library, branches are maintained in the Department of Agriculture, the Institute of Technology, the Law School, the University High School, and the Department of Geology. Smaller collections of books constantly in use in departmental work are deposited in many important departments of the University.

The *Library Handbook*, copies of which may be had gratis upon application at the library, contains information essential to the proper use of the library. It should be read carefully by every advanced student. The essential regulations regarding borrowing library books are published each quarter in the Official Daily Bulletin of the *Minnesota Daily*.

SPEECH SERVICE

The Speech Clinic is available to any student in need of remedial treatment for defective speech, such as lisping, dialect, oral inaccuracy, stuttering, or inadequate speech personality. Often it is found that students have difficulty in college adjustments because of inadequacy in left-handed writing, transferred handedness, or mixed hand dominance. Services to these students include clinical and consultant aid. Speech proficiency is essential to adequate success in any profession. Speech defectives have an opportunity of receiving help before graduation.

A laboratory fee of \$3 per quarter is charged students carrying 12 hours academic work. These students may spend from 6 to 8 hours a week in the clinic. Students carrying from 6 to 8 hours academic work toward a degree pay \$20 per quarter for which they receive 20 hours a week clinical work.

The clinic also has an outpatient department for stutterers. During the regular academic year the cost is \$50 per quarter for full-time work. This includes Health Service. Half-time patients pay \$30 per quarter. During eight weeks the Summer Session full-time outpatients pay \$65 including Health Service.

University students and outpatients should consult the director of the Speech Clinic, Room 411 Folwell Hall, concerning registration for clinical therapy.

STUDENTS' HEALTH SERVICE

Through the Students' Health Service the University makes available to students medical care, physical examinations, and health consultations. General service is provided free of charge, but for services which are specialized and individual in character, such as dentistry, X ray, board and laundry in the student hospital, outpatient calls, minor surgery, etc., special fees are charged. No student, however, will be denied service because of inability to pay these fees. Major surgical operations or prolonged medical care ordinarily are secured through private physicians selected by the students or their families, but, if necessary, operations may be arranged for through the Students' Health Service upon the established basis.

On the Main campus the offices of the Health Service and the Students' Hospital and Dispensary are located in the Health Service Building. On the University Farm campus the hospital and dispensary also are located in a special Health Service Building. The services of the hospital and dispensary are available at all hours of the day and night. Physicians of the Health Service are in attendance daily. The telephone call for the Health Service on the Main campus is Main 8551; for the one on the University Farm campus, Nestor 4616.

The facilities of the dispensary, medical and dental, are such that a large number of students can be given attention in a day. The normal capacity of the two hospitals is one hundred beds. In emergencies, this capacity can be increased. Ample provisions are made for the isolation of communicable diseases.

The Health Service has been established for the purpose of safeguarding the health of students. Its aims are (1) to help each student entering the University of Minnesota to possess a healthy, vigorous, active, and harmoniously developed body, thereby contributing much to his success while in college and in later life; (2) to reduce to the very minimum the prodigious academic and economic loss due to indisposition and illness of students. Positive health is its goal.

VOCATIONAL INFORMATION

Freshmen who are undecided as to what occupation or profession to choose and what college course to take are encouraged to communicate with

the University Testing Bureau, Room 101 Eddy Hall. This bureau is organized for the purpose of assisting students in making vocational decisions. If possible, they and their parents should come to the University during the summer for an interview and a discussion of their problems. During Freshman Week, advisers in the dean's offices, special advisers in the registration rooms, and Testing Bureau counselors will be available. However, because of the time necessary to make a careful analysis of the student's occupational and educational possibilities, freshmen are urged to seek help prior to Freshman Week. The services of the University Testing Bureau are not intended to duplicate the advice students may receive from the dean of the college in which they plan to enroll; they should therefore seek advice from both agencies. Inquiries should be addressed to the director, University Testing Bureau.

MILITARY SCIENCE AND TACTICS

Courses in military science and tactics are elective. All students electing these courses are given the instruction prescribed for the Basic and Advanced Courses, Coast Artillery Corps, Signal Corps, and Medical Corps, Reserve Officers' Training Corps, and will be governed by the following conditions:

BASIC COURSES

The Basic Courses consist of six quarters of three hours of work per week, for which one credit per quarter is accepted towards graduation. The Signal Corps Course is open to physically qualified male students in Electrical Engineering only. The Medical Corps Course is open to physically fit male students enrolled in the Medical School only. The Basic Coast Artillery Course is open to all physically qualified male students registered in the Institute of Technology and the Division of Forestry, without additional prerequisites. Students in all other colleges may register for the Basic Coast Artillery Course, provided that they have had the prerequisite advanced algebra and plane trigonometry, or provided that they agree to take and complete these subjects some time during their freshman year (Science, Literature, and the Arts, Math. 1, Higher Algebra, and Math. 4 or 6, Trigonometry; 1 and 6 preferred). For those who are planning to take the Advanced Coast Artillery Course, the course in college algebra is recommended (Science, Literature, and the Arts, Math. 7, College Algebra, or Math. 8, Commerce Algebra).

ADVANCED COURSES

Subject to the recommendation of the professor of military science and tactics and the approval of the president of the University, any student is eligible for enrolment who has completed the Basic Course, Senior Division, R.O.T.C., or other equivalent military work. The course consists of six quarters of five hours of classroom work per week, for which three credits per quarter are offered.

Students enrolled in the Advanced Course are furnished a uniform and receive from the Federal Government a fixed sum of pay per day while pursuing this course. They are required to enter into an agreement to continue in the course during their time at the University until completion and to

attend such summer training camps as are prescribed by the secretary of war. All expenses incident to training camp attendance are borne by the government. The university degree will be withheld until this contract is discharged. Upon the successful completion of the Advanced Course, students are, upon the recommendation of the president of the University and the professor of military science and tactics, eligible for appointment as reserve officers in the Army of the United States in the lowest grade of the branch of service to which they are assigned.

NAVAL SCIENCE AND TACTICS

The University of Minnesota is one of nine universities to offer United States naval training. The Naval Reserve Officers' Training Corps of the University of Minnesota provides a four-year course to selected, physically qualified male students which leads to a commission as ensign, United States Naval Reserve, or as second lieutenant, United States Marine Corps Reserve, provided the candidate applies for the commission, obtains a degree from the University, is recommended by the professor of naval science and tactics, and passes a prescribed physical examination.

The courses in naval science and tactics are divided into two groups: Naval Science, and Navigation. Navigation is covered in three quarters at the convenience of the student. Naval Science I and II with Navigation comprise the Basic Course in training. Naval Science III and IV (or IIIa and IVa) plus any incompleting navigation comprise the Advanced Course.

Naval R.O.T.C. practice cruises on board battleships, cruisers, and destroyers in the Atlantic or Pacific are held annually during the summer. Attendance of one Advance Course cruise is required, as a prerequisite to a commission, but all Naval R.O.T.C. students are eligible for a cruise each summer.

The Basic Course requires two hours of classroom work and one hour of drill per week for two years for which $1\frac{1}{2}$ credits per quarter are accepted towards graduation. The Advanced Course requires three hours of classroom work and one hour of drill per week for two years for which 3 credits per quarter are allowed. The Navigation Course requires three hours of classroom work per week for three quarters for which 3 credits per quarter are allowed. Credit is given for summer cruises at sea in the amount of $\frac{3}{4}$ credit for each two weeks of cruising. Cruise credits do not reduce the number of credits required for the degree in the student's major, but are in excess of degree requirements. Naval Science credits and Navigation credits, however, are accepted as fulfilling degree requirements.

Uniforms and equipment are furnished, without charge, to students by the government. All textbooks used are loaned to the student. All Naval R.O.T.C. students attending cruises are furnished transportation and subsistence. Students while enrolled in the Advanced Course are paid monthly commutation of subsistence by the Navy Department, and cruise pay on the Advanced Course cruise. The total pay received from the government amounts to about one hundred ninety dollars (\$190) for the two years in the Advanced Course.

All prospective candidates for the Naval R.O.T.C. must apply in person to the professor of naval science and tactics, University of Minnesota, before registering for the course, as enrolments are limited by law and a prescribed physical examination must be taken before the candidate can be considered.

NAVIGATION

Navigation courses given by the Department of Naval Science and Tactics are open to all university students.

Navigation I. Navigation and Nautical Astronomy. Fundamental principles of astronomy underlying navigation of ships and aircraft, charts, piloting, compasses, compensation of magnetic compass error, sextants, chronometers, dead reckoning. Three hours per week for one quarter. Prerequisite, plane trigonometry. Three credits.

Navigation II. Navigation and Nautical Astronomy. Piloting, time, solar ephemeris, determination of latitude and longitude by the sun, azimuth, astronomical triangles, lines of position, deep sea navigation. Three hours per week for one quarter. Prerequisite, Nav. I. Three credits.

Navigation III. Celestial Navigation. Sidereal time, determination of position by moon, stars, and planets, short methods, tides, chart work, star identification, theory and principle of gyroscopes, gyrocompasses. Three hours per week for one quarter. Prerequisite, Nav. II. Three credits.

ADMISSIONS

GENERAL

All matters relating to admission to the University and to credit for work at other schools and colleges are handled by the University Board of Admissions. The registrar is the secretary of this board. All credits, applications for admission, and inquiries about admission should be addressed to the Registrar, University of Minnesota, Minneapolis, Minnesota.

APPLICATIONS FOR ADMISSION

Each student who wishes to enter the University, either as a freshman or with credits from another institution, must fill out the information called for on pages 1 and 2 of the official application blank. This blank can be obtained from the registrar or from any Minnesota state high school.

The applicant for admission from high school should then give the application blank to the high school principal or superintendent with the request that it be completed and forwarded to the registrar of the University.

The applicant for admission from another college may send the information on pages 1 and 2 direct to the registrar and, in addition, he should request the college last attended to forward to the University of Minnesota an "official transcript of record" and an "honorable dismissal."

The applicant for admission by examination should submit the information on pages 1 and 2 direct to the registrar who will issue an authorization for the entrance examination.

Nonresidents of Minnesota are required to submit also the information called for on the "Supplementary Application for Nonresident Undergraduate Applicants." See pages 40-41 for a statement of the University's policy governing the admission of nonresident undergraduates.

ADMISSION FROM HIGH SCHOOL

Admission to the freshman class is either by examination (see page 38) or by certificate.

Most students entering the freshman classes of the University are high school graduates. In order to enter without entrance examinations the applicant must be a graduate of an accredited high school of Minnesota, or of a high school on the approved list of some other recognized state or regional accrediting institution.

The public and private high schools on the Minnesota accredited list will be found on pages 61-64.

In addition to being a graduate of an accredited school, the applicant must meet certain requirements set up by the University.

In order to understand the statement of these requirements the following definitions are given:

A "unit" of high school work means not less than five recitations of forty minutes each week for a school year of thirty-six weeks. In such subjects as shop, drawing, cooking, typewriting, and similar courses, a "unit"

means the equivalent of ten recitation periods a week for thirty-six weeks. Double laboratory periods will not be required from schools organized on a sixty-minute class period schedule.

"Admission group" refers to the special grouping of the high school subjects as they appear below.

A "major" means at least three units in one admission group.

A "minor" means at least two units in one admission group.

The admission groups and the minimum and the maximum number of units in any one subject that will be accepted for admission are as follows:

Group A: English.—Composition and literature, one to three units.

Not to exceed one unit of public speaking, or journalism may be presented in partial satisfaction of these requirements.

Group B: Foreign languages.—Requirements for a major in this group, three units in one language; for a minor, two units in one language.

French, one to four units

German, one to four units

Greek, one to four units

Latin, one to four units

Scandinavian languages, one to four units

Spanish, one to four units

Group C: History and social sciences.—Requirements for a major in this group include at least two units in history; for a minor, at least one unit in history

History—

American, one-half or one unit

English, one-half or one unit

European, one or two units

Social sciences—

American government, one-half or one unit

Commercial geography, one-half or one unit

Elementary economics, one-half unit

History of commerce, one-half or one unit

Sociology, one-half or one unit

Group D: Mathematics

Elementary algebra, one unit

Higher algebra, one-half or one unit

Plane geometry, one unit

Solid geometry, one-half unit

Trigonometry, one-half unit

Unified mathematics, two units

Group E: Natural sciences.—For a major or minor in this group, not more than two half-unit courses may be included.

Astronomy, one-half unit

Biology, one unit

Botany, one-half or one unit

Chemistry, one unit

Geology, one-half unit

Physics, one unit

Physiography, one-half or one unit

Physiology, one-half unit

Zoology, one-half or one unit

Group F: Vocational and miscellaneous subjects, one-half to three units.

In this group there may be included any subjects not specifically listed in Groups A, B, C, D, or E which have been accepted by the high school toward its diploma.

For admission to any college of the University which accepts students without preliminary college training, an applicant must present a record of at least twelve units completed in Grades X, XI, and XII (senior high school).

SPECIAL REQUIREMENTS OF THE INDIVIDUAL COLLEGES

Applicants entering by the examination method (page 38) are not required to meet these special group requirements.

College	Minimum No. Units, Groups A to E Inclusive	Major in Group	Major or Minor in Group	Major or Minor in Group	Specific Subjects Required	Special Requirements and Recommendations. See below
Science, Literature, and the Arts.....	9*	A	D	Elective	None	1
Institute of Technology	9*	Elective	D	A	None	2
Agriculture, Forestry, and Home Economics: Forestry, Science Specialization, and Food Technology	9* or 8†	Elective	D	A	E, 1 unit	3
All other courses	9* or 8†	Elective	A	Elective	None	
Nursing	9*	A	D	Elective	None	4
Dental Hygienists	9*	Elective	A	Elective	None	
Pharmacy	9*	A	D	Elective	Physics, 1 unit	5
Education: Music Education	9*	A	D	Elective	None	
Other courses except those requiring pre-education work	9*	A	Elective	Elective	None	
General	None	None	None	None	None	

Admission to the other schools and colleges of the University requires two or more years of preprofessional work. Except as indicated on page 39, this preprofessional work is offered in the College of Science, Literature, and the Arts, and the requirements for admission to that college should be met.

* The nine units from Admission Groups A, B, C, D, and E must include a major and two minors, or preferably, two majors and one minor from at least three different admission groups.

† An applicant for Agriculture or Home Economics curricula will be admitted with only 8 units in Groups A to E inclusive provided he presents one unit of senior high school Agriculture or Home Economics respectively from Group F.

Either one major or one minor must be in Admission Group A (English).

From either Admission Group B (foreign languages) or Admission Group D (mathematics), *but not from both*, one unit completed in Grade IX may be used to make a major or a minor. If this is done, however, the unit completed in Grade IX may not be counted as a part of the minimum of twelve units required from Grades X, XI, and XII nor as part of the nine units required to be presented from Groups A to E inclusive.

RECOMMENDATIONS OF THE COLLEGES

The numbers of the following paragraphs refer to the numbers appearing in the last column of the table of special college requirements above.

1. **The College of Science, Literature, and the Arts.**—Applicants for admission to this college must give evidence by their record in high school and by their standing in the college aptitude tests that they are prepared to

take advantage of the educational opportunities offered by work in this college.

2. Institute of Technology.—Applicants who stand in the upper 60 per cent of their high school class on the basis of scholarship will be admitted directly. Others will be given individual consideration and may be permitted to take special tests to qualify for admission.

All students entering the institute are urged to include in their high school courses: additional mathematics, including both higher algebra and solid geometry; English, three units; chemistry; physics; Latin, two units; German or French, two units; ancient, modern, and American history; and American government or civics. French is desirable for students in architecture. German is important for students entering the School of Chemistry.

Students entering without higher algebra or solid geometry or both must register for such courses in the fall quarter without credit. In order to continue in the Institute of Technology these deficiencies must be removed during the fall quarter. Applicants deficient in either higher algebra or solid geometry will not be admitted at the beginning of the winter or spring quarter.

3. College of Agriculture, Forestry, and Home Economics.—A student entering Agriculture or Home Economics will be permitted a minimum of eight standard units (Groups A to E inclusive) for entrance in case the applicant presents one unit of senior high school agriculture or home economics respectively.

Students entering with a unit of high school chemistry are permitted to take a two-quarter course of five credits each in general chemistry in college instead of a three-quarter course of four credits each. Students presenting a unit of high school physics are not required to take an elementary course in college physics.

Every prospective student in agricultural curricula is urged to obtain at least six months practical experience on a farm before entering college. Those whose farm experience credentials are not satisfactory will be examined as to their familiarity with farm practices and farm experience, or such experience as the committee may consider equivalent will be required during the college course in accordance with the results of these examinations. The State Department of Education requires that before certification a candidate for an agricultural high school teacher "must have had at least two full years of farm experience after the age of sixteen or he shall have been born and reared on a farm until the age of sixteen." It is also recommended that major and minors be taken in Groups A, D, and E.

For all students intending to enter any course in forestry it is recommended that major and minors be taken in Groups A, D, and E.

Students in Forestry and Agriculture who have completed higher algebra in the high school will be exempt from Mathematics 1 provided they pass the placement test given by the Department of Mathematics which requires the equivalent of Math. 1, Higher Algebra.

Students who have completed higher algebra and trigonometry in high school will be exempt without placement tests from the freshman mathematics requirements of the college when these include not more than higher algebra and trigonometry.

Students in forestry and wildlife management are urged to complete both higher algebra and trigonometry in high school.

For students entering any of the fields of the college, viz., agriculture, forestry, and home economics, success and experience in high school mathematics and science are valuable assets.

4. School of Nursing.—Applicants must be not less than eighteen nor more than thirty-five years of age upon beginning their clinical practice. They must submit satisfactory evidence of physical and mental fitness and of good character and pass a satisfactory general physical examination by the University Health Service. Final selection is made on the basis of scholarship, character, and general fitness.

5. College of Pharmacy.—One unit of high school physics, or its equivalent, is prerequisite to the professional subjects of the sophomore year in the College of Pharmacy. Therefore, high school students are urged to include this subject as part of their high school course. Students entering the College of Pharmacy with advanced standing must meet the physics requirement. Their individual cases will be considered by the Students' Work Committee.

Students who have met the one unit of high school physics requirement, are referred to the first year of outline of four-year course. Those who have not met the entrance requirement of one unit of high school physics may register in the College of Pharmacy but must complete College Physics 1af, 2aw, and 3as (total 12 credits) before they will be permitted to register for sophomore subjects in this college. (See Combined Class Schedule.) Credits earned in college physics will satisfy the entrance requirement of one unit of high school physics. They may also be applied toward the required 21 credits of academic electives of the first year.

ADMISSION BY EXAMINATION

Applicants who are not graduates of accredited high schools may meet the admission requirements in one of the following ways:

1. By presenting state high school board certificates from examining boards of other states;
2. By presenting certificates representing examinations given by the College Entrance Board; or
3. By passing successfully the University of Minnesota entrance tests as described below.

UNIVERSITY OF MINNESOTA ENTRANCE TESTS

These tests may be taken by any high school graduate whose high school credits do not meet the special requirements of the college he wishes to enter.

They may be taken also by any individual who is not a high school graduate provided he is nineteen years of age or older.

Any applicant who passes these tests will be admitted provisionally subject to one year of satisfactory work at the University.

Most graduates of Minnesota high schools will have taken these tests in connection with the state testing program conducted in the high schools throughout the state each year.

In order to take the tests at the University, the official application blank should be filed with the registrar according to the instructions on page 34. Detailed information as to where and when to report for the tests and an authorization for the tests will then be forwarded.

In special cases, arrangements will be made to have the tests given near the applicant's home in order to save the expense of travel to the University. In such cases a \$5 fee is charged. There is no fee if the tests are taken at the University.

These tests are of the objective type, intended to measure aptitudes for college work rather than specific information in high school fields. No special preparation for the tests is practicable.

Each applicant for admission by means of the university entrance tests will be required to take the college aptitude test and such supplementary aptitude and achievement tests as may be prescribed in individual cases by the Board of Admissions.

Admission to the schools and colleges listed below requires two or more years of professional work as indicated, either at the University of Minnesota or at some other recognized college or university. The bulletin of the college concerned should be obtained from the registrar and consulted for the specific preprofessional requirements. On entering the University for the preprofessional work, the applicant must meet the admission requirements of the college in which the preprofessional work is to be taken. (See Courses and Degrees, pages 10-33.)

Institute of Technology, Course in Interior Architecture	Two years in Science, Literature, and the Arts
Law School	Two years in Science, Literature, and the Arts
Medical School	Three or more years in Science, Literature, and the Arts
School of Dentistry	Two years in Science, Literature, and the Arts
College of Education	Two years in Science, Literature, and the Arts; or in Agriculture, or in Home Economics; or in the General College; or five quarters in Science, Literature, and the Arts and ten quarters in the School of Nursing. Exceptions are the special four-year courses of study in Art Education, Industrial Education, Music Education, and Physical Education.
School of Business Administration	Two years in Science, Literature, and the Arts; Agriculture, Forestry, and Home Economics; or the Institute of Technology

ADMISSION TO ADVANCED STANDING

This University accepts credits from other colleges and universities toward the University's degrees. Such credits are accepted as far as they represent courses equivalent to those offered in the University of Minnesota. The certified record of courses taken in other institutions must be upon the

official transcript blank of the institution granting the certificate and should be accompanied by a letter or statement of honorable dismissal.

Applications for advanced standing should be made, if possible, at least one month before the time when the student expects to enter the University and on the official application blank, copies of which may be obtained from the registrar's office, University of Minnesota.

All statements concerning advanced standing and classification are provisional, subject to the satisfactory completion of one year's work at the University.

Candidates wishing to gain advanced standing by examination are allowed examinations without charge, provided they are taken within six weeks after admission.

See page 65 for list of institutions in Minnesota that are recognized for advanced standing credit.

ADULT SPECIAL STUDENTS

Persons of mature age (twenty-four years or older) and experience who may desire a special and limited course of study may be admitted to any of the colleges of the University.

Such applicants must submit the information called for on the regular application blank, and must obtain the recommendation of the dean of the college concerned and the approval of the Board of Admissions.

An adult special student may not be a candidate for a degree without meeting the admission requirements in a way satisfactory to the Board of Admissions.

GENERAL POLICY GOVERNING ADMISSION OF NONRESIDENT UNDERGRADUATES

The increasing registration at the University of Minnesota, and the prospect that it will continue for approximately ten years, and the decreasing income per student have made it necessary for the regents to survey the situation to determine what constructive steps should be taken to insure effective scholastic work at the institution.

Altho a number of suggestions have been considered, only one has been acted upon, and it relates to nonresident students. The regents are of the opinion that the University should not become local and provincial. They welcome and wish to encourage students from foreign countries, the children of alumni and former students residing in other sections of the United States or the world, students from the Northwest and from neighboring states, and a reasonable number of nonresident students from every part of the United States. The regents know that the number of nonresident students at the University in the past has been approximately equal to the number of residents of Minnesota in attendance at universities in neighboring states. But of late there has been a tendency for the number of nonresidents at Minnesota to increase more rapidly than the number of residents attending universities in other states. The regents believe that a balance should be maintained in this matter. It is their opinion that the time has come when the University

of Minnesota should exercise discretion with regard to the number of non-resident students it admits. Students from outside Minnesota whose secondary school work, intelligence rating, or other measures of scholastic achievement do not give better than average promise of an ability to profit from courses of instruction and residence at the University of Minnesota should not be admitted.

A study of the fees paid by nonresident students at other institutions makes it apparent that larger nonresident fees should be charged at the University of Minnesota.

Looking toward the above adjustment between nonresident students and resident students, the regents have directed:

1. That discretion shall be exercised in the admission of nonresident undergraduate students.
2. That tuition fees for undergraduate nonresident students shall be as shown on page 56.

APPLICATION PROCEDURE

To be considered for admission an applicant must file *not later than six weeks* prior to the opening of the quarter for which admission is requested:

1. The formal application blanks completely filled out.
2. The supplementary application for nonresidents of Minnesota.
3. High school record.
4. College record and honorable dismissal (if the applicant has attended college).
5. Results of such tests as may be specified by the Board of Admissions on receipt of the application blank.

The final dates for filing such material for 1940-41 are:

Fall quarter	August 12, 1940
Winter quarter	November 21, 1940
Spring quarter	February 8, 1941
Summer Session: first term	April 26, 1941
Summer Session: second term	June 7, 1941

Selections will be made and applicants will be notified as soon as possible following these dates.

CREDENTIAL EXAMINATION FEE

Each applicant for admission to a senior professional school or college from a nonresident of Minnesota shall be accompanied by a \$5 credential examination fee. (The senior professional schools are the Medical School, School of Dentistry, Law School, College of Education, except courses admitting freshmen, and the School of Business Administration.)

This fee is not refundable, but if the applicant enrolls within one year following the date of application, the \$5 payment will be credited to his tuition for the first quarter.

Remittance should be in the form of check, bank draft, or money order, payable to the University of Minnesota. *Do not send cash.*

EXPENSES

For detailed statement of university fees and basis for refunds, see pages 55-60.

The following table estimates the expenses of the average first year. The columns give estimates for the different colleges. This estimate does not include expenses for clothing, railroad fare, vacations, and amusements.

ESTIMATED EXPENSES OF THE ORDINARY STUDENT DURING
HIS FIRST YEAR IN COLLEGE

	Academ., Agric., For., H.E., Educ., Gen., Grad.	Bus. Adm.	Law	Inst. of Tech.	Dent.	Dent Hyg.	Med.	Pharm- acy
Incidental fee	\$ 25.50	\$ 25.50	\$ 25.50	\$ 26.70	\$ 25.50	\$ 25.50	\$ 25.50	\$ 25.50
Matriculation fee	10.00§	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Course and lab. fees ..	6.00	6.00	6.00	6.00	3.00	9.00	6.00	6.00
Laundry	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Room rent	112.50	112.50	112.50	112.50	112.50	112.50	112.50	112.50
Board	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00
†Tuition	60.00	90.00	120.00	90.00	180.00	75.00	225.00	105.00
Books and instruments	35.00	35.00	45.00	40.00	218.00*	33.00†	180.00‡	35.00
Total	\$539.00	\$569.00	\$609.00	\$575.20	\$839.00	\$555.00	\$849.00	\$584.00

* Of this amount \$170 is for instruments.

† Of this amount \$18 is for instruments.

‡ Of this amount \$135 is for a microscope.

§ Matriculation deposit for the Graduate School is \$3.

¶ This is the tuition charge for a resident of the state of Minnesota. For additional charges for nonresident tuition see nonresident fees, page 56.

There is a difference of from \$30 to \$150 between resident and non-resident tuition.

Tuition, incidental, and course fees are payable quarterly in advance and must be paid promptly to avoid privilege fees. These payments are due in September, December, and March—the final dates for payment will be found in the University Calendar, pages 53-55.

The matriculation deposit fee is payable on first registration. Additional deposits may be required at any time that the balance is deemed insufficient. The balance will be refunded on graduation or when the student leaves the institution.

By obtaining cheaper board and room many students will be able to live for less than the amount estimated in the above table. Likewise, other students will pay more for board, room, and incidentals, and will not be able to live for the amounts estimated. To live within the minimum amount a student must forego all luxuries and economize in every way possible. For students living at home several items in the above table will have to be modified.

BOARD AND ROOM

GENERAL REGULATIONS

The following regulations, applicable to both men and women, have been adopted by the University.

1. That students recognize that the University requires, as a general policy, the following rule:

"Students, whether graduates, or undergraduates, while attending the University of Minnesota, must have their places of residence approved by the proper authorities of the University. If, in the opinion of the Board of Regents or its representatives, the conditions at any such places are not conducive to study, health, or morals, it may at its discretion insist that students vacate such residences and occupy rooms that are approved by the Board."

2. That students shall come to Minneapolis to select their living quarters personally and make a written agreement to stay the entire quarter in rooms which are engaged for that period. Changes during the quarter may be made only with the approval of the householder or in cases where the removal is considered essential to the student's educational interests in the opinion of the dean's office.

3. That in case a student moves from the room without permission of the householder, or without the specific approval of the dean's office, and where an officially approved agreement exists, the student will be held liable for the payment of the room rent for the remainder of the quarter.

4. That to reserve a room, each student shall pay a deposit fee to the householder. Receipts will be given by the householder. The fee will be for breakage but may be applied on the last rent installment. A student shall be held liable for any damage, other than that due to ordinary wear, done to the room and the furnishings in it.

5. That any student desirous of moving at the close of a quarter is expected to inform the householder not later than ten days previous to the close of the quarter.

6. Since all undergraduate residence must be approved by the dean's office, residence in apartments or houses not on the approved list must have specific approval of the dean's office before such arrangement is entered into.

7. That room rent shall be paid not later than Monday of the first, fourth, and seventh weeks of the quarter. Receipts will be given by the householder.

8. That quiet hours will be maintained after 8:00 p.m. every night except Saturday night, and after 10:30 p.m. on that night. During these quiet hours there shall be no loud talking in rooms or halls, and no use of musical instruments or radios.

9. That where two or more students occupy a room or dormitory, each shall be liable for a proportionate amount of any damage done, unless it is voluntarily assumed by one or more of the occupants, or is assessed against a particular occupant.

10. That no guests shall be lodged in a student's room at any time without the knowledge and consent of both the householder and the student renting the room. Guests are subject to private resident regulations and hosts will be held accountable for any infringement of such regulations. A charge of thirty-five cents is made for overnight guests.

11. That householders shall not be held responsible for losses of money and valuables kept in student's room. Consult the dean's office as to the care of such valuables.

12. That it is recommended that each student carry a small amount of fire insurance on his personal belongings.

13. That students are required to furnish their own towels and soap.
14. That separate arrangements must be made for board and room.
15. That rebate in charges for board is made only if absence exceeds one week, or if arrangements have been made in advance.
16. That students are requested to furnish one blanket. Girls are asked to furnish own sheets and pillow cases.
17. That all disputes pertaining to the upkeep of the house should be referred to the director of the Housing Bureau, or to the dean's office.
18. That circumstances not pertaining to the physical conditions of the house should be reported directly to the dean's office.
19. That quartering more than two students in a room is not looked upon by the University as providing the most satisfactory living conditions. The University does not approve of students living in rooms with persons who are not enrolled as members of the student body.
20. That women who are not members of the immediate family will not be quartered in the same house with men students.
21. That fifteen days prior to the close of the fall and winter quarters, the householder will see each student and have him sign the agreement for the following quarter if he intends to remain. A student who does not sign an agreement ten days before the end of the quarter and has given no notice of intention to move shall be reported to the dean's office by the householder.
22. That the charge for radio and local telephone calls shall be included in the amount paid for the entire quarter.
23. That the agreement is cancelled immediately when the student withdraws from the University.
24. That the residence period begins the day before Freshman Week opens in the fall, and the day before classes begin in the winter and spring quarters, and ends the day after examinations. It is recommended that no additional charge should be made during vacation period providing the student maintains his own room for that period. Receipts will be given by the householder.
25. That a fully equipped room should have the following: 1 study table per student, 1 straight chair per student, 1 wastebasket, 1 easy chair or rocker, adequate light, 1 single bed per student. The University strongly recommends and gives higher rating to those houses providing single beds.
26. That the University reserves the right to authorize the removal of a student from any such room where such removal is considered essential to the student's educational interests.

WOMEN

Ada L. Comstock Hall.—Minnesota's new residence hall for women, which will house 278 girls, has been built to overlook the Mississippi River at an attractive point, across from which an extensive program of beautification has been carried out by the Minneapolis Park Board. At the same time it is within convenient distance of the center of university life, being, for example, next to the New Coffman Memorial Union, and near the Mall around which stand many of the principal buildings.

Such a building adds much to the satisfactory living of students whose homes are at a distance and who so often lack the feeling of security possessed by those who live at home. The dormitory offers both single and double rooms with washrooms between each two single rooms. All rooms have attractive outlooks. All are equipped with comfortable beds and

inner-spring mattresses, straight and lounge chairs, study desk, dressing table, and built-in wardrobe. The construction is entirely fireproof.

Every provision has been made for the general life of the student. Reception rooms with attractive fireplaces, cozy side rooms in which the students may entertain callers, a large terrace above the river, a recreation room, lobbies, and two large dining rooms have been provided. Residents will board in the hall as is done in other University of Minnesota residence halls including Pioneer Hall for men.

Every effort has been made to provide a dormitory that is comfortable and at the same time is in harmony with modern taste in furnishings and equipment. Thought for the students in residence has been carried to the point of providing a number of small kitchenettes where girls who wish to prepare a neat snack of this and that before going to bed or on Sundays will find what they need.

The same social direction and general supervision which have proved so satisfactory in Sanford Hall will be extended to this hall. This will assure the residents that every effort has been made to provide ample social opportunities, a healthful diet, and careful supervision.

Sanford Hall, a residence hall for university women, is situated at 1100 University Avenue, S.E., two blocks from the main entrance to the campus. It is of brick construction and is practically fireproof. The two wings of which it is composed are connected on the first floor by a large dining room in which all meals are served "family fashion." Each wing has a good-sized, attractively furnished living room, and a smaller reception room. A small music room is located in the east wing, while in the west wing there is a library and a reading room well equipped with the latest magazines, books, and daily papers. These are for the use of all residents.

The hall accommodates 245 women, and provides both single and double rooms. Each room is supplied with running hot and cold water, and the entire building is generously equipped with bathrooms. Rooms are furnished with a bed, dresser, study table, rugs, chairs, clothes closet, and one pair of blankets for each resident. Bed linen is also furnished and laundered.

A director, an assistant director, four graduate counselors, and the House Council are responsible for the social life of the students, and a social program, planned to meet the needs of all types of girls, is successfully carried out each quarter. A chorus and orchestra and music appreciation group under the direction of the music counselor are popular parts of the program. A series of clubs, including drama, bridge, and other interests is supervised by the interests counselor. A scholarship and tutor counselor assists any girls who are having difficulties with their studies, and the hall maintains a satisfactorily high scholastic average. A resident nurse is on call whenever needed.

All applications for residence must be made for the entire school year. It is best to apply as early as possible. Applications will be considered in the order in which they are received, with preference given to Minnesota residents and daughters of Minnesota graduates.

Communications requesting residence or regarding prices or any other details should be addressed to the director of the residence halls for women.

Co-operative cottages.—Nine co-operative cottages, each in charge of a chaperon, offer comfortable homes for about one hundred fifteen women. By assisting with the work of the houses, the students are able to keep expenses under \$25 a month. In assigning students to these cottages preference is given to women earning a part of their expenses. It is understood that students engage rooms for the school year and will not be released until their places can be filled.

Application may be made to the manager of university cottages, Shevlin Hall.

College Girls' Dormitory, University Farm.—A dormitory residence for girls in the College of Agriculture, Forestry, and Home Economics is located on the University Farm campus. About fifty students may be accommodated. The dormitory is closed during vacations.

The charge per quarter is \$30 for a single room and \$24 per student for a double room. The number of single rooms is limited. Meals are not served at the dormitory, but can be obtained at the University Farm cafeteria at reasonable rates.

Necessary bedding is provided and the bed linen laundered. Girls should provide their own couch covers.

All applications for residence must be for the entire school year and should be made at an early date. A deposit of \$5 is made when the room is engaged. Room rent is payable the first week of each quarter. Communications regarding reservations or further information should be addressed to Superintendent's Office, School of Agriculture, University Farm, St. Paul, Minnesota.

School of Nursing expenses.—Students in the five-year nursing course are registered in the academic college during the first five and last three quarters of the course and have the same expenses in regard to maintenance, tuition, etc., as other students in that college. Estimate of expenses during the time they are in the School of Nursing is as follows:

Payable at the time of registration	
Tuition and deposit.....	\$38.50
Books	15
Payable during the first quarter	
Room and board	60-115*
Payable at the end of the first month	
Uniform cape and initial set of uniforms.....	60
Payable during remainder of first year	
Books	15
Miscellaneous	5
Payable during junior year	
Books	10
Miscellaneous	10
Payable during senior year	
Books	10
Miscellaneous	20
Graduation fee	15

\$258.50 to \$313.50

* Students living within commuting distance do not have this expense.

Room and board are furnished by the associated hospitals without charge to the student except as indicated above. Students in the School of Nursing receive no salary and have no opportunity for earning money while in training. After the first year they are eligible to apply for aid from the student loan funds. The above estimate does not include clothing, incidentals, railroad fare, nor provisions for the vacation periods.

Expenses of students in the three-year nursing course are similar to those of the five-year group during the latter's enrolment in the School of Nursing.

Postgraduate students receive maintenance during the major portion of their courses. For details of expense see the School of Nursing Bulletin, which may be had from the registrar.

Rooming houses.—Double rooms for women rent from \$37 to \$45 a quarter for each student and single rooms from \$45 to \$60 a quarter. Board at the present time is from \$5 to \$7 a week for three meals per day. For further information and lists of addresses, application may be made to the director of the Housing Bureau.

MEN

Pioneer Hall, the residence for men at the University of Minnesota provides a comfortable and up-to-date home for college men. It has been built and equipped to provide the most desirable residence advantages at very moderate cost.

An attractive colonial structure, capable of housing 535 persons, Pioneer Hall overlooks the Mississippi River at a point two blocks from the campus and is easily accessible by street car and bus from the downtown districts, both of Minneapolis and St. Paul. The building, which is fireproof, is arranged in two units of eight houses, each unit forming a quadrangle. Each house has a separate entrance and offers accommodations for approximately thirty-two students.

Much of the loneliness and homesickness that exists among students is quickly dispelled by the sociability and comradeship which ensue from contacts with fellow students around the dining room tables and in social and athletic activities.

Most of the rooms are arranged in three-room suites for two students, a suite consisting of a separate bedroom for each student and a common study. Some single and a few double rooms also are provided for students who prefer such arrangements. The rooms are furnished in a comfortable and convenient manner, students being supplied with a combination wardrobe and dresser, bed, chair, study table, arm chair, rug, wastebasket, bed linen, and bed cover. Students should furnish blankets, study lamps, towels, and other personal necessities. Maid service is provided.

Pioneer Hall offers many advantages in the way of recreation facilities. In addition to its well-furnished and comfortable lounges, facilities for golf driving, shuffleboard, handball, pool, billiards, table tennis, chess, and checkers are to be found in its game rooms. Also, a very modern soda fountain has been installed for the convenience of its residents.

Students interested in residence in the hall should write to the director of Pioneer Hall, University of Minnesota, for a copy of the special bulletin and an application form. Assignments will be made in the order of application.

Approved boarding and rooming houses.—A list of approved boarding and rooming houses may be secured at the Housing Bureau in Shevlin Hall. Good double rooms for two men can be obtained within easy walking distance of the campus for from \$27 to \$37 per quarter for each student. Good single rooms rent for from \$36 to \$50 per quarter. Board at the present time varies from \$4 to \$7 per week for twenty meals per week. There are a number of co-operative eating places on the campus where, by working from one to three hours a week, students may secure meals for from \$3 to \$4.

Coffman Memorial Union.—The completion of the Coffman Memorial Union at the southern end of the Mall facing the Northrop Memorial Auditorium will give the University of Minnesota for the first time a thoroly adequate and complete center of student life. It has been designed for the use of both men and women. Among the many facilities provided by this modern new building are ballrooms adequate for student social affairs, committee and general meeting rooms for student organizations, the student post office, bowling alleys, pool and billiard room, lounges, barbershop, restaurant, and cafeteria.

AIDS FOR STUDENTS

The University offers some opportunities to those who need assistance in meeting the expenses of their education and who have shown through good scholarship in the University that such aid is warranted.

The various types of aids are classified as fellowships, scholarships, prizes, and loan funds, and the Employment Bureau.

The College of Agriculture, Forestry, and Home Economics offers about twenty scholarships to new freshman farm boys entering the courses in agriculture. For special information, write the dean of the College of Agriculture, Forestry, and Home Economics, University Farm, St. Paul, Minnesota.

The University has no other scholarships to offer new freshman students. For full information concerning these "aids" write to the registrar for the bulletin University Aids for Student Expenses. Information may be obtained also from the dean of the college in which the student is registered, the head of the department particularly concerned, the registrar, the dean of student affairs, or the dean of women. In general, all applications for loans should be made to the dean of student affairs and all applications for scholarships for women should be made to the dean of women. No student is eligible to borrow from any university loan fund until he has completed two quarters' work at the University of Minnesota.

The University also offers students aid in their curriculum through the medium of the college advisers. The offices of the dean of student affairs and the dean of women offer guidance in all kinds of personal problems. The University Testing Bureau is designed to assist students in the field of

vocational guidance. The University Health Service and the university psychiatrists are other mediums of assistance open to the university student. This is not all inclusive as there are other agencies on the campus making their facilities available to students at all times.

INTERCAMPUS CAR

Students and faculty who have classes on both campuses are entitled to free transportation on this line. Passes are issued to students on the University Farm campus at the registrar's office on the University Farm campus, and at the university post office for students registered on the Main campus.

Tickets for the intercampus car may be purchased at the cashier's office on either campus by staff members, students, employees, or members of their families.

UNIVERSITY EMPLOYMENT BUREAU

The University maintains an Employment Bureau for the purpose of helping both men and women students who seek work, and of developing in all proper ways opportunities for self-help. This bureau co-operates with all other student personnel services in order to help students to balance both jobs for support and time for classes and study, so that neither the education, health, nor the work will suffer.

The University, itself, offers a certain amount of opportunity for employment in its several instructional and service departments.

To those who are without support of any kind it may be said that many students, with the aid of the money saved from summer employment, are making all of their college expenses. A few are able to make their expenses during the college year, but this can be done only by students of unusual force and adaptability, or with exceptional opportunities. The majority of self-supporting students must meet stern competition; must live economically; must guard their health while preserving a fair balance between time given to studies and to outside work.

It is not a good policy to begin life in a new community entirely without resources. In addition to tuition fees prospective students should have at least \$150 or the equivalent; and then it will be necessary for them to live very economically.

While it must be remembered that there are always more applicants than positions, the Twin Cities, nevertheless, offer many opportunities to the self-supporting student. Students are employed as clerks, stenographers, bookkeepers, cashiers, store clerks, drug clerks, salesmen, solicitors, telephone operators, translators, tutors, mechanics, musicians, waitresses and waiters, domestic workers, laborers, janitors, and in many other capacities, some of which are highly specialized. However, a student, especially one who is new and unacquainted, may not be able to place himself or get the work he would prefer at first.

While every effort is made to secure work for all who need it, the positions that come to the bureau cannot be assigned in the order in which

the applications are made. The places open are so varied that it would be impossible to assign them in order, without regard to the ability and qualifications of different applicants. The employer must be given the best person for his particular job. Fitness must be the first consideration.

Applicants should also know that during the opening week of school hundreds of students apply to the Employment Bureau for work. It is manifestly impossible to place all of these students as soon as they apply and some students have to wait for days or weeks before they can secure work. The amount of work available varies with employment conditions.

It is usually not advisable for a student to make a sacrifice to come to the city before the opening of the school year in the hope that he can get a position before the other students arrive, because much of the work for self-supporting students is created by the presence of the other students on the campus. Therefore, until the other students are here there are very few part-time jobs available.

Those who find themselves without funds at the beginning of the college year can register in some of the evening extension classes and seek employment during the day rather than run the risk of not being able to finance themselves while carrying regular university work. By choosing extension courses for which university credit is allowed, students can make their future university work much easier and give themselves more time for outside work.

The correspondence study courses offered by the General Extension Division are open to all. Students who can meet the usual requirements for college entrance are allowed university credit for most of these courses.

The University Employment Bureau is not equipped to find full-time employment for extension and correspondence study students.

AUTOMOBILE PARKING ON THE CAMPUS

Automobile parking of student cars on the campus is permitted in so far as the limited parking space is available.

The University operates three underground heated garages for the convenience of the students and staff members. The Auditorium Garage, located under the plaza of the Northrop Memorial Auditorium, will accommodate 121 cars.

The Center for Continuation Study Garage, located adjacent to the Continuation Study Center Building, will accommodate 208 cars and the Coffman Memorial Union will accommodate approximately 200 cars. A total of 529 cars can be accommodated in this way. Application for space in these garages should be made to the attendant of the garage desired. Rates for parking may be obtained from the attendant.

APPENDIX

ORGANIZATION OF THE UNIVERSITY

The University is organized in schools, colleges, and divisions as follows:

GENERAL COLLEGE

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

INSTITUTE OF TECHNOLOGY, including—

COLLEGE OF ENGINEERING AND ARCHITECTURE, including—
ENGINEERING EXPERIMENT STATION
SCHOOL OF MINES AND METALLURGY, including—
MINES EXPERIMENT STATION
SCHOOL OF CHEMISTRY

DEPARTMENT OF AGRICULTURE, including—

COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS
SCHOOLS OF AGRICULTURE, including—
CENTRAL SCHOOL, UNIVERSITY FARM
NORTHWEST SCHOOL, CROOKSTON
WEST CENTRAL SCHOOL, MORRIS
NORTH CENTRAL SCHOOL, GRAND RAPIDS
AGRICULTURAL EXPERIMENT STATIONS, including—
STATE EXPERIMENT STATION, UNIVERSITY FARM
NORTHWEST EXPERIMENT STATION, CROOKSTON
WEST CENTRAL EXPERIMENT STATION, MORRIS
NORTH CENTRAL EXPERIMENT STATION, GRAND RAPIDS
NORTHEAST DEMONSTRATION FARM AND EXPERIMENT STA-
TION, DULUTH
SOUTHEAST DEMONSTRATION FARM AND EXPERIMENT STA-
TION, WASECA
FRUIT BREEDING FARM, EXCELSIOR
FOREST EXPERIMENT STATIONS, ITASCA AND CLOQUET
AGRICULTURAL EXTENSION DIVISION
SHORT COURSES IN AGRICULTURE

LAW SCHOOL

MEDICAL SCHOOL, including—

COURSE IN MEDICAL TECHNOLOGY
SCHOOL OF NURSING

SCHOOL OF DENTISTRY, including

SCHOOL FOR DENTAL HYGIENISTS

COLLEGE OF PHARMACY

COLLEGE OF EDUCATION, including—

UNIVERSITY HIGH SCHOOL

GRADUATE SCHOOL, including—

MAYO FOUNDATION

SCHOOL OF BUSINESS ADMINISTRATION

UNIVERSITY EXTENSION SERVICE, including—

GENERAL EXTENSION DIVISION
AGRICULTURAL EXTENSION DIVISION

CENTER FOR CONTINUATION STUDY

UNIVERSITY CALENDAR

1940-41

Fall Quarter

1940			
September	16	Monday	Extension registration first semester begins
September	19	Thursday	Payment of fees closes, except for new students ¹
September	23	Monday	Entrance tests
September	23-24		Registration for Freshman Week for all new students entering the freshman class
September	23-27		Examinations for removal of conditions Physical examinations Registration period, ² College of Science, Literature, and the Arts
September	25-28		Freshman Week
September	26-27		Registration days ² for all colleges not included above. Payment of fees closes for new students
September	30	Monday	Fall quarter classes begin 8:30 a.m. ³ First semester extension classes begin ⁴
October	5	Saturday	Last day for extension registration without penalty
October	12	Saturday	Last day for Graduate School registration
October	17	Thursday	Senate meeting, 4:30 p.m.
October	26	Saturday	Homecoming Day
November	5	Tuesday	Election Day; a holiday (except for extension)
November	11	Monday	Armistice Day; a holiday (except for extension)
November	16	Saturday	Dads Day
November	28	Thursday	Thanksgiving Day; a holiday
December	13-14 and 16-19		Final examination period
December	19	Thursday	Commencement Convocation Senate meeting, 4:30 p.m. Fall quarter ends 6:00 p.m. ⁵

¹ New students must pay fees on dates announced for registration in the registration instructions. Fees of graduate students are due one week after their registration is approved by the dean of the Graduate School.

² Registration subsequent to the date specified will necessitate the approval of the college concerned. See also privilege fees for late registration, page 60. No student will be allowed to register in the University after one week from the beginning of the quarter excepting in unusual cases wherein special circumstances shall justify the appropriate committee of the college concerned permitting registration at a later date.

³ First hour classes begin at 8:15 a.m. at University Farm.

⁴ This date does not refer to correspondence study courses, which may be started at any time during the year.

⁵ Extension classes continue to Saturday, December 21, and will resume Monday, January 6, 1941.

Winter Quarter

December	26	Thursday	Payment of fees closes for all students in residence fall quarter ¹
1941			
January	3	Friday	Entrance tests
January	3-4		Registration ² for new students in all colleges except the Institute of Technology. Payment of fees closes for new students at 12:00 noon, January 4
January	4	Saturday	Registration day for all students in the Institute of Technology
January	6	Monday	Winter quarter classes begin 8:30 a.m. ³
January	18	Saturday	Last day for Graduate School registration
January	27	Monday	Extension registration second semester begins
February	8	Saturday	First semester extension classes close
February	10	Monday	Second semester extension classes begin ⁴
February	12	Wednesday	Lincoln's Birthday; a holiday (except for extension)
February	15	Saturday	Last day for extension registration without penalty
February	20	Thursday	Charter Day Convocation Senate meeting, 4:30 p.m.
February	22	Saturday	Washington's Birthday; a holiday
March 14-15 and	17-20		Final examination period
March	20	Thursday	Commencement Convocation Payment of fees closes for all students in residence winter quarter ¹ Winter quarter ends 6:00 p.m.

Spring Quarter

March	28	Friday	Entrance tests
March	28-29		Registration ² for new students in all colleges except the Institute of Technology. Payment of fees closes for new students at 12:00 noon, March 29

¹ New students must pay fees on dates announced for registration in the registration instructions. Fees of graduate students are due one week after their registration is approved by the dean of the Graduate School.

² Registration subsequent to the date specified will necessitate the approval of the college concerned. See also privilege fees for late registration, page 60. No student will be allowed to register in the University after one week from the beginning of the quarter excepting in unusual cases wherein special circumstances shall justify the appropriate committee of the college concerned permitting registration at a later date.

³ First hour classes begin at 8:15 a.m. at University Farm.

⁴ This date does not refer to correspondence study courses, which may be started at any time during the year.

March	29	Saturday	Registration day for all students in the Institute of Technology
March	31	Monday	Spring quarter classes begin 8:30 a.m. ³
April	11	Friday	Good Friday; a holiday (except for extension)
April	12	Saturday	Last day for Graduate School registration
May	10	Saturday	Mothers Day
May	15	Thursday	Cap and Gown Day Convocation Senate meeting, 4:30 p.m.
May	30	Friday	Memorial Day; a holiday (except for extension)
June	6	Friday	Second semester extension classes close
June 6-7 and 9-13			Final examination period
June	8	Sunday	Baccalaureate service
June	13	Friday	Spring quarter ends 6:00 p.m.
June	14	Saturday	Sixty-ninth annual commencement

Summer Session

June	16-17		Registration, first term
June	18	Wednesday	First term Summer Session classes begin 8:00 a.m.
July	4	Friday	Independence Day; a holiday
July	24	Thursday	Commencement Convocation
July	25	Friday	First term closes
July	28	Monday	Registration and payment of fees for second term close Second term classes begin 8:00 a.m.
August	29	Friday	Second term closes

UNIVERSITY FEES

The university year, extending from October to June, is divided into three terms called quarters. On the specified dates (see Calendar, pp. 53-55) prior to the opening of each quarter, the following fees are due from each student: (a) tuition, (b) incidental, and (c) such special fees and deposits as may be required.

Payment of fees cannot be deferred. Special attention is called to the paragraph on Privilege Fees (page 60) for further instruction on late registration and late payments of fees.

Checks and drafts received in payment of any fee whatsoever are accepted subject to final payment in cash or solvent credits; and all banks in the banking routine of collection of such items are accepted by the student as his own agents, and not those of the University, whether such items be sent directly or indirectly to the payer bank.

³ First hour classes begin at 8:15 a.m. at University Farm.

TUITION FEES

School or College	Quarter Fee		Credit Hour Fee*	
	Resi- dent	Non- resident	Resi- dent	Non- resident
General College	\$20.00	\$40.00	§	§
College of Science, Literature, and the Arts.....	20.00	40.00	\$1.75	\$3.50
Institute of Technology, including Engineering, Architecture, Chemistry, and Mines and Metallurgy	30.00	45.00	2.50	4.00
College of Agriculture, Forestry, and Home Economics	20.00	40.00	1.50	3.00
Law School	40.00	65.00	3.75	6.25
Medical School	75.00	125.00	†3.25	†5.75
School of Nursing (preliminary course).....	25.00	40.00	†1.00	†1.75
Medical Technology	30.00	45.00	†1.25	†2.00
Public Health Nursing	20.00	40.00	1.75	3.50
School of Dentistry	60.00	80.00	†2.50	†3.50
Dental Hygienists	25.00	40.00	2.00	3.25
College of Pharmacy	35.00	50.00	‡1.50	‡2.25
College of Education	20.00	40.00	1.75	3.50
Graduate School	‡20.00	‡40.00	‡1.75	‡3.50
Clinical Medicine	75.00	125.00	†3.25	†5.75
School of Business Administration.....	30.00	45.00	2.75	4.25
Division of Library Instruction	40.00	50.00	3.00	3.50
University College	Tuition fee determined by the registrar on the basis of the curriculum ap- proved by the University College Com- mittee.			

* Students carrying less than the complete schedule of work may pay fees on a credit hour basis.

† In these colleges the prorating is on the basis of clock hours.

‡ All fellows, scholars, assistants, instructors, and members of the teaching staff and scientific bureaus and experiment stations giving 25 per cent or more of full-time service when regularly enrolled as students in the Graduate School shall not be required to pay tuition fees. This does not apply to commercial fellowships.

§ Part-time students shall be charged tuition prorated on the basis of full-time work, plus one third.

Special students in the General College shall be charged a quarter course fee, residents \$10, nonresidents \$15. Special students include those not regularly matriculated, or those who have received a Bachelor's degree or its equivalent, or those registered for two courses or less in any quarter and not enrolled for other work in the University.

¶ Prorating in this college is on the basis of clock hours except for academic courses for which the fee is \$3 per credit hour for residents and \$4.50 per credit hour for nonresidents.

Nonresident fees.—The following rules regarding fees of nonresident students, applicable to both men and women, have been approved by the University:

1. No student shall be admitted to the University on a resident tuition basis unless he has been a bona fide domiciliary of the state for at least a year prior to admission. This requirement shall not prejudice the right of a student admitted on a nonresident basis to be placed thereafter on a resident basis provided he acquired a bona fide domicile of a year's duration within the state in the meantime. The fact alone of attendance at the University neither constitutes nor necessarily precludes the acquisition of such a domicile.

2. The responsibility of registering under proper residence is placed upon the student and it is the duty of each student at registration if there be any possible question of his right to residence fees, under the rules of the Board

of Regents, to raise the question with the registrar. (This is the same as the rule now in force, adopted November 2, 1932.)

3. For the purpose of determining, in cases that the registrar shall consider at all doubtful, the right of a student to a resident tuition basis, a board is hereby created, to consist of the registrar as a permanent ex officio member, and four other members of the official staff of the University, to be appointed annually by the president with the power of reappointment. Three members of said board shall constitute a quorum to hold hearings, and decisions shall be made by majority vote of those present. The registrar shall act as chairman, except as he may designate another member to act in his stead.

4. In its decisions of cases the board shall be guided by the following basic rules:

- a. For a parent's domicile to be in Minnesota, he must have other connections with the state than the mere fact of presence with his children while attending the University.
- b. The domicile of a minor follows
 1. That of the parents or surviving parent; or
 2. That of the parent to whom custody of the minor has been awarded by a divorce or other judicial decree; or
 3. That of the parent with whom the minor in fact makes his home, if there has been a separation without a judicial award of custody, unless, by the law of the state in which the parents were domiciled at the time of the separation, the domicile of the minor, altho living with the mother, continues to follow that of the father; or
 4. That of an adoptive parent, where there has been a legal adoption, even tho the natural parents or parent be living; or
 5. That of a "natural" guardian, such as grandparent or other close relative with whom the minor in fact makes his home, where the parents are dead or have abandoned the minor.
- c. Where a general guardian was appointed by the state of the ward's domicile at the time of the appointment, the ward's domicile presumptively remains in that state. The appointment by a Minnesota court of a resident guardian of a minor not domiciled in this state at the time of the appointment has no effect upon the domicile of the ward.
- d. A child emancipated by the law of his domicile has the same power as an adult to acquire another domicile. Marriage constitutes emancipation of minors, both male and female. The domicile of a minor female becomes that of her husband and so remains while she continues to live with him.
- e. For either an adult or an emancipated minor to acquire a domicile in this state he must have permanently left his parental home, have acquired other interests in this state than attendance at the University, of a relatively permanent character, and have no present definite intent of removing therefrom as of a time certain in the relatively near future. Facts that may be considered evidentiary of domicile, altho not conclusively so, either singly or in combination, are:
 1. That the student is self-supporting, especially if by employment of a type offering a future in this state extending beyond his university course;
 2. That he has acquired a family of his own;
 3. That he has purchased, or leased on a year-round basis, what may be considered as a "home" establishment.
- f. The following facts will not be accepted as in any sense evidentiary of domicile:
 1. A statement of intention to acquire a domicile in this state or the act of voting or registration for voting, made or done for the first time after a dispute has arisen concerning the resident status of the student.

2. Employment by the University as a fellow, scholar, assistant, or in any position normally filled by students.
- g. An out-of-state student enrolled for a full program, or substantially a full program, will be considered to be in Minnesota primarily for the purpose of attending the University, and will be presumed not to be here domiciled. Continued residence in Minnesota during vacation periods or occasional periods of interruption to the course of study does not of itself overcome the presumption.
- h. In all cases where a student, who has come from another state, seeks to be placed upon a resident tuition basis, the burden shall be upon him to establish convincing proof of facts showing the acquisition of a domicile in this state.

Tuition fees for students of one college taking work in another.—

Where a student of a given college or school elects courses in another, such courses being accepted by the college in which the student is registered as a part of its curriculum, the tuition shall be that of the college in which he is registered.*

If, at any time, such student desires credit for this course towards the degree offered by the second college, he shall pay such additional tuition as is required by the second college, charged in accordance with the schedule indicated above.

This is not to be interpreted as applying to students in such combination courses as Arts and Medicine, Arts and Dentistry, Arts and Business, etc., provided such students pay regular quarter fees for the full period of residence in the higher fee college.

INCIDENTAL FEE

An incidental fee of \$8.50 a quarter is charged each student for which the student receives the privileges of the Coffman Memorial Union, the Health Service, the Testing Bureau, the *Minnesota Daily* including the Official Daily Bulletin, the university post-office service, and the *University Address Book*. Students in the Institute of Technology, pay \$8.90 per quarter and receive the *Minnesota Techno-Log* in addition to the foregoing.

All students who are registered for five credits or more in any quarter shall be required to pay the regular incidental fee; while students who are registered for less than five credits in any quarter shall not be charged any incidental fee, nor be permitted to pay this fee in order to obtain the privileges to which the payment of this fee entitles students.

MATRICULATION DEPOSIT

At the student's first registration at the University a matriculation deposit of ten dollars (\$10) is required to cover the following charges: locker rental, locker key deposit, case book deposit (Law School), laboratory breakages, drawing board rental (Architecture), military equipment deposit (men), library fines, or damage to university property.

* A student paying full fees in a given college, electing courses in a lower fee college, shall pay no additional fees for the work so elected, but if electing in a higher fee college, may have the option of paying the pro rata fees of both or the full-time fees of the first and pro rata fees of the second.

The matriculation deposit required of students registered for less than five credits is five dollars (\$5), whereas the matriculation deposit of students registered in the Graduate School is three dollars (\$3).

The unused balance of the deposit fee will be returned by *mail* upon cancellation or automatically after the beginning of the first quarter the student fails to return. If, at any time, the charges against a student shall warrant a renewal of the deposit, an additional fee of five dollars (\$5) will be required.

Laboratory deposit.—A laboratory deposit of five dollars (\$5) is also required of students registered for courses in chemistry to cover the cost of materials. The unused balance will be credited to the student's matriculation deposit at the end of the course.

SPECIAL FEES

Examination of credentials fee (nonresidents applying for admission to Law, Medicine, Dentistry, Education (Senior College) and Business Administration) \$5.00

This fee is not refundable but may be applied toward tuition within one year of date of application.

Music fee (in addition to tuition for those electing music)

Lesson fees—

One individual lesson per week,..... \$25.00 per quarter

Class lessons (two- or three-hour lesson)..... 15.00 per quarter

Practice fees 5.00 per quarter

Pianos and organs are available for practice purposes upon payment of practice fees charged by the Music Department.

Directed teaching fee \$1.00 per credit hour

Laboratory fees—for individual courses. The amounts are specified in the course announcements.

Gymnasium fee (required of all men taking exercise courses in Physical Education)..... \$1.00 per quarter

Gymnasium fee (required of all women taking exercise courses in Physical Education) \$1.75 per quarter

(Maximum charge for one quarter is \$3.50)

The following special items may be included:

Condition examination \$ 1.00

Special examination for removal of condition, at other than set time* 5.00

Examination on subjects taken out of class*..... 5.00

(No fee for such examination on first entering the University, if taken within the first six weeks)

Large diploma fee: any graduate may receive the large diploma on payment of the special fee of 5.00

Duplicate copy of record: one copy of record will be issued to each student free of charge. Each additional copy will be issued only on payment of 0.50

(Except during a registration period, when the fee is \$1.00)

* Such an examination may be taken only upon approval of the appropriate committee.

Transcript fee—Three transcripts of record will be sent without charge to other institutions for purposes of transfer, to certifying agencies, or to prospective employers. For additional transcripts, each 0.50

Graduation fee—Graduate School	10.00
Other schools and colleges.....	7.50

PRIVILEGE FEES

Privilege fees.—The fee for the privilege of late registration, or late payment of fees is \$2 through the third day of classes, on the fourth day the fee is \$2.50 and then increases 50 cents per day to a maximum of \$5. The fee for late change of registration is \$2.

Library fines.—All overnight books taken from the "Reserves" must be returned at 8:30 the following morning. If not returned at that hour a fine of twenty-five cents will be imposed, and an additional ten cents charged for every hour or fraction of an hour thereafter the book is retained.

Books issued during the day for reading room use must be returned within two hours. If not returned promptly a fine of twenty-five cents for the first hour and ten cents additional for every hour or fraction of an hour thereafter that the book is overdue, will be charged. The two-hour limit will not be enforced between 6:00 p.m. and 10:00 p.m.

REFUNDS

Tuition.—Students who cancel their registration before the close of any quarter are entitled to refunds of the tuition fee on the following basis:

After Quarter Opens	Percentage of Refund
No attendance	100
One day to one week	90
One week to two weeks.....	80
Two weeks to three weeks.....	70
Three weeks to four weeks.....	60
Four weeks to five weeks.....	50
Five weeks to six weeks.....	40

No student who has been in attendance more than one half of the quarter shall receive any refund of tuition.

Locker rental.—Full rental fee for lockers may be refunded during the first two weeks of a quarter. After that time no reduction is made.

Incidental fee.—Students in any college of the University, with the exception of the Institute of Technology, who cancel their registration before the end of the quarter, are entitled to a refund of the incidental fee on the same basis as the refund for tuition, except that in no case will more than \$7 of the incidental fee be refunded. Students in the Institute of Technology will receive refunds of the incidental fee on the same basis, except that the extra forty cents of the incidental fee in this institute will be entirely refunded during the first two weeks of the quarter, and none of this extra forty cents will be refunded after the second week of the quarter.

LIST OF ACCREDITED PREPARATORY SCHOOLS

Graduates of the following Minnesota state high schools will be admitted to the University of Minnesota without conditions, provided their credentials satisfy the specific requirements of the college to which entrance is desired:

Ada	Bellingham	Cannon Falls	Deer Creek
Adams	Beltrami	Canton	Deer River
Adrian	Belview	Carlton	Delano
Aitkin	Bemidji	Cass Lake	Delavan
Akeley	Benson	Ceylon	Detroit Lakes
Alango	Bertha	Chandler	Dilworth
Albany	Big Falls	Chaska	Dodge Center
Albert Lea	Big Fork	Chatfield	Dover
Alberta	Big Lake	Cherry	Duluth
Albion	Bingham Lake	Chisago City	Central
Alden	Bird Island	Chisholm	Denfeld
Alexandria	Biwabik	Chokio	Morgan Park
Alvarado	Blackduck	Clara City	Eagle Bend
Amboy	Blooming Prairie	Clarissa	East Chain
Annandale	Bloomington	Clarkfield	East Grand Forks
Anoka	Blue Earth	Clear Lake	Echo
Appleton	Borup	Clearbrook	Eden Prairie
Arco	Boyd	Cleveland	Eden Valley
Argyle	Braham	Climax	Edgerton
Arlington	Brainerd	Clinton	Elbow Lake
Ashby	Brandon	Cloquet	Elgin
Askov	Breckenridge	Clover Valley	Elk River
Atwater	Brewster	Cloverton	Elkton
Audubon	Bricelyn	Cokato	Ellendale
Aurora	Brookston	Coleraine	Ellsworth
Austin	Brooten	Columbia Heights	Elmore
Backus	Browerville	Comfrey	Ely
Badger	Browns Valley	Comstock	Embarrass
Bagley	Brownton	Cook	Emmons
Balaton	Bruno	Correll	Erskine
Barnesville	Buffalo	Cotton	Evansville
Barnum	Buffalo Lake	Cottonwood	Eveleth
Barrett	Buhl	Cromwell	Excelsior
Battle Lake	Burtrum	Crookston	Eyota
Baudette	Butterfield	Crosby-Ironton	Fairfax
Beardsley	Byron	Cyrus	Fairmont
Beaver Creek	Caledonia	Danube	Faribault
Becker	Cambridge	Dassel	Farmington
Belgrade	Campbell	Dawson	Felton
Belle Plaine	Canby	Deephaven	Fergus Falls

Fertile	Hendrum	Lakeville	Milan
Finlayson	Henning	Lakewood	Milroy
Fisher	Herman	Lamberton	Minneapolis
Floodwood	Heron Lake	Lancaster	Boys' Vocational
Foley	Hewitt	Lanesboro	Central
Forest Lake	Hibbing	Laporte	Edison
Fosston	Hill City	Le Center	John Marshall
Franklin	Hills	Le Roy	Miller
Frazee	Hinckley	Le Sueur	Vocational
Freeborn	Hitterdal	Lester Prairie	North
Frost	Hoffman	Lewiston	Roosevelt
Fulda	Holdingsford	Lindstrom-	South
Garden City	Holloway	Center City	Washburn
Gary	Hopkins	Litchfield	West
Gaylord	Houston	Little Falls	Minneota
Gibbon	Howard Lake	Littlefork	Minnesota Lake
Gilbert	Humboldt	Long Prairie	Montevideo
Glencoe	Huntley	Luverne	Montgomery
Glenwood	Hutchinson	Lyle	Monticello
Glyndon	Indus	Lynd	Montrose
Gonvick	International Falls	Mabel	Moorhead
Goodhue	Isle	Madelia	High School
Goodridge	Ivanhoe	Madison	Teachers College
Good Thunder	Jackson	Magnolia	High School
Graceville	Janesville	Mahnomen	Moose Lake
Granada	Jasper	Mahtomedi	Mora
Grand Marais	Jeffers	Mankato	Morgan
Grand Meadow	Jordan	High School	Morris
Grand Rapids	Karlstad	Teachers College	Morristown
Granite Falls	Kasota	High School	Morton
Grasston	Kasson	Mantorville	Motley
Greenbush	Keewatin	Maple Lake	Mound
Grey Eagle	Kelliher	Mapleton	Mountain Iron
Grove City	Kellogg	Marietta	Mountain Lake
Hackensack	Kennedy	Marshall	Murdock
Hallock	Kensington	Maynard	Nashwauk
Halstad	Kenyon	Mazeppa	Nevis
Hancock	Kerkhoven	McGrath	New London
Hanley Falls	Kiester	McGregor	New Prague
Hanska	Kimball	McIntosh	New Richland
Harmony	Lake Benton	Meadowlands	New Ulm
Hastings	Lake Bronson	Medford	New York Mills
Hawley	Lake City	Melrose	Newfolden
Hayfield	Lake Crystal	Menagha	Nicollet
Hector	Lake Park	Mentor	North Branch
Henderson	Lake Wilson	Middle River	North St. Paul
Hendricks	Lakefield	Milaca	Northfield

Northome	Red Wing	Shakopee	Virginia
Norwood-Young America	Redwood Falls	Sherburn	Wabasha
Odessa	Remer	Silver Lake	Wabasso
Ogilvie	Renville	Sioux Valley, Lake Park, Ia.	Waconia
Okabena	Robbinsdale	Slayton	Wadena
Oklee	Rochester	Sleepy Eye	Waldorf
Olivia	Rockford	South St. Paul	Walker
Onamia	Rose Creek	Spring Grove	Walnut Grove
Orr	Roseau	Spring Valley	Wanamingo
Ortonville	Rosemount	Spring Valley	Warren
Osakis	Round Lake	Springfield	Warroad
Oslo	Royalton	Staples	Waseca
Osseo	Rush City	Starbuck	Watertown
Owatonna	Rushford	Stephen	Waterville
Park Rapids	Russell	Stewart	Waubun
Parkers Prairie	Ruthton	Stewartville	Wayzata
Paynesville	Sacred Heart	Stillwater	Welcome
Pelican Rapids	St. Charles	Storden	Wells
Pemberton	St. Clair	Strandquist	West Concord
Pequot	St. Cloud	Swanville	Westbrook
Perham	St. Francis	Taylor's Falls	Wheaton
Peterson	St. Hilaire	Thief River Falls	White Bear
Pillager	St. James	Thomson	Williams
Pine City	St. Louis Park	Tintah	Willmar
Pine Island	St. Paul	Toivola	Willow River
Pine River	Central	Tower-Soudan	Windom
Pipestone	Harding	Tracy	Winnebago
Plainview	Humboldt	Triumph	Winona
Plummer	John A. Johnson	Truman	Winthrop
Preston	Mechanic Arts	Twin Valley	Wolverton
Princeton	Washington	Two Harbors	Wood Lake
Proctor	St. Paul Park	Tyler	Worthington
Randolph	St. Peter	Ulen	Wrenshall
Rapidan	Sanborn	Underwood	Wykoff
Raymond	Sandstone	Upsala	Zumbrota
Red Lake	Sauk Centre	Verdi	
Red Lake Falls	Sauk Rapids	Verndale	
	Sebeka	Villard	

Graduates of the University High School and of the following private schools will be admitted to the freshman class under the regulations governing the admission of high school graduates. This list is corrected to February 1, 1940.

Austin	Caledonia
St. Augustin High School	Loretto High School
Bird Island	Collegeville
St. Mary's High School	St. John's University, High School Department

Crookston	Morris
Cathedral High School	St. Mary's Academy
Mount St. Benedict's Academy	New Ulm
St. Joseph's Academy	Catholic High School
Duluth	Rollingstone
Cathedral High School for Boys	Holy Trinity High School
Cathedral High School for Girls	St. Cloud
Stanbrook Hall	Cathedral High School
Faribault	St. Joseph
Bethlehem Academy	Convent of St. Benedict
St. Mary's Hall	St. Paul
Shattuck Military Academy	Academy of Concordia College
Fergus Falls	Breck School
Lutheran Bible School	College of St. Catherine
Frontenac	(Derham Hall)
Villa Maria	Cretin High School
Graceville	St. Joseph Academy
St. Mary's Academy	St. Paul Academy
Hutchinson	St. Thomas Military Academy
Maplewood Academy	Summit School
Little Falls	Visitation Convent
St. Francis High School	Sleepy Eye
Mankato	St. Mary's High School
Bethany Lutheran College, High	Wabasha
School Department	St. Felix High School
Good Counsel Academy	Waseca
Loyola High School	Sacred Heart High School
Minneapolis	Winona
Academy of the Holy Angels	Cotter High School
De La Salle High School	St. Thomas Cathedral High School
Minnehaha Academy	
Northrop Collegiate School	
St. Anthony High School	
St. Margaret's Academy	

Graduates of Minnesota state high school departments which are on the recommended list of the State Department of Education are accepted on the same basis as the graduates of fully accredited preparatory schools.

LIST OF ACCREDITED COLLEGES

The following lists are correct as of February 1, 1940.

1. Four-year colleges

Augsburg College, ¹ Minneapolis	Gustavus Adolphus College, St. Peter
Carleton College, Northfield	Hamline University, St. Paul
College of St. Benedict, ¹ St. Joseph	Macalester College, St. Paul
College of St. Catherine, St. Paul	St. John's University, Collegeville
College of St. Scholastica, Duluth	St. Mary's College, ¹ Winona
College of Saint Teresa, Winona	St. Olaf College, Northfield
Concordia College, Moorhead	St. Thomas College, St. Paul

2. Minnesota teachers colleges

Bemidji State Teachers College ¹	Moorhead State Teachers College ¹
Duluth State Teachers College ¹	St. Cloud State Teachers College ¹
Mankato State Teachers College ¹	Winona State Teachers College ¹

3. Junior colleges

Albert Lea Junior College ¹	Itasca Junior College, Coleraine
Bethany Lutheran College, Mankato	Rochester Junior College
Bethel Institute, St. Paul	St. Mary's Hall, Faribault (for one year's work)
Concordia College, St. Paul	Virginia Junior College
Duluth Junior College	Worthington Junior College
Ely Junior College	
Eveleth Junior College	
Hibbing Junior College	

¹ Graduates of this institution may be admitted to the Graduate School under certain specified conditions.

REGULATIONS

GOVERNING GRANTING OF DEGREES

The Board of Regents will confer the degree appropriate to the course pursued under the following conditions :

1. **Curriculum requirements.**—Certification by the registrar of the completion of all requirements of the course of study as outlined in the college announcement, or its equivalent as determined by the faculty of the college offering the course.

2. **Recommendation of the faculty.**

3. **Residence requirement.**—The student must earn at least one year's credit in residence in this University. If the term of residence is only one year, that year must be the senior year ; and in any case he must spend two quarters of the senior year in residence. In addition, special residence requirements must be met in several of the schools and colleges. See individual announcements.

4. **Payment or satisfactory arrangement of all financial obligations** due the University.

5. **Attendance at commencement.**—A candidate for a degree is required to be present at the commencement exercises at which his degree is conferred provided that the candidate's work is completed at the end of a quarter when such exercises are held.

A student who fails to attend shall not receive his diploma until the expiration of one year, unless in the meantime he attends commencement exercises or unless he is excused from such attendance by the dean of the college and the president of the University.

GOVERNING PUBLIC ANNOUNCEMENTS AND PLACARDS

All signs, posters, announcements, and similar materials for public information may be posted only on university bulletin boards and other official means of announcement, and their display must be approved by the office of the dean of student affairs, 213 Administration Building, University of Minnesota.

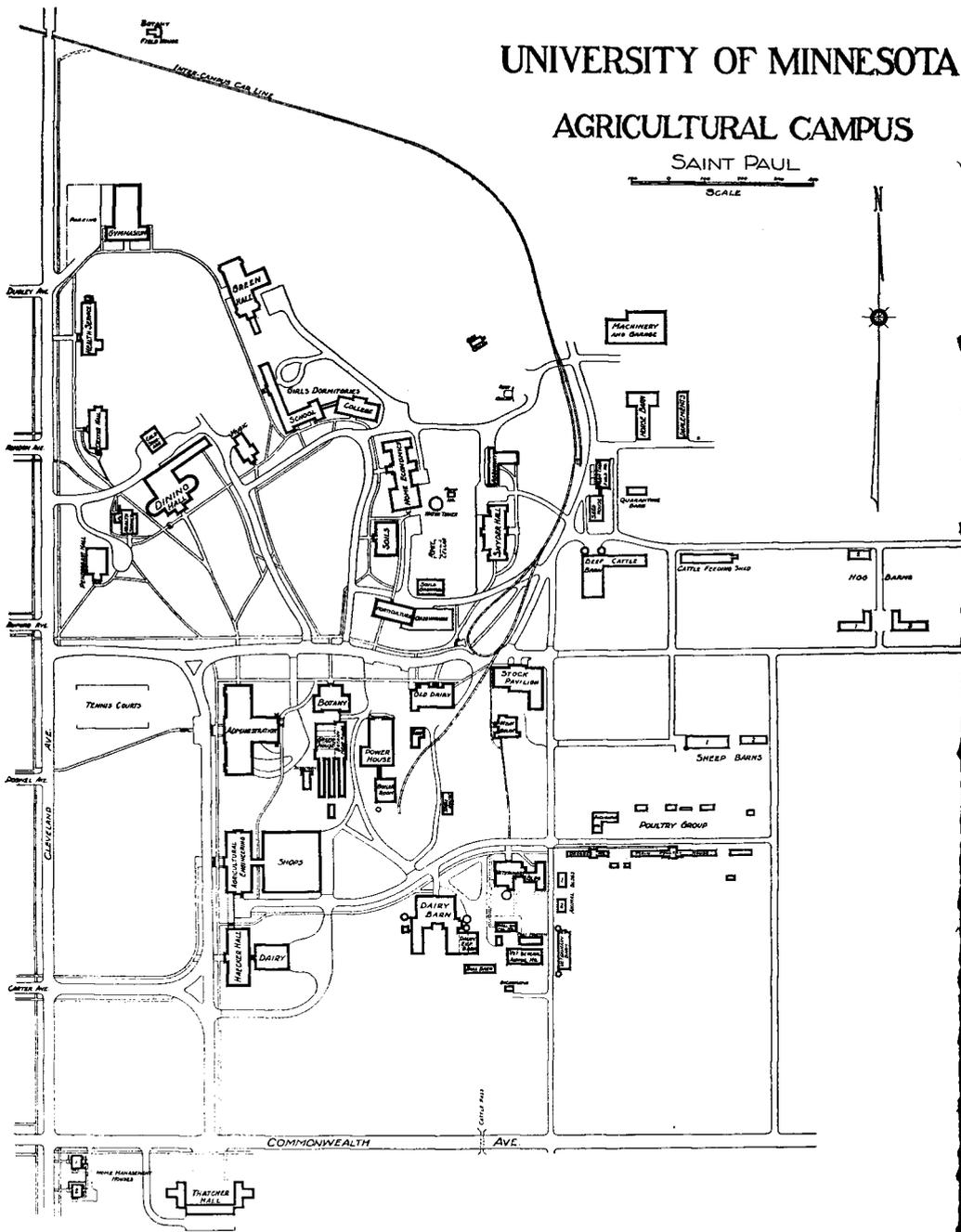
INDEX

	Page		Page
Accredited institutions		Extension Division	28
colleges	65	Fees	
preparatory schools	61	incidental	58
Administrative officers	52	matriculation deposit	58
Admission		privilege	60
adult special students	40	special	59
applications for	34	tuition	56
by examination	38	Forestry and Biological Station.....	27
from high school	34	Freshman Week	9
of nonresident undergraduates.....	40	Health Service	30
to advanced standing	39	Intercampus car	49
recommendations of the colleges....	36	Library	29
requirements of individual colleges	36	Maps	
Board of Regents	52	Main campus	2
Calendar	53	University Farm campus	68
Courses and degrees	10	Military Science and Tactics.....	31
Agriculture, Forestry, and Home		Naval Science and Tactics.....	32
Economics	15	Organization of the University.....	51
Business Administration	25	Prospective students, notice to	
Dental Hygienists	23	advanced standing students.....	8
Dentistry	22	freshman students	7
Education	24	Public announcements and placards,	
General College	10	regulations governing	66
Graduate School	26	Purpose of college training	4
Law	19	Refunds	60
Library Instruction	26	Speech Service	29
Medical Technologists	21	Summer Session	27
Medicine	20	Table of contents	3
Nursing	20	University Employment Bureau.....	49
Pharmacy	23	Vocational information	30
Science, Literature, and Arts.....	11		
Technology	13		
University College (individual			
curricula)	26		
Degrees, regulations governing			
granting of	66		
Entrance tests	38		
Expenses			
aids for students	48		
board and room	43		
estimate of expenses	42		

UNIVERSITY OF MINNESOTA

AGRICULTURAL CAMPUS

SAINT PAUL



The Bulletin of the
UNIVERSITY of MINNESOTA

The Summer Session
Announcement of Courses
1940

First Term June 17 to July 26
Second Term July 29 to August 30



Volume XLIII, Number 14

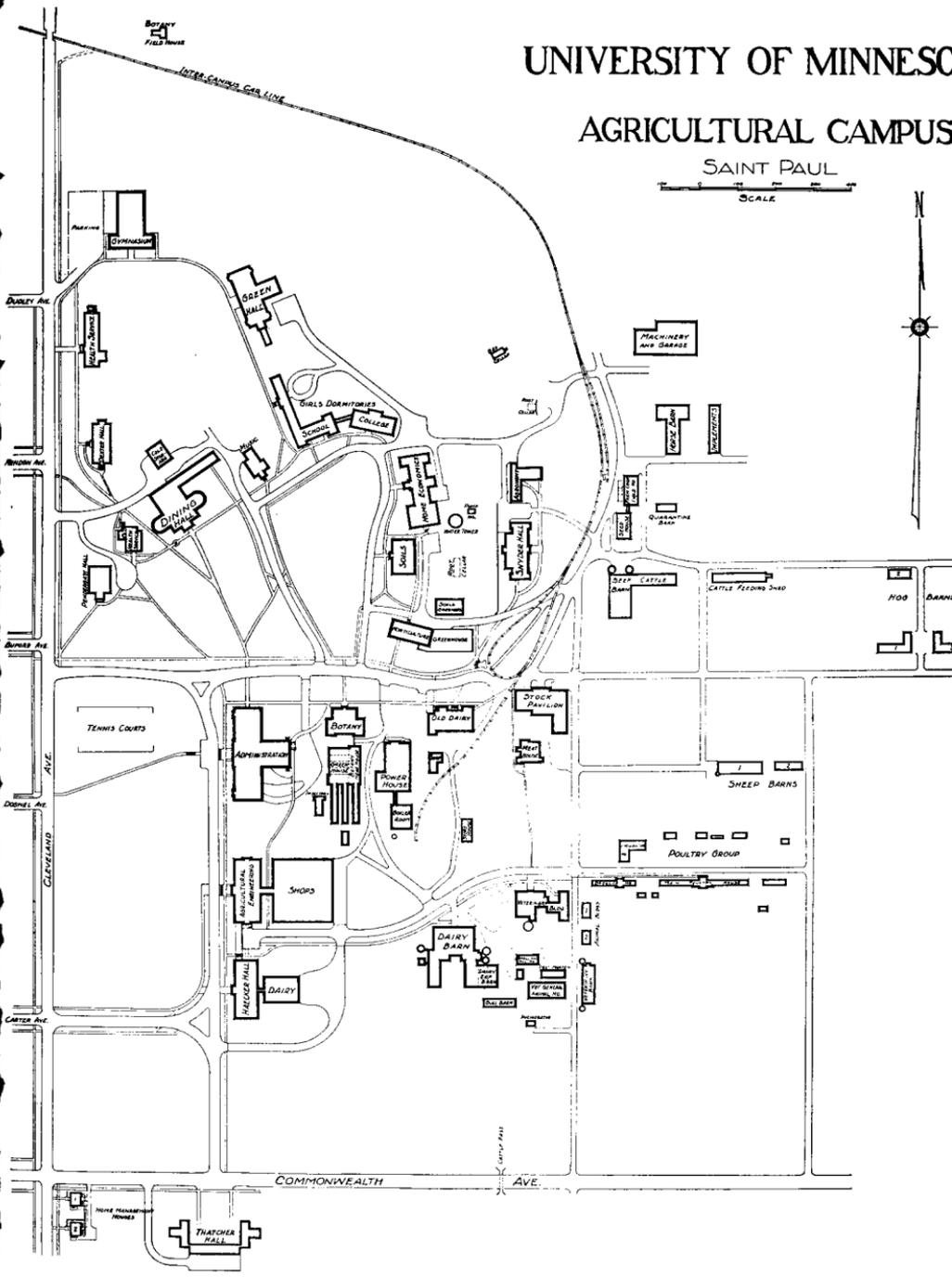
February 26, 1940

*Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota.
Accepted for mailing at special rate of postage provided for in Section 1103, Act of
October 3, 1917, authorized July 12, 1918*

UNIVERSITY OF MINNESOTA

AGRICULTURAL CAMPUS

SAINT PAUL



CALENDAR

SUMMER SESSION, 1940

June	17-18	Monday-Tuesday	Registration, first term
June	19	Wednesday	First term classes begin
July	4	Thursday	Independence Day, a holiday
July	25	Thursday	Commencement convocation
July	26	Friday	First term closes
July	29	Monday	Registration and payment of fees for second term close at 4:00 p.m.
			Second term classes begin
August	30	Friday	Second term closes

TABLE OF CONTENTS

	Pages
Map, Main campus.....	2
Map, Agricultural campus.....	3
Calendar	4
Board of Regents.....	6
Administration	6
The Summer Session.....	7
Special courses	8
Dates of the Summer Session.....	10
General information	10
Admission and registration.....	15
Degrees	18
Summer recreation	18
Special features	19
Summer employment	20
Explanations	20
The Graduate School.....	22
College of Science, Literature, and the Arts.....	24
Institute of Technology.....	48
College of Engineering and Architecture.....	48
School of Chemistry.....	53
College of Agriculture, Forestry, and Home Economics.....	57
Biological Station Summer Session.....	64
Medical School	69
School of Dentistry.....	85
College of Education.....	86
Physical Education and Athletics.....	100
School of Business Administration.....	106
Institute of Child Welfare.....	110
Library Instruction	112
Faculty	113
Index	130

THE SUMMER SESSION

The University of Minnesota will continue during the 1940 Summer Session its policy of providing maximum service to the state and its adjoining areas, emphasizing particularly the needs of teachers and other educational workers at all levels. Comprehensive offerings have been arranged in the academic and the professional fields, and both graduate and undergraduate students will find a program designed to keep them abreast of recent educational developments. Two six-week sessions have been scheduled, and a full quarter of university work may be completed in the combined sessions. Since many first term students in the past few years have planned to remain for the second term, the offerings for the 1940 Summer Session have been arranged to provide a varied selection of courses in both terms.

Elementary teachers, supervisors, and administrators will find an exceptionally broad program in their fields. In response to a number of requests, special consideration will be given to problems of elementary school teaching in the natural sciences, in the social studies, and in reading. Problems of supervision and of diagnostic and remedial instruction also will be emphasized. Demonstrations and observations will be available in connection with many courses through the use of the Child Welfare Institute and the Tuttle Demonstration Elementary School.

High school teachers, also, will find an expanded offering in the 1940 Summer Session, in the provision both of advanced academic courses and of professional courses for the discussion of current problems of teaching secondary school subjects. University High School will provide demonstrations of practical applications in this field.

Increased attention is being given in Minnesota to the training of school administrators. In the Summer Session, visiting instructors and regular staff members in school administration and secondary education will provide a variety of basic and advanced courses for principals and superintendents. Special provision has been made for advisory work in connection with graduate study.

Training courses for personnel workers, much in demand, will be given in both terms. The University of Minnesota program in this field includes training in the use of tests and other diagnostic materials, the psychology of personality, the procedures of counseling, clinical practice, and the planning of group programs. Basic guidance courses will be offered for administrators and teachers, as well as for prospective personnel workers.

Courses in philosophy of education and history of education will provide background for the consideration of current educational problems. Courses of interest to many groups also have been arranged in radio in education, in the use of visual aids in teaching, in adult education, and in health education.

Staff members of colleges and teacher training institutions will be particularly interested in the Workshop in Higher Education, described below under the heading "Special Courses."

In the special fields of art education, music education, and physical education, both undergraduate and graduate courses will be available, with work leading either to the bachelor of science or master of education degree. Courses will be offered in the first term in agricultural education and home economics education, and in both terms in industrial education.

SPECIAL COURSES

A four-week summer term is provided for teachers of agriculture who are employed on the twelve-month basis as teachers. Courses carrying graduate credit are available. A maximum of six credits per term is permitted. The term of four weeks begins Monday, June 17, and closes Friday, July 12.

There is also a wealth of courses offered in the sciences and the professions.

The Biological Station Summer Session is conducted co-operatively by various departments in the College of Agriculture, Forestry, and Home Economics and the College of Science, Literature, and the Arts of the University of Minnesota. During the second term of the Summer Session it offers elementary and advanced courses in biology at Itasca Park. Opportunities are offered for research and investigation in several fields of biology and forestry.

Apropos of the growing interest in aeronautics, the Department of Aeronautical Engineering offers this year (1) a general course in aeronautical engineering intended primarily for students who want to acquire a general knowledge of the principles involved in the construction and operation of aircraft and (2) a course in meteorology dealing with the elements of weather forecasting, weather mapping, and weather map interpretation. These courses also will be suitable for teachers of physical sciences, mathematics, and manual training in the high schools.

WORKSHOP IN HIGHER EDUCATION

During the first term of the Summer Session, the Workshop in Higher Education will make available all the resources of the University for staff members from colleges, universities, and teacher training institutions, who wish to study problems of higher education. Seminars will be provided in the fields of curriculum, personnel work, teacher training, and research planning. An announcement describing the arrangements for the workshop and listing the university staff members who will be available for individual conferences and group discussions may be obtained from Mr. T. R. McConnell, 301 Eddy Hall, University of Minnesota. (See Ed. 228su.)

SPECIAL COURSE FOR ELEMENTARY TEACHERS

The Kellogg Foundation and the College of Education will offer co-operatively a laboratory in elementary instructional practices for selected teachers. Students in this course will register for nine credits, spending their time in observation at the Tuttle Demonstration School and in the study and discussion of elementary school problems. The number of teachers to be admitted is limited to thirty-five. Interested teachers should apply as soon as possible to the dean's office, College of Education, for approval of their registration. (See Ed.C.I. 187su.)

SPECIAL COURSE FOR SIGHT-SAVING TEACHERS AND SUPERVISORS

An advanced course for sight-saving teachers and supervisors has been arranged for the first term of the Summer Session. The work will be sponsored by the Department of Ophthalmology in the Medical School, the Minnesota Academy of Ophthalmology, the Minnesota Society for the Prevention of Blindness, the National Society for the Prevention of Blindness, and the College of Education. (See Ed.C.I. 109su.) Application for admission to this course should be made as early as possible to the dean's office, College of Education.

MINNESOTA ALL-STATE HIGH SCHOOL CLINIC BAND

Under the sponsorship of the College of Education, the University of Minnesota has arranged an All-State High School Clinic Band to be held from July 8 to July 26. Outstanding conductors and instructors for the various band instruments will be on the staff. The work of the Clinic Band, for which any high school student may register, will provide an excellent opportunity for high school music teachers to obtain training through observation and demonstration. Living quarters will be provided at the University for high school students from outside the Twin Cities area who wish to register for the Clinic Band, and competent supervision will be provided. Inquiries should be addressed to Mr. Gerald Prescott, director of the Minnesota Band, University of Minnesota.

CENTER FOR CONTINUATION STUDY

A number of special short-period institutes have been arranged for the 1940 Summer Session. These institutes will be noncredit conferences arranged for those who cannot attend the regular Summer Session. Further information may be secured from Mr. Julius M. Nolte, director of the Center for Continuation Study.

INSTITUTE OF CHILD WELFARE

The Institute of Child Welfare, an organization for the scientific study of children, for the training of workers in child development, and for disseminating information through a program of parent education, offers a full program of graduate and undergraduate courses in the first term of the Summer Session and several courses in the second term.

During the first term the institute operates a nursery school and kindergarten. For information on fees for these schools and a description of the courses offered, see the section on the Institute of Child Welfare, page 110.

SUMMER SCHOOL FOR ENGINEERS AND CUSTODIANS

From June 10 to June 14, 1940, the General Extension Division will conduct a short course for engineers and custodians of schools and other public buildings. This course will comprise an intensive practical training for ambitious men who have taken a serious interest in this vocation. Further information may be obtained by writing the General Extension Division, Department J, 402 Administration Building, University of Minnesota, Minneapolis.

GIRL SCOUT LEADERSHIP COURSE

During the second term of the Summer Session the General Extension Division of the University will conduct a short course in Girl Scout Leadership. The course is designed to interpret the program of the Girl Scout organization so that the student will be able to advise and participate in leadership and program activities. It will include material applicable to all groups, such as girl development from seven to eighteen years of age, principles of group management, program presentation and planning, relationships within a group, and administrative procedures.

The class will meet four days a week, Mondays through Thursdays, for two weeks, August 5 to August 16, under the direction of Miss Marie Aftreith, regional director of Girl Scouts, Inc. The fee for the course will be \$3, payable at the office of the Extension Division, 402 Administration Building. The class will meet in Room 3 of the Women's Gymnasium from 3:00 to 5:00 p.m. on the days named. Enrolment will be limited to twenty-four students.

DATES OF THE SUMMER SESSION

The Summer Session at the University of Minnesota consists of two terms. The first term, of six weeks, will begin with registration, Monday and Tuesday, June 17-18. Classes will begin Wednesday, June 19, at 8:00 a.m. The first term will close Friday, July 26. Registration and payment of fees for the second term will close at 4:00 p.m., Monday, July 29. Classes for this term will open Monday, July 29, and the Summer Session will be brought to a close on Friday, August 30.

GENERAL INFORMATION

The University of Minnesota, located midway between the Twin Cities of Minneapolis and St. Paul, yet easily accessible to the vast outdoor playground of northern Minnesota, provides an ideal place to enjoy a profitable summer of study and healthful relaxation.

On its Main campus, situated on the north bank of the Mississippi River in Minneapolis, the University places at the disposal of the Summer Session student the facilities of a great educational institution—its libraries, laboratories, observatory, and museums—and in addition the recreational resources of its several swimming pools, golf course, and tennis courts. The added cultural advantages of two large metropolitan centers offer attractions for the Summer Session student that are unique with the University of Minnesota.

Courses in agriculture and home economics are given on the University Farm campus in St. Paul, three miles from the Main campus in Minneapolis. The Farm campus offers all of the advantages of the Main campus, being connected with the latter by an intercampus trolley line which gives regular service free to students enrolled for classes on both campuses. The Como-Harriet interurban line also connects the campus with the two cities, thus making available all their advantages. The College of Agriculture, Forestry, and Home Economics has its own library, laboratories, and recreational facilities.

The Summer Session of the University of Minnesota provides courses (1) for those graduate and undergraduate students, both in the arts and in the professional schools, who wish to reduce their period of residence at the University by accumulating credits during the summer; (2) for superintendents, principals, supervisors, teachers, and other students of professional interests who desire further training in their fields; (3) for persons who seek an opportunity to study for intellectual pleasure; (4) for graduates of accredited high schools who do not meet the special subject-matter requirements to enter some of the colleges and professional schools; (5) for high school graduates who wish to become acquainted with the methods of instruction and the policies and practices in collegiate work before registering in the regular session during the academic year.

A full quarter's work is offered in the two terms, making possible a four-quarter year for students who desire it.

Particular attention is called to the advantages of study in the second term when classes are smaller and more intimate, and the weather is usually cooler. The School of Business Administration, College of Education, Biological Station at Itasca Park, and the Departments of Physics, Sociology, and Speech offer particularly good programs in the second term.

Students registering in the second term who are teachers and are obliged to return to their schools before the close of the term, may, with the consent of instructors, arrange to complete the work *in absentia*. The granting of such permission is not obligatory on any instructor, and students desiring this privilege

should ascertain well in advance the courses in which the permission will be granted. They may then make a program accordingly.

The procedure is that of removing a grade of incomplete by examination. To avoid later misunderstanding, the student should secure the permission of the instructor at the beginning of the term, and then arrange with the registrar for the proper examination.

INTERCAMPUS CAR

For students who are registered for class work on both the Minneapolis campus and the University Farm campus, free transportation on the intercampus car is provided. Tickets will be issued to students registered in the College of Agriculture, Forestry, and Home Economics at the branch office of the registrar at University Farm; to those registered in other colleges, at the university post office in the basement of the Administration Building, Minneapolis campus.

Students who are registered for classes on the Minneapolis campus and who live in the College of Agriculture dormitories will also be given free transportation. Tickets will be issued by the registrar's office, University Farm.

GENERAL OFFICES

The office of the director of the Summer Session is in Room 406 on the fourth floor of the Administration Building on the Main campus. The offices of the registrar and cashier are on the first floor of the Administration Building. For the convenience of students registering in agriculture and home economics, branch offices are established on the second floor of the Administration Building, University Farm. Details of procedures to be followed in registering will be given out at these places. The several schools and colleges function in the control of students during the summer just as during any other quarter of the year. Students in one college are free to elect courses in another college, however, on approval of the dean of the college in which the student is registered.

BUREAU OF RECOMMENDATIONS

The Bureau of Recommendations of the College of Education is operative during the Summer Session. Students who have earned 30 quarter credits at the University of Minnesota are eligible to the active services of the bureau. These services consist in recommending candidates and forwarding their confidential credentials to school officials in many parts of the country who have vacancies on their teaching or administrative staffs. Superintendents who are looking for teachers will be given full and reliable information on competent candidates, experienced or inexperienced, if they write to or call at the office of the bureau in Room 208, Burton Hall.

UNIVERSITY LIBRARY

The University Library is open to all students of the Summer Session. It includes about 1,075,000 volumes and many periodicals and pamphlets covering all subjects in the university curriculum.

The largest part of the library is housed in the Library Building on the Minneapolis campus. This is one of the largest and best university library buildings in the country. Its spacious reading rooms and a special floor with seminar, library groups, and discussion rooms for advanced students afford a greater seating capacity than any similar building yet erected. The library of the Department of Agriculture, with an excellent collection on agriculture and home economics, is located in the Administration Building at the University Farm. Branch libraries are

maintained in a few of the schools and colleges, and there are smaller special collections conveniently grouped in the main library.

In addition to the University Library and its branches, the Minneapolis Public Library, the St. Paul Public Library, the Minnesota Historical Society, and the James Jerome Hill Memorial Library of St. Paul grant liberal privileges to Summer Session students.

The Library Handbook, copies of which may be had gratis upon application at the library, contains information regarding library hours, rules, and other matters essential to the profitable use of the library.

CORRESPONDENCE STUDY COURSES

The Correspondence Study Department of the General Extension Division affords an opportunity to students who come to the University only for the Summer Session to continue their studies during the remainder of the year, and thus accumulate additional credit toward their degrees as well as to secure the training which regular study gives. On the other hand, students who are now pursuing correspondence study courses have in the Summer Session a chance to complete some of their residence work at a time when many of them are free to do so. All those who are interested and who register for the Summer Session are urged to call at the office of the General Extension Division to become acquainted with its work. Full information concerning correspondence study courses may be had at any time by addressing the Correspondence Study Department, General Extension Division, 402 Administration Building.

MINNESOTA UNION

The Minnesota Union is a students' clubhouse, furnishing social and recreational facilities and operating a soda fountain. There are also a ballroom, reception rooms, reading rooms, and lounging rooms. These rooms and their facilities are open to all Summer Session students.

The Minnesota Union cafeteria will be open during the Summer Session.

SHEVLIN HALL

Shevlin Hall contains rest and study rooms for women, rooms for social gatherings, the offices of the dean of women, and the Housing Bureau.

For women students on the University Farm campus similar facilities are available in the Home Economics Building.

UNIVERSITY POST OFFICE

The university post office, for distribution of mail addressed to the University, is located in the basement of the Administration Building on the Minneapolis campus. The University Farm post office is in the Administration Building on the Farm campus. At the time of registration each student is assigned a post-office box in which he will receive all mail, announcements, and university communications. The mail box should be visited at least once a day. *When leaving at the close of a term, students should give the postmaster a forwarding address.*

OFFICIAL DAILY BULLETIN

Throughout the year an official daily bulletin is published in the *Minnesota Daily*. In addition to the announcements to students and faculty it contains other information, programs of the various recreational activities, and matters of general interest. The *Minnesota Daily* is delivered to offices and laboratories, and to the

post-office box of every student each morning on which it is published. *Each student is held responsible for a knowledge of such information appearing in the official notices as may affect him.*

STUDENTS' HEALTH SERVICE

The Students' Health Service conducts a dispensary during the Summer Session on the same basis as any other quarter of the year, the same staff of physicians, dentists, and nurses being on duty. This dispensary maintains exclusively for students, clinics in medicine, surgery, dermatology, ophthalmology, otolaryngology, and dentistry. Hospitalization is not provided by the Health Service during the Summer Session. Arrangements will be made, however, for students needing hospitalization in the private patient section of the University of Minnesota Hospitals on a cost basis. Home calls are not made during the Summer Session.

An unusual opportunity for a complete physical examination is offered by the Students' Health Service to those in attendance during the Summer Session. An annual physical examination is recognized as the only method of discovering chronic disease processes at a time when they are curable and the wisdom of procuring such annual examinations is being widely recognized by the public. The University has made an examination service available to students during the Summer Session, and each year a large number of students have taken advantage of this opportunity. A charge of \$4 is made for this service.

For special drugs, X rays, and dentistry, a charge on a strictly cost basis is made. This service is maintained by the University to help each student to possess a healthy, active body, thereby contributing to his success while in college and in later life; and to reduce to a minimum that prodigious academic and economic loss due to indisposition and illness of students.

LIVING EXPENSES

The living expenses for students at the University are never very high, and this is true especially of the Summer Session. Good accommodations for room may be had from \$10 to \$15 per month. Meals can be secured for 75 cents per day and up. In addition to the cafeterias conducted on the campus by the University, several good restaurants are to be found in the immediate vicinity of the University. Further information concerning room and board may be obtained by addressing the director, Housing Bureau, Shevlin Hall. *It is generally more satisfactory to engage accommodations after arrival than to make reservations in advance, except in the case of reservations at Sanford Hall and Pioneer Hall.*

DORMITORIES FOR MEN

Pioneer Hall, a residence hall for men at the University of Minnesota, is ideally located to provide comfortable living accommodations the year around. An attractive colonial structure, capable of housing 535 persons, Pioneer Hall overlooks the Mississippi River at a point two blocks from the campus and is easily accessible by street car and bus from the downtown districts, both of Minneapolis and St. Paul. The building, which is fireproof, is arranged in two units of eight houses, each unit forming a quadrangle. It has been built and equipped to provide the most desirable residence advantages at very moderate cost.

Most of the rooms are arranged in three-room suites for two students, a suite consisting of a separate bedroom for each student and a common study. Some single and a few double rooms also are provided for students who prefer such arrangements. The rooms are furnished in a comfortable and convenient manner,

students being supplied with a combination of wardrobe and dresser, bed, chair, study table, arm chair, rug, wastebasket, bed linen, and bed cover. Students should furnish blankets, study lamps, towels, and other personal necessities. Maid service is provided.

Pioneer Hall offers many advantages in the way of recreation facilities. In addition to its well-furnished and comfortable lounges, facilities for golf driving, shuffleboard, handball, pool, billiards, table tennis, chess, and checkers are to be found in its game rooms. Also, a very modern soda fountain has been installed for the convenience of its residents. Most of these facilities are available during the Summer Session.

Pioneer Hall will be open for room but not for board during both terms. Students interested in residence in the hall should write to the director of Pioneer Hall, University of Minnesota, for a copy of the special bulletin and an application form. A two-dollar deposit fee must accompany application. Assignments will be made in the order of application.

DORMITORIES FOR WOMEN

Sanford Hall

Sanford Hall, a residence hall for women, is on the Minneapolis campus. It accommodates 245 students. The building has every modern convenience, with hot and cold running water in the rooms. Each double room has two closets.

Each room is furnished with a bed, dresser, study table, rugs, chair, clothes closet, and all necessary bedding. Bed linen is furnished and laundered by the University.

Rooms are offered *with* board during the first term and *without* board during the second term. Maintenance charges are payable at the time of registration. Reservations should be made as far in advance as possible. Applications, accompanied by a two-dollar deposit, should be sent direct to Sanford Hall, University of Minnesota. No application will be recorded until a lease is signed, accompanied by a two-dollar deposit. The deposit will hold the room until the day after the opening of the Summer Session, and is applied on the maintenance charge.

Communications requesting residence or regarding prices or any other details should be addressed to the house director, Sanford Hall, University of Minnesota, Minneapolis, Minnesota.

Department of Agriculture Dormitories

Women taking regular work during the first term of the Summer Session, either on the Minneapolis or on the University Farm campus, may obtain rooms in the Department of Agriculture dormitories. There is convenient street car service to the Main campus.

The dormitories contain a few single rooms; other rooms are intended to accommodate two persons. Necessary bedding and hand towels are furnished.

The rates during the summer are as follows: single rooms, \$2.50 per week; other rooms, \$2.25 per week per occupant.

Applications for rooms, accompanied by a two-dollar room deposit, should be made to the office of the superintendent, School of Agriculture, University Farm, St. Paul.

Assignment of rooms will be made at the time of registration in the University Farm College Girls' Dormitory. Fee statements may be obtained in Room 205, Administration Building, University Farm, and payment for the first term of the

Summer Session must be made to the cashier, at the time of assignment. Dormitories will be open Monday, June 17, 1940. They will not be available during the second term.

A cafeteria with reasonable charges is maintained on the University Farm campus.

ADMISSION AND REGISTRATION

ADMISSION

The courses of the Summer Session are open to all qualified high school graduates. Persons of maturity whose preparation does not meet the entrance requirements, may be admitted as unclassified students on approval of the dean of the college or school concerned. Those who desire college credit for their work, and those who desire advanced standing for college work done elsewhere, should submit their credentials, consisting of official transcripts of their high school, normal school, or college work as early as possible before the Summer Session opens.

Students should consult the statements in the bulletins of the respective colleges of the University of Minnesota for detailed information concerning admission to a given college. General information may be found in the General Information Bulletin. Any of these bulletins may be obtained by calling upon or writing to the registrar, University of Minnesota, Minneapolis.

For the convenience of students, certain information is given in this bulletin at the opening of the respective sections of descriptions of courses.

REGISTRATION

In order that the short terms may prove of maximum value, and that the work of the courses may not be interfered with by late entrants, students must complete their registration, including the payment of their fees, on the days set for registration, or pay a late registration fee.

The regular registration days are:

For the first term, Monday, June 17, 9:00 a.m. to 4:00 p.m., and
Tuesday, June 18, 9:00 a.m. to 4:00 p.m.

For the second term, Monday, July 29, 9:00 a.m. to 4:00 p.m.

The late registration fees are as follows:

For the first term for those completing the registration on

Wednesday, June 19	\$2.00
Thursday, June 20	3.00
Friday, June 21	4.00
Monday, June 24	5.00

No registrations are allowed for the first term after Monday, June 24, without the special permission of the dean of the school or college concerned, and the payment of the late registration fee of \$5.

For the second term, for those completing their registration on

Tuesday, July 30	\$2.00
Wednesday, July 31	3.00
Thursday, August 1	4.00
Friday, August 2	5.00

No registrations will be accepted later than Friday, August 2, without the special approval of the dean of the school or college concerned, and the payment of the late registration fee of \$5.

No provision is made for allowing exemption from the late registration penalties to those who are unable to reach the University during the regular registration days.

The University reserves the right to cancel any and all courses in which the registration is insufficient to warrant continuation of the course.

Candidates for admission to all colleges except the College of Agriculture, Forestry, and Home Economics will register in the Armory. Candidates for admission to the College of Agriculture, Forestry, and Home Economics will register at University Farm, 205 Administration Building.

Changes in Registration

After a student's registration has been accepted by the registrar any change must be approved by the Students' Work Committee or the dean of the college in which the student is registered. *Only in exceptional cases will any change be made after classes have begun.*

FEES

The following fees are payable each term by each student at the time of registration and must be paid before registration is complete:

Full-time tuition fee (per term)	\$25.80
Incidental fee‡ (per term)	4.20
Total fee (per term)	<hr style="width: 100%; border: 0.5px solid black;"/> \$30.00
Part time (4 credits or less) (per term)	\$15.80
Incidental fee‡ (per term)	4.20
Total fee (per term)	<hr style="width: 100%; border: 0.5px solid black;"/> \$20.00
General deposit	2.00

In addition certain courses carry a fee as indicated in the description of those courses.

Graduate students who have completed all their graduate work with the exception of their theses will be allowed to register in the Summer Session for *thesis work only* upon the payment of a \$5 tuition and a \$2 deposit fee.

Charges for lockers, laboratory breakage, library fines, etc., will be deducted from the \$2 deposit and the balance will be refunded by mail after the close of the term.

There is no additional fee in the Summer Session for students who live outside Minnesota.

For fees for students desiring legal time credit in the Medical School, see page 69.

For fees for students registered for clinical courses in the School of Dentistry, see page 85.

For fees for students registered for music courses, see page 33.

For fees for students registered for nursing courses, see page 71.

‡ An incidental fee of \$4.20 a term is charged each student for which the student receives the privileges of the Minnesota Union or Shevlin Hall, the Health Service, the *Minnesota Daily*, and the university post-office service.

Refund of Fees

Students who cancel their Summer Session registration without class attendance shall be allowed a full (100 per cent) refund of fees. Students who cancel after having attended classes shall be allowed a refund of fees on the following basis:

Length of Term	80 Per Cent Refund for Attendance	No Refund for Attendance of More Than
6 weeks	1 day to 1 week	1 week
5 weeks	1 day to 5 days	5 days
4 weeks	1 day to 4 days	4 days
3 weeks	1 day to 3 days	3 days
2 weeks	1 day to 2 days	2 days
1 week	1 day	1 day

AUDITORS

Fees for auditors are the same as for students registered for credit. Permission to attend classes as auditors may be granted by the dean of the college or school with the consent of the department concerned. The form of registration as auditors shall be the same as of registration for credit, except that "auditor" shall be indicated on both registration sheet and class card. It is expected in general that auditors will be registered in at least one course for credit, but this regulation may be waived in exceptional cases.

CREDIT

Credit is administered on the following basis: One quarter credit requires in general not less than 10 lecture or recitation periods (2 per week for a summer term) requiring two hours of preparation each or not less than 20 periods of laboratory work requiring one-half hour of preparation each; or not less than 30 hours of laboratory work with no preparation. Courses carrying two or more units of credit require corresponding multiples of these amounts.

AMOUNT OF WORK

A maximum of 9 credits or two 5-credit courses is considered a full program for either term. Registration for a greater number requires special permission from the Students' Work Committee or the dean of the school or college in which the student is registered.

Examinations are held at the last scheduled class hour for each course.

GRADING SYSTEM

There are four passing grades, A, B, C, and D, representing varying degrees of achievement.

There are two grades indicating work of distinctly unsatisfactory quality. These grades are E (condition), which may be removed by examination or other means stipulated by the faculty of the college or school concerned, and F (failure), which may be converted into a higher grade only by a repetition of the work in the course or, in exceptional cases, by examination by permission of the faculty concerned.

The grade I (incomplete) indicates that a student, for reasons satisfactory to the instructor in charge, has been unable to complete the work of the course. This grade is given only when the work already done has been of acceptable quality. Any student receiving this grade will be given an opportunity to complete the said course within the first thirty days of his next quarter in residence, or in case of a student who is not in attendance during other quarters of the year, special arrange-

ments may be made by the registrar if application is filed before the end of the summer term.

An opportunity to remove conditions received for a previous quarter will be given each term on the afternoon of the first Monday after classes begin. A fee of \$1 is charged for the privilege of taking this examination at the scheduled time. A fee of \$5 is charged for each special examination.

DEGREES

Regular collegiate credit is given to qualified students for work in the Summer Session. For a detailed statement of the credit requirements for the various degrees, see the Bulletin of General Information and the bulletin of the various schools and colleges of the University.

Work completed in the Summer Session is considered as residence credit.

The Board of Regents will confer the degree appropriate to the course pursued under the following conditions:

1. **Curriculum requirements.**—Certification by the registrar of the completion of all requirements of the course of study as outlined in the college announcement, or its equivalent as determined by the faculty of the college offering the course.

2. **Recommendation of the faculty.**

3. **Residence requirement.**—Advanced standing will be allowed on certification from other recognized institutions and may be obtained also by examination held before a committee of the faculty appointed for that purpose provided that the following minimum requirement for residence at the University of Minnesota has been met.

The student must earn at least one year's credit in residence in this University. If the term of residence is only one year, that year must be the senior year; and in any case he must spend two quarters of the senior year in residence. In addition, special residence requirements must be met in several of the schools and colleges. See individual announcements.

4. **Attendance at commencement.**—All candidates for degrees are required to be present at commencement exercises provided that the candidate's work is completed at the end of a quarter when such exercises are held. Commencement exercises for first term Summer Session candidates will be held Thursday, July 25, 1940. Students completing their work for the degree in the second term of the Summer Session will receive the degree without attending formal commencement exercises, or they may receive the degree at the fall quarter commencement exercises in December.

A student who fails to attend shall not receive his diploma until the expiration of one year, unless in the meantime he attends commencement exercises or unless excused from such attendance by the dean of the college and the president of the University.

5. **Graduation fee.**—Graduate School, \$10; other schools and colleges, \$7.50.

SUMMER RECREATION

The University of Minnesota is ideally situated for a program of healthful recreation. A definite program is planned each year to give the Summer Session student a maximum of recreational activity for a minimum expense. As previously stated, the Twin Cities, with their parks, lakes, art and music centers, libraries, and museums, offer many fine attractions for the summer visitor.

As a gateway to the countless resorts on Minnesota's famed 10,000 lakes, the Twin Cities also provide an advantage for the summer visitor seldom found anywhere else. Many students will find it convenient and pleasant to spend week ends at some of these resorts and centers for recreation.

Informal social evenings.—Included in the recreational program are regularly arranged informal social evenings on the campus where students are given the opportunity of becoming better acquainted with each other and with members of the faculty. A regular series of these programs, including dancing and other entertainment, is planned for each session.

Excursions.—A number of excursions to points of historical, industrial, educational, or purely recreational interest in the vicinity of the Twin Cities also are made each summer. These tours are usually arranged for Monday, Friday, and Saturday afternoons, with the cost only the necessary street car or bus fare.

Physical activities.—The physical education plant at the University of Minnesota is one of the finest in the United States. Its facilities for healthful exercise are many and varied. These may be summarized briefly as follows: Recreation Field, an eighteen-hole golf course; three gymnasiums containing five swimming pools—Cooke Hall for men, the Women's Gymnasium, and the Farm Gymnasium; Northrop Field which contains facilities for baseball, track, diamond ball; 25 tennis courts, and space for minor sports.

A program of tennis and golf tournaments, a baseball and diamond ball schedule, as well as other competitive sports are arranged each summer. In addition, the swimming pools are available at all times with attendants and instructors in charge. All of these facilities are available for both men and women and most of them with no extra charge except for towel service.

Tennis and golf tickets.—The use of the tennis courts is restricted to those holding tickets. Such tickets will be issued only to regularly enrolled students of the Summer Session and members of the staff, upon payment of a fee of \$1 for each term and presentation of the bursar's receipt for fees. Golf tickets are issued in the same manner without charge, but a greens fee of 50 cents is charged for a single round, or ten rounds for \$4.50. Before 10:30 a.m., except Saturday, Sunday, or holidays, and after 5:00 p.m. the charge will be 35 cents per round. Application should be made to the Athletic Department, Cooke Hall.

SPECIAL FEATURES

Lectures and convocations.—One of the principal features of the Summer Session programs is the series of weekly convocation addresses by speakers of more than usual prominence. Scientists, literary figures, artists, observers of national and international affairs are among those who visit the campus to address these Summer Session audiences. In addition, an almost daily series of lectures by faculty members and invited guests adds to this feature of the program.

Concerts and recitals.—Each week those who enjoy good music will find opportunity to enjoy a musical program or a lecture-recital in the concert hall of the Music Building or in Northrop Memorial Auditorium. These programs are free to students.

Dramatics.—Performances of legitimate drama also have become an outstanding feature of the Summer Session. The University Theatre, a university dramatic student organization, functions throughout the summer and demonstrates the success attainable with student actors. For these offerings the very best of stage equipment and facilities is provided.

Newsreels.—Another feature which has proved increasingly popular is the Newsreel Theater under the direction of the Visual Education Department of the University. Motion pictures of current events, travel pictures, and educational films of various kinds form the subject-matter of the theater. Its weekly showings have been well attended in the past.

SUMMER EMPLOYMENT

Students are advised not to engage in extra work during the summer; a full program of study during the warm weather should, with reasonable recreation, be a sufficiently heavy load. But for the benefit of those who feel compelled to aid themselves financially while in attendance, the service of the University Employment Bureau is always available. Many students are aided by this bureau which is on the basement floor of the Administration Building.

EXPLANATIONS

The following pages contain announcements of the courses offered in the several colleges and schools of the University. Departmental statements also indicate certain requirements as to entrance and credits. For more detailed statements of these matters, reference should be made to the Bulletin of General Information and the regular annual bulletin of the college concerned.

The University of Minnesota reserves the right to cancel any and all courses in which the registration is insufficient to warrant continuation of such course or courses.

Following each course is a statement, in parentheses, of credits, classes of students eligible, prerequisites, days of the week, class hours, and location of the class. Thus (3 cred.; jr., sr., grad.; prereq. 12, 13; MTWThF II; 117F) means that the course carries three credits, is open to juniors, seniors, and graduate students, has for prerequisites Courses 12 and 13, meets on Monday, Tuesday, Wednesday, Thursday, and Friday, at the second hour, in Room 117, Folwell Hall. Abbreviations for class hours and buildings are interpreted by the following tables:

CLASS HOUR SCHEDULE

	Minneapolis Campus	University Farm
I Hour	8:00- 8:50	7:45- 8:35
II Hour	9:00- 9:50	8:45- 9:35
III Hour	10:00-10:50	9:45-10:35
IV Hour	11:00-11:50	10:45-11:35
V Hour	12:00-12:50	11:45-12:35
VI Hour	1:00- 1:50	1:00- 1:50
VII Hour	2:00- 2:50	2:00- 2:50
VIII Hour	3:00- 3:50	3:00- 3:50
IX Hour	4:00- 4:50	4:00- 4:50
X Hour	5:00- 5:50	5:00- 5:50

Convocation, IV hour, Thursday

(See Official Daily Bulletin for announcements)

KEY TO ABBREVIATIONS USED FOR BUILDINGS

Minneapolis Campus Buildings

A, Armory	G, Greenhouse	O, Observatory
Adm, Administration Bldg	HS, Health Service	OSL, Oak Street Laboratories
Bo, Botany Bldg	IA, Institute of Anatomy	P, Pillsbury Hall
BoG, Botany Greenhouse	J, Jones Hall	Ph, Physics Bldg
Bu, Burton Hall	L, Law Bldg	Phm, Pharmacy Bldg
C, Chemistry Bldg	Lib, Library Bldg	PiH, Pioneer Hall
CCS, Center for Continuation Study	M, Mines Bldg	PoH, Louise M. Powell Hall
CH, Cooke Hall	ME, Mechanical Engineering Bldg	Psy, Psychology Bldg
CI, Cancer Institute	MeS, Medical Sciences Bldg	Pt, Pattee Hall
CWI, Child Welfare Institute	MEx, Mines Experiment Station	S, Stadium
E, Main Engineering Bldg	MGH, Minneapolis General Hospital	SaH, Sanford Hall
EdH, Eddy Hall	MH, Millard Hall	SBH, State Board of Health Bldg
EE, Electrical Engineering Bldg	MiU, Minnesota Union	ShH, Shevlin Hall
EH, Eustis Hospital	Mu, Music Bldg	TM, Todd Memorial Hospital
EMH, Elliot Memorial Hospital	MurH, William J. Murphy Hall	UD, University Dispensary
Ex, Experimental Engineering Bldg	NMA, Northrop Memorial Auditorium	UHS, University High School
F, Folwell Hall		VH, Vincent Hall
FdH, Field House		WeH, Wesbrook Hall
		WGm, Women's Gymnasium
		Z, Zoology Bldg

University Farm Buildings

Ad, Administration Bldg	Hr, Horticulture	SnH, Snyder Hall
Ag, Agronomy Bldg	HS, Health Service	So, Soils Bldg
En, Engineering Bldg	MB, Music Bldg	St, Stock Pavilion
GH, Green Hall	OD, Old Dairy Hall	Ve, Veterinary
HE, Home Economics Bldg	PP, Plant Pathology and Botany	
HH, Haecker Hall		

REQUESTS FOR INFORMATION

Correspondence with reference to the Summer Session and requests for circulars and additional information may be addressed to the Director of the Summer Session or to the Registrar, University of Minnesota, Minneapolis, Minnesota.

GRADUATE SCHOOL

The Graduate School gathers into a single organization and unites for the purpose of administration all the activities of the University in all its schools and colleges in so far as they relate to advanced instruction offered for the second or higher degrees, namely, master of arts, master of science, electrical engineer, mechanical engineer, civil engineer, chemical engineer, and doctor of philosophy. The privileges of this school are in general open to all who have received Bachelors' degrees from creditable colleges and universities, based on courses substantially equivalent to those at this University. *Students who do not hold a degree from the University of Minnesota must present a transcript in duplicate of their undergraduate work.*

Students must make application for admission to the Graduate School at least two weeks before the opening of the Summer Session which they expect to attend in order to avoid delay and possible penalty for late registration. All applications for admission, except for graduates of the University of Minnesota, must be accompanied by an *official transcript* in duplicate of all undergraduate work, including degrees earned, and by a single official transcript of all graduate work completed. In certain departments, such as those conducting clinical or laboratory work, it will be necessary for students to check individually with the head of the department concerned as well as with the Graduate School office before their application for admission may be approved.

Students graduating from institutions, such as teachers colleges, granting the Bachelor's degree for a narrow concentration on technical and professional courses unsupported by a reasonable amount of work in subject-matter fields represented in a standard or traditional college of arts and sciences, may be matriculated if an examination of their transcript indicates that their undergraduate work fits into one of the following patterns:

A. Seventy-five per cent of the number of credits required for the Bachelor's degree is in strictly academic fields.

B. At least sixty per cent of the number of credits required for the Bachelor's degree is in strictly academic fields so distributed that there are at least forty quarter credits in each of two of the following groups of subjects: (a) English, speech, all foreign languages, (b) music and art, (c) social sciences including geography, (d) biological sciences including psychology, (e) mathematics and physical sciences.

Students who need no more than 6 quarter credits to meet either of the above admission requirements, and who have met the undergraduate prerequisites for graduate work in their major fields will be admitted to the Graduate School.

Students who need more than 6 credits will register as special students in the College of Science, Literature, and the Arts until the credit deficiency is reduced to at least 6 credits.

If not more than 9 quarter credits are lacking, petition may be filed to carry a limited amount of graduate work (approved courses numbered above 99) for graduate course credit, such courses not to be used to meet the admission requirement.

Work of graduate character done in the Summer Session of the University of Minnesota may be counted for residence credit for advanced degrees. The course work for the Master's degree may be completed in four separate six-week summer terms, or in three full Summer Sessions. Students must complete this work within six summers. In the first case, the candidate may (by special ar-

rangement) be permitted to carry *in absentia* thesis work to complete the equivalent of three quarters. Students working for the Master's degree in summer terms or quarters must file the subjects of their theses before the completion of the first half of the required work. Theses of Summer Session students must be completed at least four weeks before the end of the term in which they take the degree.

The Master's degree may be earned by qualified students who complete a minimum of twenty-seven quarter credits, distributed between a major and minor field, and complete a thesis and pass the usual final examinations. This procedure, called Plan A, was the only plan at the University of Minnesota until 1936.

An alternate road to the Master's degree, called Plan B, is now open. Under Plan B candidates for the Master's degree must complete, with an average of B, 45 quarter credits in graduate courses listed in the Graduate School Bulletin. Students must complete course work under Plan B within seven summers. At least 21, and not more than 27, credit hours should be in a single major field. At least 9 quarter credits must be in advanced courses, seminars, or independent work under faculty supervision and requiring the preparation of written reports representing the quality but not the range of the Master's thesis. Courses which offer an opportunity to meet this 9-hour requirement are marked in this bulletin with an asterisk (*).

The student's program shall have the approval of a major adviser or of a departmental committee acting for the major department and is subject to the review of the graduate group committee. The intelligent planning of the student's program requires that he shall present to his adviser or the department committee a statement of all college work completed with credit.

A full statement of the requirements for advanced degrees may be found in the bulletins of the Graduate School and Graduate Work in Medicine.

Students must register in the Graduate School if they desire their work to be counted for an advanced degree.

All requests for information concerning graduate work, including admission to the Graduate School, should be addressed to the dean of the Graduate School.

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

GENERAL INFORMATION

The administrative officers of this college and their offices follow:

John T. Tate, Dean of the College.....	219 Adm. Bldg.
J. M. Thomas, Assistant Dean for the Senior College.....	217 Folwell Hall
W. H. Bussey, Assistant Dean for the Junior College.....	107 Folwell Hall
R. R. Shumway, Assistant Dean for Students' Work.....	219 Adm. Bldg.

For general information, for the requirements for admission as regular or as unclassified students, for general rules and regulations, and for the requirements for degrees in the different curricula offered by the college, students should consult one of the administrative officers or the complete bulletin of the College of Science, Literature, and the Arts.

Courses announced in the bulletin as open to "juniors and seniors" or to "juniors, seniors, and graduates" are called "Senior College Courses." They are open to sophomores under certain conditions. See the complete bulletin of the college, or consult one of the administrative officers.

Some of the numbers given in the statement of prerequisites for courses in this bulletin refer to courses listed in the bulletin of the college.

Some of the courses scheduled in this Summer Session Bulletin by the School of Business Administration, the Medical School, the Institute of Technology, and the College of Agriculture, Forestry, and Home Economics are open to students of the College of Science, Literature, and the Arts under the same conditions that prevail during the regular college year. For information, consult one of the administrative officers of this college.

An asterisk () indicates courses that may be taken by graduate students for independent work under Plan B. (See page 23.)*

ANTHROPOLOGY

FIRST TERM

- 41su. Introduction to Anthropology. (3 cred.; soph., jr., sr.; no prereq.; MTWThF I; 6WeH.) Mr. Wallis.
- 161su.* Primitive Religion. (3 cred.; jr., sr., grad.; prereq. Anth. 41 or permission of instructor; MTWThF II; 6WeH.) Mr. Wallis.

ASTRONOMY

FIRST TERM

- 11su. Descriptive Astronomy. (5 cred.; all; no prereq.; MTWF III-IV and one evening a week for observation; 150Ph.) Mr. Luyten.
- 13su. Stellar and Practical Astronomy. Deals primarily with the observational aspect of astronomy, with the constellations and individual stars. Two lectures a week and as much observing as weather permits. (3 cred.; all; no prereq.;

WF 7:30 to 9:00 p.m., approximately the latter half of the time being supplied by observation; 133Ph.) Mr. Luyten.

140su. Least Squares. (3 cred.; prereq. 51 or 11, and at least Math. 51; ar.) Mr. Luyten.

BOTANY

FIRST TERM

1su. General Botany. General survey lecture course on plant life. Fundamental facts of structure, growth, reproduction; relation of plants to each other and to their environment. (4 cred.; all; no prereq.; MTWF III, IV; 06Bo.) Mr. Huff.

2su.‡ Field Dendrology. (1 cred.; students in agriculture and forestry; no prereq.; given at Itasca Park.) Mr. Johnson.

3su. Forest Botany. (1 cred.; students in agriculture and forestry; no prereq.; given at Itasca Park.) Mr. Gordon.

5su.‡ Elementary Plant Histology. A laboratory course dealing with the details of cellular structure in the higher plants. (3 cred.; all; prereq. 1; MTWF III, IV, Th III, 1 extra hour to be arranged; 202Bo.) Mr. Earle.

22su.‡ Elementary Plant Physiology. An elementary study of the fundamental processes occurring in plants. This entails a study of the role of essential elements, respiration, photosynthesis, enzymes, hormones, and other growth factors. (3 cred.; all; prereq. 1 and high school chem.; lect. MF I, II, 4Bo; lab. TWTh I, II, 104Bo.) Mr. Miller.

127su.‡ Anatomy of Vascular Plants. The microscopic structure of vascular plants with particular attention to the development and evolution of the vascular system in the root, stem, and leaf. (5 cred.; jr., sr., grad.; prereq. 18 cred. incl. 5; MTWThF I, II and 5 additional lab. hrs. ar.; 1Bo.) Mr. Earle.

140su. General Plant Physiology. Advanced survey lecture course of the whole field of plant physiology. (3 cred.; jr., sr., grad.; prereq. 22 or equiv., elem. inorg. chem.; lect. MTWThF II and 2 hours supervised reading per week; 5Bo.) Mr. Miller.

201su.* Research Problems in the Morphology of Vascular Plants. (Cred. and hr. ar.) Mr. Earle.

225su.* Research Problems in Plant Physiology. Advanced studies in plant hormones, respiration, photosynthesis, and metabolism. Special problems will also be offered in spectroscopic identification and quantitative analyses of soils, pigments, vitamins, hormones, lipids, and sterols. (2 to 5 cred.; grad.; ar.; 104Bo.) Mr. Miller.

SECOND TERM

COURSES TO BE GIVEN AT THE BIOLOGICAL STATION, ITASCA PARK

8su. Elements of Field Taxonomy. (3 cred.; prereq. Bot. 1, or consent of instructor; WF.) Mr. Buell.

11su. Field Botany. (3 cred.; no prereq.; MTh.) Mr. Buell.

20su. Elementary Field Ecology. (3 cred.; no prereq.; MTh.) Mr. Lawrence.

62su.‡ Bryophytes and Pteridophytes. (3 cred.; jr., sr.; prereq. 10 cred. or consent of instructor; TF.) Mr. Rosendahl.

116su. Advanced Field Taxonomy. (3 cred.; jr., sr., grad.; prereq. 10 cred. incl. 7 or equiv.; WS.) Mr. Rosendahl.

‡ A fee of \$1 is charged for this course.

- 135su.‡ Field Research Methods in Ecology. (3 cred.; prereq. 18 cred. incl. 21 or equiv.; WS.) Mr. Lawrence.
- 196su.* Special Problems in Taxonomy or Ecology. (Cred. ar.; adv. students.) Mr. Rosendahl, Mr. Lawrence.

For detailed description of courses offered see Biological Station Summer Session.

CLASSICS

FIRST TERM

GREEK

- 45su.† Greek Mythology. Lectures, textbook work, and illustrative readings, supplemented by occasional stereopticon views. The origin and interpretation of the myth; its relation to literature, art, and religion. (3 cred.; soph., jr., sr.; no prereq.; MTWF IV and 1 hr. ar.; 114F.) Mr. Ogle.

LATIN

- 73su. Advanced Grammar and Composition. Designed especially for teachers of Latin. (3 cred.; jr., sr.; prereq. four years of high school Latin or equiv.; MTWF IV and 1 hr. ar.; 110F.) Mr. Cram.
- 141su.§ Problems in the Teaching of High School Latin. Discussion and reports concerning problems in methods, textbooks, illustrative material, bibliography. Readings in Latin material suitable for the second year. (3 cred.; jr., sr., grad.; prereq. any two courses between 50 and 100; MTWThF III; 110F.) Mr. Ogle.
- 171su.* Independent Reading Course. (3 cred.; jr., sr., grad.; prereq. any two courses between 50 and 100 or six years of Latin; MTWThF II; 110F.) Mr. Cram.
- 242su.* Graduate Seminar: Classical Philology. (3 cred.; ar.) Mr. Cram.

ENGLISH

FIRST TERM

COURSES IN ENGLISH

- 22su. Introduction to English Literature. This course carries university credit for the second quarter of English 21-22-23. Dryden, Pope, Swift, Addison and Steele, Johnson, Boswell, Fielding, and Sheridan. (5 cred.; all; prereq. Eng. A-B-C, or Comp. 4-5-6, or exemption from requirement; MTWThF II, MTWF IV and 1 hr. ar.; 301F.) Mr. Hessler.
- 39su. The Later English Novel. The novel since Thomas Hardy. This course carries university credit for the third quarter of English 37-38-39, Twentieth-Century Literature (British and American). (3 cred.; all; prereq. Eng. A-B-C, or Comp. 4-5-6, or exemption from requirement; MTWThF I; 204F.) Mr. Hillhouse.
- 55su. Shakespeare. The reading of *The Comedy of Errors*, *The Two Gentlemen of Verona*, *The Taming of the Shrew*, *The Merchant of Venice*, *Much Ado*

† No knowledge of Greek is required for this course.

‡ A fee of \$1 is charged for this course.

§ Carries credit only in the College of Education.

- about *Nothing, Twelfth Night*, with collateral reading. *Midsummer Night's Dream, The Tempest*, to be read independently. (3 cred.; jr., sr.; prereq.†; MTWF IV and 1 hr. ar.; 305F.) Mr. Clark.
- 56su. Shakespeare. A continuation of 55su. The reading of *Richard II, Henry IV 1 and 2, Henry V, Julius Caesar, Hamlet, Macbeth*, with collateral reading. (3 cred.; jr., sr.; prereq.†; MTWThF II; 306F.) Mr. Bouvier.
- 62su. Milton. (3 cred.; jr., sr.; prereq. 21-22 or 55-56; MTWThF I; 306F.) Mr. Dunn.
- 74su. American Literature. This course carries university credit for the second quarter of English 73-74. (3 cred.; jr., sr.; prereq.†; MTWThF II; 303F.) Mr. McDowell.
- 75su. Chaucer. Reading of tales from the Canterbury collection, with introduction dealing with the grammar and literary forms of fourteenth-century English. (3 cred.; jr., sr.; prereq.†; MTWThF III; 205F.) Mr. Ruud.
- 100su. Old English. Old English prose and poetry. The relation to modern English is particularly emphasized. (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50; MTWThF I; 205F.) Mr. Ruud.
- 106su. Eighteenth-Century Poetry. From Thomson to Burns, with special reference to the rise of romanticism. This course carries university credit for the second quarter of English 105-106. (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50; MTWThF I; 305F.) Mr. Secord.
- 109su. Romantic Poets. The romantic poets of the nineteenth century (Wordsworth, Coleridge, Scott). This course carries university credit for the first quarter of English 109-110. (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50; MTWThF II; 204F.) Mr. Beach.
- 123su. Technique of the Novel. Type of construction and elements of technique illustrated in the study of half a dozen novels, English, American, and European. This course carries academic credit for the first quarter of English 123-124-125. (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50; MTWF IV and 1 hr. ar.; 205F.) Mr. Beach.
- 129su. Modern Drama. Contemporary drama from 1870 to the present. (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50; MTWThF III; 204F.) Mr. Hillhouse.
- 135su. Spenser. *The Faerie Queen* and minor poems. (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50; MTWThF II; 305F.) Mr. Rice.
- 153su. Seventeenth-Century Lyrists. A study of the principal lyrists from 1603 to 1660. (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50; MTWThF III; 303F.) Mr. Dunn.
- 154su. American Novel. The history of the American novel from the beginning to the close of the nineteenth century. This course carries university credit for the first quarter of English 154-155. (3 cred.; jr., sr., grad.; prereq. 73-74 or 52-53; MTWThF I; 303F.) Mr. McDowell.
- 180su. Matthew Arnold. Studies in his poetry, and his criticism, literary and social. (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50; MTWF IV and 1 hr. ar.; 303F.) Mr. Rice.
- 185su. Studies in Defoe. Daniel Defoe; studies in his fiction, journalism, etc. (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50; MTWThF III; 302F.) Mr. Secord.

† English A-B-C or Composition 4-5-6 and 6 additional credits, or 10 credits in English 21-22-23.

COURSES IN COMPOSITION

- 4su. Freshman Composition. Practical training in the art of writing; the principles of structure, and analysis of specimens of good prose. This course carries university credit for the first quarter of Comp. 4-5-6. (3 cred.; all; prereq. placement test; MTWThF I; 302F.) Mr. Buckley.
- 5su. Freshman Composition. A continuation of Composition 4. This course carries university credit for the second quarter of Composition 4-5-6. (3 cred.; all; prereq. Comp. 4; MTWThF II; 302F.) Mr. Clark.
- 27su. Advanced Writing. The writing of essays with emphasis on structure and organization. Instruction largely in individual conference. (3 cred.; soph., jr., sr.; prereq. Eng. A-B-C or Comp. 4-5-6 or exemption from requirement; MTWThF III; 304F.) Mr. Bouvier.
- 28su. Advanced Writing. Informal writing, involving description and narration. Instruction largely in individual conference. (3 cred.; soph., jr., sr.; prereq. Eng. A-B-C or Comp. 4-5-6 or exemption from requirement; MTWThF II; 304F.) Mr. Buckley.
- 101su. Creative Writing. Open to students qualified, in the instructor's opinion, to undertake writing of (mainly) plays, short stories, and novels on the professional level. (3 cred.; sr., grad.; prereq. 9 cred. in Senior College courses in English or composition; MTWF IV and 1 hr. ar.; 304F.) Mr. Gray.

SECOND TERM

COURSES IN ENGLISH

- 55su. Shakespeare. The reading of *The Comedy of Errors*, *The Two Gentlemen of Verona*, *The Taming of the Shrew*, *The Merchant of Venice*, *Much Ado about Nothing*, *Twelfth Night*, with collateral reading. *Midsummer Night's Dream*, *The Tempest*, to be read independently. (3 cred.; jr., sr.; prereq.†; MTWThF III; 205F.) Miss Christie.
- 73su. American Literature. This course carries university credit for the first quarter of English 73-74. (3 cred.; jr., sr.; prereq.†; MTWThF III; 204F.) Mr. Flanagan.
- 110su. Romantic Poets. The romantic poets of the nineteenth century (Byron, Shelley, Keats). This course carries university credit for the second quarter of English 109-110. (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50; MTWThF II; 303F.) Mr. Nichols.
- 126su. Drama, 1660-1730. This course carries university credit for the first quarter of English 126-127. (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50; MTWThF III; 303F.) Miss Jackson.
- 151su. Recent Poetry. Poetry in England and America since the death of Queen Victoria. The main tradition and tendencies now prevailing. (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50; MTWF IV and Th V; 303F.) Miss Jackson.
- 156su. American Drama. A survey of American drama in the eighteenth and nineteenth centuries. (3 cred.; jr., sr., grad.; prereq. 73-74 and 6 cred. above 50; MTWThF I; 303F.) Mr. Nichols.

† English A-B-C or Composition 4-5-6 and 6 additional credits, or 10 credits in English 21-22-23.

COURSES IN COMPOSITION

- 5su. Freshman Composition. A continuation of Composition 4. This course carries university credit for the second quarter of Composition 4-5-6. (3 cred.; all; prereq. Comp 4; MTWThF II; 302F.) Miss Christie.
- 6su. Freshman Composition. A continuation of Composition 5. This course carries university credit for the third quarter of Composition 4-5-6. (3 cred.; all; prereq. Comp. 4-5; MTWF IV and 1 hr. ar.; 302F.) Mr. Flanagan.
- 27su. Advanced Writing. The writing of essays with emphasis on structure and organization. Instruction largely in individual conference. (3 cred.; soph., jr., sr.; prereq. Eng. A-B-C or Comp. 4-5-6 or exemption from requirement; MTWThF III; 304F.) Mrs. Phelan.
- 29su. Advanced Writing. The nature of the writing is left as far as possible to the choice of the students. The instructor will divide the class into several groups according to the types of writing students wish to do. (3 cred.; all; prereq. 27; MTWF IV and 1 hr. ar.; 304F.) Mrs. Phelan.

FINE ARTS

FIRST TERM

- 1su. Introduction to Art. An introductory course in the history and appreciation of art, dealing essentially with modern painting, sculpture, and architecture. In the study of the various styles, particular emphasis will be placed upon the many art facilities available in the Twin Cities, such as the important architectural monuments of St. Paul and Minneapolis, the art collections of the Minneapolis Institute of Arts, the Walker Art Galleries, and the St. Paul Art Gallery. The material offered in this course corresponds to that of Fine Arts 1f, given during the regular academic year. (3 cred.; no prereq.; MTWThF II; 2J.) Mr. Pickens.
- 154su. Italian Painting of the Renaissance. A course for advanced students of art, history, or literature, dealing with the great painters of the Italian Renaissance from Masaccio to Leonardo da Vinci, Raphael, Michelangelo, and Titian. Problems of technique and style as well as the literary and historical relationships will be studied with each of the important artists. (3 cred.; prereq. Fine Arts 1, 2, 3 or equiv., or consent of instructor; MTWF IV and 1 hr. ar.; 2J.) Mr. Pickens.

GEOGRAPHY

FIRST TERM

- 41su. Geography of Commercial Production. A study of the major commodities which enter into world trade and the geographic basis for their production. (5 cred.; soph., jr., sr.; no prereq., 11 recommended; MTWThF I-II; 150Ph.) Mr. Dicken.
- 71su. Geography of North America. A consideration of environmental conditions and their limiting effect on economic activities in the major geographic regions of the United States and Canada. (3 cred.; jr., sr.; prereq. 11; MTWThF I; 103Bu.) Mr. Davis.
- 101su.* Geography of Europe. A study of the major geographic regions of Europe with particular emphasis on economic activities and urban development. (3 cred.; jr., sr., grad.; prereq. 8 cred.; MTWThF III; 103Bu.) Mr. Blanchard.

- 102su.* Trade Routes and Trade Centers. A study of the major land and water trade routes of the world and of the centers upon which they focus. (3 cred.; jr., sr., grad.; prereq. 41; MTWF IV and 1 hr. ar.; 103Bu.) Mr. Blanchard.
- 120su.* Geography of Asia. A study of the geographic background for the economic activities of Asia, with special emphasis on China, India, and Japan. (3 cred.; jr., sr., grad.; prereq. 10 cred.; MTWThF II; 103Bu.) Mr. Davis.

SECOND TERM

- 11su. Human Geography. A study of the factors of the physical environment and their effect on human activities. (5 cred.; 3rd qtr. fr., soph., jr., sr.; no prereq.; MTWThF I-II; 103Bu.) Mr. Brown.

GEOLOGY

FIRST TERM

- 1su. General Geology. (Dynamic processes and their results.) A study of minerals, rocks, structures, and earth processes. Lectures supplemented by laboratory work and field excursions. (5 cred.; all; no prereq.; MTWThF I-II; 110P.) Mr. Stauffer.
- 85su. Field Work in Northern Minnesota, July 15 to 29. (3 cred.; jr., sr.; prereq. 2, 3.) Mr. Gruner, Mr. Thiel.

THIRD TERM

- 150su. Field Geology (Black Hills of South Dakota), September 1 to 28. Only the first 15 days are in the summer school, and a student may either take all of the field work or only this portion. (6 cred. for whole course; jr., sr., grad.; prereq. Geol. 125.) Mr. Schwartz.

GERMAN

FIRST TERM

- 1su. Beginning A. (5 cred.; all; no prereq.; MTWThF I-II; 209½F.) Mr. Burkhard.
- 3su. Beginning C. (5 cred.; all; prereq. 2 or two yrs. high school German; MTWThF I-II; 207F.) Mr. Holske.
- 146su.* The Classical Period (1740-1775). (3 cred.; sr., grad.; prereq. 121 and 11 cred. above 60; TF III-IV; 212F.) Mr. Holske.
- 156su.* The Contemporary Novelle. (3 cred.; sr., grad.; prereq. 122 and 11 cred. above 60; MW III-IV; 209F.) Mr. Burkhard.

SECOND TERM

- 2su. Beginning B. (5 cred.; all; prereq. 1 or one year high school German; MTWThF I-II; 209½F.) Mr. Prottengeier.

HISTORY

FIRST TERM

- 2su. European Civilization. Part II of freshman survey, from the French Revolution. This is Part II of History 1-2, not of the present 1-2-3 announced in the Combined Class Schedule. (5 cred.; all; no prereq.; MTWThF I-II; 211Bu.) Mrs. Tyler.

- 20su. American History (formerly Hist. 7). Part I of general survey. (3 cred.; soph., jr., sr.; no prereq.; MTWThF II; 221Bu.) Mr. Shippee.
- 50su. Ancient Orient and Greece to 200 B.C. (3 cred.; jr., sr.; no prereq.; MTWThF III; 211Bu.) Mr. Jones.
- 65su. Twentieth-Century Europe. (3 cred.; jr., sr.; no prereq.; MTWThF I; 111Bu.) Mr. Deutsch.
- 70su. English Constitutional History. Survey of legal and political institutions. This course is designed in condensed form to meet the prelegal requirement and will be accepted by the Law School as satisfying its requirements from those who are unable to present the regularly prescribed course. (5 cred.; prelegal soph. with at least C average in Hist. 4-5-6 or Hist. 1-2; jr., sr.; no prereq.; MTWThF I-II; 109F.) Mr. Ross.
- 84su. American Economic History. The middle period. (3 cred.; jr., sr.; no prereq.; MTWThF III; 221Bu.) Mr. Loehr.
- 87su. American Colonies in the Seventeenth Century. (3 cred.; jr., sr.; no prereq.; MTWThF III; 111Bu.) Mr. Osgood.
- 150su.* Selected Readings in Ancient History. Greek archeology. (3 cred.; sr., grad.; prereq. consent of instructor; MTWThF II; 112Bu.) Mr. Jones.
- 158su.* Readings in Twentieth-Century Europe. (3 cred.; sr., grad.; attend and do work of 65su, but register only for 158su; TTh VI-VII; 112Bu.) Mr. Deutsch.
- 183su.* Readings in American Economic History. (3 cred.; sr., grad.; prereq. consent of instructor; MTh VII-VIII; 111Bu.) Mr. Loehr.
- 190su.* Readings in American History after 1815. (3 cred.; sr., grad.; prereq. college course in American history survey; MTh VII-VIII; 221Bu.) Mr. Shippee.
- 192su.* Readings in American West after 1865. (3 cred.; sr., grad.; prereq. see 190su; TF VII-VIII; 221Bu.) Mr. Osgood.

SECOND TERM

- 21su. American History (formerly Hist. 8). Second part of general survey. (3 cred.; soph., jr., sr.; no prereq.; MTWThF II; 211Bu.) Mr. Stephenson.
- 60su. Europe 1848-1871. (3 cred.; jr., sr.; no prereq.; MTWThF III; 111Bu.) Mr. Steefel.
- 64su. European Expansion. Nineteenth-century imperialism. (3 cred.; jr., sr.; no prereq.; MTWThF II; 112Bu.) Mr. Willson.
- 68su. Recent American History. United States after 1900. (3 cred.; jr., sr.; no prereq.; MTWThF III; 221Bu.) Mr. Stephenson.
- 157su.* Readings in Nineteenth-Century Europe. (3 cred.; sr., grad.; prereq. 59-60-61; MTh VII-VIII; 112Bu.) Mr. Steefel.
- 158su.* Readings in Twentieth-Century Europe. (3 cred.; sr., grad.; prereq. 65-66; TTh VI-VII; 111Bu.) Mr. Deutsch.
- 172su.* Readings in Nineteenth-Century England. (3 cred.; sr., grad.; prereq. consent of instructor; TF VII-VIII; 221Bu.) Mr. Willson.
- 190su.* Readings in Latin American History. (3 cred.; sr., grad.; prereq. consent of instructor; MTWThF II; 111Bu.) Mr. Jones.

JOURNALISM

Fees.—Students registered for any journalism course are required to pay a general fee of \$1 a quarter, regardless of the number of courses pursued.

FIRST TERM

- 13su. Introduction to Reporting. Lectures, practice, and conferences. Practical instruction in news gathering; news analysis, news sources, and problems of the reporter. Some attention will be paid to news presentation. (3 cred.; soph., jr., sr. with average of C; prereq. Eng. A-B-C or Comp. 4-5-6 or exemption from English requirement; MTWThF I; 212MurH.) Mr. Kildow.
- 68su. Problems in Radio Writing. Practical study and assignments in the various fields of radio writing: radio news, advertising, dramatic scripts, education, etc. Study of the radio audience, analyses of audience reactions. Program planning, etc. (3 cred.; jr., sr.; prereq. a course in reporting and consent of instructor; MTWThF II; 302MurH.) Mr. Charnley.
- 73su. Magazine Writing and Editing. Lectures and conferences. Practice in production of nonfiction articles for periodicals, general and specialized, and newspapers; instruction in magazine editing. (3 cred.; jr., sr.; prereq. 11, 15, or 41 or consent of instructor; MTWF IV and 1 hr. ar.; 206MurH.) Mr. Charnley.
- 82su. Supervision of School Publications. Practical consideration of problems facing supervisors of high school newspapers, magazines, yearbooks. (3 cred.; jr., sr.; prereq. consent of instructor; MTWThF II; 311MurH.) Mr. Kildow.
- 112su.* Current Newspaper Problems. Important problems of the press that have arisen out of contemporary economic and social changes and the nature of the present-day reading public. The relationship of news and editorial content to a newspaper's own environmental setting, its ownership and management, the character of its competition, and its advertising and circulation problem. (3 cred.; jr., sr., grad.; prereq. 109-110 or 111 or consent of instructor; MTWF IV and 1 hr. ar.; 311MurH.) Mr. Casey.
- 133su.* Propaganda and Censorship in the Modern World. Propaganda activities of governments (in peace and war), economic groups, political parties, and other groups seeking to control mass behavior by symbolic stimuli. Techniques useful in analyzing propaganda. Censorship controls. (3 cred.; jr., sr., grad.; no prereq.; MTWThF III; 311MurH.) Mr. Casey.
- 210su.* Research in Newspaper Problems. Individual research in either historical or contemporary phases of newspaper, periodical, or advertising fields. (2 or 3 cred.; seminar for graduate students; prereq. consent of department; hrs. ar.; 405MurH.) Mr. Casey.

SECOND TERM

- 113su.* The Press and Foreign Affairs. International affairs and the reporting and interpretation of world news by the American and foreign press. Channels of international news communication and the great press associations. (3 cred.; jr., sr., grad.; no prereq.; MTWThF II; 311MurH.) Mr. Nafziger.

MATHEMATICS

FIRST TERM

- 1su. Higher Algebra. A collegiate treatment of the topics of elementary algebra for those who have had one year of elementary algebra. (5 cred.; all; prereq. 1 yr. of elementary algebra in high school; open for credit to any student offering less than one year of *advanced* high school algebra for entrance credit; MTWThF I-II; 105F.) Miss Martin.
- 6su. Trigonometry. A treatment of logarithms and plane trigonometry. (5 cred.;

- all; prereq. 1 or high school higher algebra; open for credit to students with high school trigonometry; MTWThF I-II; 102F.) Mr. McEwen.
- 7su. College Algebra. Selected topics in algebra commencing with quadratic equations and extending through the theory of equations and determinants, omitting logarithms. (5 cred.; all; prereq. 1 or high school higher algebra; MTWF III-IV, Th III, V; 105F.) Mr. Koehler, Miss Martin.
- 50su. Calculus I. Differential calculus. (5 cred.; jr., sr.; prereq. 30; MTWF III-IV, Th III, V; 104F.) Miss Carlson, Mr. McEwen.
- 90su. Selected Topics in Senior College Mathematics. A course open to properly qualified juniors and seniors, who will be guided through conferences in the study of assigned topics. In particular an opportunity will be given to take one of the two courses, Synthetic Metric Geometry (60su.) or Introduction to the Theory of Equations (62su.). (3 or 6 cred.; jr., sr.; prereq. 30; ar.) Mr. Underhill, Miss Carlson, Mr. Koehler.
- 106su. Differential Equations. A first course in differential equations with emphasis on their applications in physics and geometry. (3 cred.; jr., sr., grad.; prereq. 51; MTWThF I; 101F.) Mr. Underhill.
- 110su.* Selected Topics in Advanced Mathematics. An intensive course open to juniors, seniors, and graduates who will be guided through conferences in the study of assigned topics. In particular, the content of advanced calculus will be available for properly prepared students. (3 or 6 cred.; jr., sr., grad.; prereq. 51; ar.) Mr. Jackson, Mr. Underhill, Miss Carlson.
- 131su.* Advanced Algebraic Theory. A study of the properties of polynomials, determinants, matrices, linear transformations, and quadratic forms, based on Bocher's *Introduction to Higher Algebra*. (3 cred.; jr., sr., grad.; prereq. 51; MTWThF II; 104F.) Mr. Jackson.
- 139su.* Limits and Series. The analytical theory of limits with applications to infinite series. (3 cred.; jr., sr., grad.; prereq. 51; MTWF IV, Th V; 101F.) Mr. Jackson.
- 140su.* Projective Geometry. The elementary projective forms and operations, the principle of duality, the theorems of Desargues, Pascal, and Brianchon with applications, and other topics. (3 cred.; jr., sr., grad.; prereq. 51; MTWThF II; 101F.) Miss Carlson.

SECOND TERM

- 6su. Trigonometry. Treatment of logarithms and plane trigonometry. (5 cred.; all; prereq. 1 or high school higher algebra; MTWThF I-II; 105F.) Mr. Swanson.
- 51su. Calculus II. Integral calculus. (5 cred.; jr., sr.; prereq. 50; MTWF III-IV, Th III, V; 104F.) Mr. Campaigne, Mr. Swanson.
- 90su. Selected Topics in Senior College Mathematics. See description under first term. Miss Gibbens, Mr. Campaigne.
- 110su.* Selected Topics in Advanced Mathematics. See description under first term. Miss Gibbens.

MUSIC†

FIRST TERM

- 1su. Ear Training. (2 cred.; all; no prereq.; MTWThF II; 103Mu.) Miss Kendall.

† These courses, for which no special fee is indicated, may be taken by Summer Session students on payment of the regular Summer Session fee. Students who pay as much as \$25 per term for special music fees may enroll for other courses in any department of the Summer Session for an additional fee of \$19 per term, making a total of \$44 for general and special fees. All students who register for either the general courses or the special courses must pay the \$2 deposit.

- 4su. Harmony. (3 cred.; all; no prereq.; MTWF IV; 103Mu.) Mr. Jennings.
- 11su. Piano. Two lessons a week. Fee \$25. (2 cred.; ar.; Mu.) Miss Kendall, Mr. Stephens.
- 11asu. Piano Class. Fee \$25. (2 cred.; prereq. consent of director of music; ar.; Mu.) Mrs. Eunice Norton Lewis.
- 12su. Voice. Two lessons a week. Fee \$25. (2 cred.; ar.; Mu.) Mr. Killeen, Miss Hull.
- 13-26su. Instruments of the Orchestra. Two lessons a week. Fee \$25. (2 cred.; ar.; Mu.) Ar.
- 27su. Organ. Two lessons a week. Fee \$25. (2 cred.; ar.; Mu.) Mr. Jennings.
- 31su. Music Appreciation. Cultivation of better understanding of music heard today. The course is designed for students with a general interest in music rather than for those majoring in music. (2 cred.; ar.; no prereq.; MTWTh VI; 104Mu.) Mr. Killeen.
- 35su. History of Music. (2 cred.; no prereq.; MTWThF III; 103Mu.) Mr. Ferguson.
- 43su. Chorus. (1 cred.; prereq. consent of instructor; T 7:00-9:00 p.m.; 5NMA.) (The summer chorus will present *Tannhauser*, and rehearsal for this opera will constitute the work for the summer.) Mr. Killeen.
- 70su. Normal Piano. (2 cred.; prereq. two years piano; MTWThF I; 103Mu.) Miss Kendall.
- 200-201-202su. Basis of Musical Expression. (3 cred.; grad.; MTW VII-VIII; 104Mu.) Mr. Ferguson.
- 205-206-207su. Composition in Larger Forms. (3 cred.; grad.; ar.; Mu.) Mr. Ferguson.
- 209-210-211su. Advanced Topics in Musical Analysis. (3 cred.; grad.; MW IX, X, F VII, VIII; 104Mu.) Mr. Pepinsky.

PHILOSOPHY

FIRST TERM

- 1su. Problems of Philosophy. Introduction to the subject; the main fields of investigation; permanent problems; principal methods and schools of philosophy; historical and contemporary views. (3 cred.; soph., jr., sr.; no prereq.; MTWThF I; 322F.) Mr. Conger.
- 2su. Logic. A study of the difference between logical and fallacious reasoning; types of fallacies; the rules of a good definition; syllogisms; what constitutes proof; hypothesis; generalization; probability; evaluation. (3 cred.; soph., jr., sr.; no prereq.; MTWF IV and 1 hr. ar.; 322F.) Mr. Castell.
- 102su.* Philosophy of Religion. A survey of the chief current opinions (conservative, liberal, and radical) about religion—including supernaturalism, idealism, pragmatism, evolutionism, naturalism, humanism. Supporting arguments and criticisms of each, with an attempt at constructive interpretation. (3 cred.; jr., sr., grad.; prereq. 6 cred.; MTWThF II; 322F.) Mr. Conger.
- 108su. Philosophy in Modern Literature. An exposition of ideas which have entered into recent and contemporary imaginative literature (poetry, drama, fiction); reference to Schopenhauer, Marx, Darwin, Freud, Tolstoy, Nietzsche, Bergson. (3 cred.; jr., sr., grad.; no prereq.; MTWThF III; 322F.) Mr. Castell.

SECOND TERM

- 3su. Ethics. Problems of life treated in terms of (1) contemporary social, political, and economic forces and (2) the character of the individual; the psychological and philosophical foundations of morality; the reconstruction of morality; the history of morals and ethical thought. (3 cred.; soph., jr., sr.; no prereq.; MTWThF II; 322F.) Mr. Everett.
- 20su. Social Philosophy. A study of conflicting social philosophies of today; liberalism versus authoritarianism; evaluation of various social, political, and economic institutions in terms of ethical ideals; other problems of social morality; social reconstruction; social utopias. (3 cred.; soph., jr., sr.; no prereq.; MTWThF III; 322F.) Mr. Everett.

PHYSICS

FIRST TERM

- 1-2-3su. Introduction to Physical Science, Part I. Lectures and experimental demonstrations. ($4\frac{1}{2}$ cred.; all; prereq. high school algebra and plane geometry; lect. MWThF I,II, T I; 166Ph.) Mr. Buchta.
- 1a-2a-3asu.‡‡ Introduction to Physical Science, Part I. Laboratory included. Fulfills group requirements in Science, Literature, and the Arts. (6 cred.; all; prereq. high school algebra and plane geometry; lect. MWThF I,II, T I, 166Ph; lab. TTh VI-VIII, 153Ph.) Mr. Buchta.
- 4su.‡ General Physics. Part I. (Primarily for premedical students.) Mechanics and heat. Laboratory included. (5 cred.; all; prereq. higher algebra and trigonometry; lect. and quiz MTWF III,IV, Th III, 166Ph; lab. MW VI,VII, 153Ph.) Mr. Nier.
- 6su.‡ General Physics, Part II. (Primarily for premedical students.) Electricity and modern physics. Laboratory included. (5 cred.; all; prereq. 4 or equiv.; lect. and quiz MTWF I,II, Th I, 133 Ph; lab. MW VIII,IX, 231Ph.) Mr. Hill.
- 7su.‡ General Physics, Part I. (Primarily for students in the Institute of Technology and those majoring in physics, mathematics, or chemistry.) Mechanics and heat. Laboratory included. (5 cred.; all; prereq. higher algebra and trigonometry; lect. and quiz MTWF III,IV, Th III, 166Ph; lab. MW VI-VII, 153Ph.) Mr. Nier.
- 8su.‡ General Physics, Part II. (Primarily for students in the Institute of Technology and those majoring in physics, mathematics, or chemistry.) Electricity and modern physics. Laboratory included. (5 cred.; all; prereq. 7 or equiv.; lect. and quiz MTWF I,II, Th I, 133Ph; lab. MW VIII,IX, 231Ph.) Mr. Hill.
- 101Asu. Analytical Mechanics. Statics and dynamics. Problems involving rigid bodies. (3 cred.; jr., sr., grad.; prereq. a general course in college physics, Math. 51; MTWF IV, Th V; 145Ph.) Mr. Hill.
- 114su.* Elementary Physical Investigation. The experimental or theoretical study of physical phenomena, the nature or laws of which are not as yet fully understood. (3 cred.; jr., sr., grad.; prereq. 144, Math. 51; ar.) Mr. Buchta, Mr. Hill, Mr. Nier.
- 145su.‡ Physics of Vacuum Tubes. Fundamentals of thermionics, principles and applications of vacuum tubes. (3 cred.; prereq. a general course in college physics; lect. MWF VI, lab. TTh VI-VII; 232Ph.) Mr. Nier.

‡ A fee of \$2 is charged for this course.

‡‡ A fee of \$3 is charged for this course.

151su. Demonstrations in Physics. Same as Ed.C.I.106. Materials and apparatus for demonstrations in high school classes. Evaluation of procedures. (3 cred.; jr., sr., grad.; prereq. a general course in college physics; lect. MTWF IV, Th V; 133Ph.) Mr. Buchta.

SECOND TERM

1-2-3su. Introduction to Physical Science, Part II. Lectures and experimental demonstrations. (4½ cred.; all; prereq. 1-2-3su, Part I or equiv.; lect. MWThF I,II, T I; 166Ph.) Mr. Bardeen.

1a-2a-3asu.†† Introduction to Physical Science, Part II. Laboratory included. Fulfills group requirements in Science, Literature, and the Arts. (6 cred.; all; prereq. 1a-2a-3asu Part I or equiv.; lect. MWThF I,II, T I, 166 Ph; lab. TTh VI-VIII, 153Ph.) Mr. Bardeen.

5su.‡ General Physics, Part II. (Primarily for premedical students.) Optics and acoustics. Laboratory included. (5 cred.; all; prereq. 4 or equiv.; lect. and quiz MTWF I,II, Th I, 133Ph.; lab. MW VIII,IX, 352Ph.) Mr. Rumbaugh.

9su.‡ General Physics, Part III. (Primarily for students in the Institute of Technology and those majoring in physics, mathematics, or chemistry.) Optics and acoustics. Laboratory included. (5 cred.; all; prereq. 8 or equiv.; lect. and quiz MTWF I,II, Th I, 133Ph.; lab. MW VIII-IX, 352Ph.) Mr. Rumbaugh.

35su. Principles of Photography. The course will deal with lenses, their speed, corrections, and other characteristics, the characteristics of films and papers, and the photographic process in general. (3 cred.; all; prereq. high school physics; lect. MTWF IV, Th V; 166Ph.) Mr. Valasek.

116su.* Elementary Physical Investigation. The experimental or theoretical study of physical phenomena, the nature or laws of which are not as yet fully understood. (3 cred.; jr., sr., grad.; prereq. 144, Math. 51; ar.) Mr. Rumbaugh, Mr. Valasek, Mr. Bardeen.

117su. History of Physics. A survey of the growth of the physical sciences from ancient to modern times; the relation of scientific thought to the development of civilization. (3 cred.; jr., sr., grad.; prereq. a general course in physics; lect. MTWThF VI; 133Ph.) Mr. Rumbaugh.

121su. Kinetic Theory of Gases. Velocity distribution, viscosity, thermal conduction, diffusion, and the equation of state. A brief introduction to statistical mechanics. (3 cred.; jr., sr., grad.; prereq. a general course in physics, Math. 51; MTWF IV, Th V; 145Ph.) Mr. Bardeen.

134su.*† Experimental Optics. Measurement of indices of refraction, wave lengths, intensities, absorption, optical activity, focal lengths, and aberrations of lenses. (3 cred.; jr., sr., grad.; prereq. a general course in physics; lab. MWF VI-IX; 348Ph.) Mr. Valasek.

POLITICAL SCIENCE

FIRST TERM

1su. American Government and Politics. (Part 1 of Political Science 1-2.) The historical development of American political institutions; general organization and structure of American government at all levels; nature and growth of the Constitution; citizenship and private rights; parties; public opinion; nomina-

‡ A fee of \$2 is charged for this course.

†† A fee of \$3 is charged for this course.

- tions and elections. (3 cred.; all; no prereq.; MTWThF I; 112Bu.) Mr. Kirkpatrick.
- 2su. American Government and Politics. (Part 2 of Political Science 1-2.) An examination of the constitutional position of legislative bodies in the United States; their powers and procedure; the office of the American executive; administrative organization and problems; the civil service; the role and function of the courts. (3 cred.; all; prereq. 1 or consent of instructor; MTWThF III; 112Bu.) Mr. Christensen.
- 25su. World Politics. An introduction to the field of contemporary international relations; the policies of the great powers today; nationalism; armaments; alliances; internationalism. (3 cred.; soph., jr., sr.; no prereq.; MTWThF II; 209Bu.) Mr. Mills.
- 108su. Legislative Organization and Procedure. A study of the structure and functioning of legislative bodies including such topics as bicameralism, the committee system, party leadership, the caucus, parliamentary procedure, limitations on debate, legislative councils, bill drafting bureaus, and reference services. (2 cred.; jr., sr., grad.; prereq. 9 cred. or consent of instructor; MTWF IV; 211Bu.) Mr. Short.
- 111su.* Recent Social Legislation. A survey of governmental activity in the field of social welfare and social security legislation; underlying principles and theory; the development of plans of social insurance abroad and in the United States; constitutional and administrative problems; a critical examination of the Social Security Act and the state laws adopted pursuant thereto. (3 cred.; jr., sr., grad.; prereq. 9 cred. or consent of instructor; MTWThF I; 209Bu.) Mr. Christensen.
- 120su. Municipal Functions. Description and analysis of major local services—police, fire, public works, utilities, parks and playgrounds, planning and zoning, welfare and relief, etc.; increase and decrease of functions; relations to state services. (3 cred.; jr., sr., grad.; prereq. 9 cred. or consent of instructor; MTWThF I; 314Lib.) Mr. Ludwig.
- 121su. Municipal Administration. Forms of administrative organization; personnel; purchasing; budgeting, accounting, and reporting; records and accounts; finance. (3 cred.; jr., sr., grad.; prereq. 9 cred. or consent of instructor; MTWThF III; 314Lib.) Mr. Ludwig.
- 161su. Recent Political Thought. An examination, comparison, and evaluation of the main ideas in the political philosophy of socialism, communism, fascism, and democracy. (3 cred.; jr., sr., grad.; prereq. 9 cred. or consent of instructor; MTWThF II; 111Bu.) Mr. Kirkpatrick.
- 195su. Colonial Government and the Problems of Imperialism. The motives and methods of colonial expansion; the benefits and losses to the colonizing power and to the subject races. Deals principally with the American, British, French, and German empires in the nineteenth and twentieth centuries, altho some attention will be paid to the earlier empires of Spain, Portugal, England, and Holland. (3 cred.; jr., sr., grad.; prereq. 9 cred. or consent of instructor; MTWThF III; 209Bu.) Mr. Mills.
- 254su.* Seminar in National and State Government and Administration. (2 cred.; grad., and sr. with consent of instructor; ar.; first meeting 12:00 noon first day of classes; 209Bu.) Mr. Short.
- 264su.* Seminar in Municipal Administration. (2 cred.; grad., and sr. with consent of instructor; ar.; first meeting 12:00 noon first day of classes; 16Lib.) Mr. Ludwig.

294su.* Seminar in Colonization and Imperialism. (2 cred.; grad., and sr. with consent of instructor; ar.; first meeting 12:00 noon first day of classes; 215Bu.) Mr. Mills.

SECOND TERM

- 15su. Elements of Political Science. The nature and functions of the state; sovereignty; liberty and authority; constitutions; forms of government. (3 cred.; all; prereq. 1 or consent of instructor; MTWThF II; 221Bu.) Mr. Cole.
- 101su. Constitutional Law. Constitutional amendments; national-state relations; national judiciary; powers of Congress; taxation; interstate commerce. (3 cred.; jr., sr., grad.; prereq. 9 cred. or consent of instructor; MTWF IV and 1 hr. ar.; 221Bu.) Mr. Cole.
- 144su. American Political Parties. The policies, composition, organization, activities, and functions of the political parties of today; suffrage, elections, and related subjects; evaluation of the political party as a force in American government. (3 cred.; jr., sr., grad.; prereq. 9 cred. or consent of instructor; MTWThF III; 112Bu.) Mr. Starr.
- 148su. European Dictatorships. Description and evaluation of contemporary absolute government, especially in Soviet Russia, Italy, and Germany; organization and policies of dominant parties. (3 cred.; jr., sr., grad.; prereq. 9 cred. or consent of instructor; MTWThF I; 221Bu.) Mr. Starr.
- 251su.* Seminar in Constitutional and Administrative Law. (2 cred.; grad., and sr. with consent of instructor; ar.; first meeting 12:00 noon first day of classes; 209Bu.) Mr. Cole.
- 271su.* Seminar in Comparative European Government and Parties. (2 cred.; grad., and sr. with consent of instructor; ar.; first meeting 12:00 noon first day of classes; 213Bu.) Mr. Starr.

PSYCHOLOGY

FIRST TERM

- 1-2su. General Psychology. An introductory survey of psychology; its material, fundamental laws, applications, and relations to other sciences. (6 cred.; soph., jr., sr.; no prereq.; MTWThF III, MTWF IV, Th V; 211Psy.) Mr. Baker.
- 3su. Psychology Applied to Daily Life. The applications of psychology to selected problems in medicine, law, education, sociology, and daily life. (3 cred.; soph., jr., sr.; prereq. gen. psy.; MTWF IV, Th V; 115Psy.) Mr. Longstaff.
- 4-5su.†† Introduction to Laboratory Psychology. Simple experiments providing illustrative material and training in the methods of laboratory psychology. (4 cred.; soph., jr., sr.; prereq. gen. psy.; MTWThF VI, VII, VIII; 211Psy.) Mr. Hackman.
- 105su. Psychology of Art and Music. Analysis of the production and enjoyment of works of art from the standpoint of psychology, with emphasis on experimental data. (3 cred.; jr., sr., grad.; prereq. gen. psy.; MTWF IV, Th V; 109Psy.) Mr. Skinner.
- 136su. Psychology of Motivation and Conflict. A study of the motives which underlie normal human behavior and the forms of adjustment or maladjustment which arise when motives conflict or encounter external frustration. Parallel observations in the field of animal behavior will be considered. (3 cred.; jr., sr., grad.; prereq. gen. psy.; MTWThF II; 115Psy.) Mr. Skinner.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

†† A fee of \$2 is charged for this course.

160su. Psychology in Personnel Work. Psychology as applied to the selection and retention of a stabilized personnel. The standardized interview; principles and technique of employment tests; methods of judging character qualities; the rating scale; personnel classification methods. (3 cred.; jr., sr., grad.; prereq. gen. psy.; MTWThF III; 115Psy.) Mr. Longstaff.

SECOND TERM

- 1-2su. General Psychology. See 1-2su under first term. (6 cred.; soph., jr., sr.; no prereq.; MTWThF III, MTWF IV, Th V; 211Psy.) Mr. Tinker.
- 117su. Points of View and Systems in Contemporary Psychology. A comparative study of the problems, methods, and points of view of modern psychology. This course is planned for two groups of students: (1) those who have studied psychology several years ago and wish to bring their knowledge up to date; (2) those who have taken a first year course in psychology recently and, without intending to become professional psychologists, wish to become better acquainted with such current points of view as behaviorism, psychoanalysis, Gestalt psychology, etc. (3 cred.; jr., sr., grad.; prereq. gen. psy.; MTWF IV, Th V; 115Psy.) Mr. Carlson.
- 140su. Social Psychology. A consideration of experimental approaches to the study of social behavior such as propaganda, leadership, competition and co-operation, formation and measurement of attitude, and the social significance of age. (3 cred.; jr., sr., grad.; prereq. gen. psy.; MTWThF I; 115Psy.) Mr. Carlson.
- 144-145su.† Abnormal Psychology. A survey of ideas of causation and of techniques of treating abnormal behavior from early historical times; special emphasis is put upon the care and treatment of the abnormal in America. Consideration of the various psychoses and psychoneuroses and of social problems related to them. (6 cred.; jr., sr., grad.; prereq. gen. psy.; MTWThF II-III; 115Psy.) Mr. Bird.

ROMANCE LANGUAGES

FIRST TERM

FRENCH

- 1su. Beginning French. Regular beginning course with special attention to the needs of those who desire a reading knowledge of French. (4 cred.; all; no prereq.; TWThF I-II; 202F.) Mr. Wilson.
- 54su. French Conversation and Phonetics. Equivalent to 54w. (2 cred.; jr., sr.; prereq. 3-4 or equiv.; TWThF II; 227F.) Miss Guinotte.
- 106su. French Syntax and Composition. Equivalent to 103f-104w-105s. Required of candidates for the Master's degree in French. (2 cred.; jr., sr., grad.; prereq. 63 or equiv.; TWThF I; 227F.) Miss Guinotte.
- 118su.* French Literature: Eighteenth Century—Bayle, Fontenelle, Montesquieu, Diderot. Equivalent to 118f. (2 cred.; jr., sr., grad.; prereq. 70-71-72 or 73-74 or equiv.; TWThF II; 201F.) Mr. Sirich.
- 121su.* French Literature: Sixteenth Century—Rabelais and Montaigne. (2 cred.; jr., sr., grad.; prereq. 70-71-72 or 73-74 or equiv.; TWThF III; 203F.) Mr. Searles.
- 147su.* Contemporary French Dramatic Literature. (2 cred.; jr., sr., grad.; prereq. 70-71-72 or 73-74 or equiv.; TWThF I; 203F.) Mr. Barton.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

- 156su. French Realistic Novel. (2 cred.; jr., sr., grad.; prereq. 70-71-72 or 73-74 or equiv.; TWThF III; 201F.) Mr. Barton.
- 165su. French Romanticism: Poetry. (2 cred.; jr., sr., grad.; prereq. 70-71-72 or 73-74 or equiv.; TWThF II; 203F.) Mr. LeCompte.
- 171su. History of the French Language. (2 cred.; jr., sr., grad.; prereq. 70-71-72 or 73-74 or equiv.; MTWF IV; 203F.) Mr. LeCompte.
- 259su.* Direction of Graduate Work. (Cred. ar.; grad.; hrs. ar.) Mr. Searles and others.

SPANISH

- 1su. Beginning Spanish. (4 cred.; all; no prereq.; TWThF III, MTWF IV; 202F.) Mr. Spiegel.
- 4su. Intermediate Spanish. Equivalent either to Span. 3 or Span. 4. (4 cred.; all; prereq. 3 or 2 with grade of C; TWThF III, MTWF IV; 226F.) Mr. Embry.
- 54su. Spanish Conversation. Equivalent to 54w. (2 cred.; jr., sr.; prereq. 3-4 or equiv.; TWThF II; 226F.) Mr. Grismer.
- 141su. Spanish American Literature. Contemporary prose fiction. (2 cred.; jr., sr., grad.; prereq. 68-69 or 74-75-76 or equiv.; TWThF I; 201F.) Mr. Grismer.
- 259su.* Direction of Graduate Work. (Cred. ar.; grad.; hrs. ar.) Mr. Grismer.

SECOND TERM

FRENCH

- 1su. Beginning French. See 1su, first term. (4 cred.; all; no prereq.; TWThF I-II; 201F.) Mr. Clefton.
- 130su. French Romantic Poetry: Victor Hugo. (2 cred.; jr., sr., grad.; prereq. 70-71-72 or 73-74 or equiv.; TWThF III; 201F.) Mr. Clefton.
- 259su.* Direction of Graduate Work. (Cred. ar.; grad.; hrs. ar.) Mr. Clefton.

SPANISH

- 1su. Beginning Spanish. (4 cred.; all; no prereq.; TWThF I-II; 202F.) Mr. Grismer.
- 259su.* Direction of Graduate Work. (Cred. ar.; grad.; hrs. ar.) Mr. Grismer.

SCANDINAVIAN

FIRST TERM

- 161su. The Modern Scandinavian Novel. Lectures on the general tendencies in thought and literature in the Scandinavian countries in the late nineteenth and twentieth centuries, followed by a more intensive examination into the techniques and ideas of characteristic Scandinavian novelists, including Jacobsen, Lie, Kielland, Garborg, Selma Lagerlöf, Heidenstam, Hamsun, and Sigrid Undset. Required reading available in English translation. (2 cred.; jr., sr., grad.; prereq. Scand. 4-5-6 or 10-11-12 or 51-52 or 8 cred. in literature; MTWThF III; 206F.) Mr. Gustafson.
- 171su. The Modern Scandinavian Drama. Lectures on the general background of the Scandinavian drama and the development of characteristic dramatic forms and tendencies as represented in Ibsen, Björnson, Strindberg, and others. Classroom discussion of particular representative plays. Required reading available in English translation. (2 cred.; jr., sr., grad.; prereq. Scand. 4-5-6 or 10-11-12 or 51-52 or 8 cred. in literature; MTWThF V; 206F.) Mr. Gustafson.

SOCIOLOGY AND SOCIAL WORK

FIRST TERM

SOCIOLOGY

- 1su. Introduction to Sociology. An objective analysis of culture with special attention to social change. Survey of culture patterns, cultural processes, and social interaction. (3 cred.; 3rd qtr. fr., soph., jr., sr.; no prereq.; Sec. 1, MTWThF I, 109J, Mr. McVoy; Sec. 2, MTWThF II, 6F, Mr. McVoy; Sec. 3, MTWThF III, 104J, Mr. Quackenbush.)
- 6su. Social Interaction. The basis and forms of social interaction and social relationships, with detailed attention to patterns of contemporary society. (3 cred.; soph., jr., sr.; prereq. Soc. 1; MTWThF II; 104J.) Mr. Folsom.
- 14su. Rural Sociology. A study of rural and urban relationships. The position of an agricultural class in an industrial society. (3 cred.; soph., jr., sr.; prereq. Soc. 1; MTWThF III; 2J.) Mr. Nelson.
- 53su. Elements of Criminology. The causes and treatment of crime from the point of view of processes of social interaction. (3 cred.; jr., sr.; prereq. 10 cred. in soc. or Soc. 1 and 10 cred. in soc. sci. or psy.; MTWThF II; 109J.) Mr. Riemer.
- 105su. Criminological Theories—Historical and Contemporary. (3 cred.; jr., sr., grad.; prereq. 4 courses in soc. or Soc. 1 and 15 cred. in soc. sci., ed., phil., or psy., but including Soc. 53 or consent of instructor; MTWThF I; 104J.) Mr. Riemer.
- 114su. Rural Social Institutions. Study of the problems of organization of selected rural institutions, especially religious, educational, civic, and recreational. (3 cred.; jr., sr., grad.; prereq. 4 courses in soc. or Soc. 1 and 15 cred. in soc. sci., ed., phil., or psy.; MTWF IV and Th VI; 104J.) Mr. Nelson.
- 119su. The Family. The development of family unity or disunity; the roles of the several members of the family; methods of investigation. (3 cred.; jr., sr., grad.; prereq. same as for 114; MTWThF III; 109J.) Mr. Folsom.
- 147su. Group Leadership and Organization. This course is designed for volunteer and professional workers who are interested in group work for youth and adults in both rural and urban areas. Special emphasis will be given to problems of organization, sources of material, leadership, program planning, evaluation, and community relationships. Each student will be given an opportunity to devote a part of his time to the field of his special interest. (3 cred.; jr., sr., grad.; prereq. Soc. 146 or equiv.; MTWThF II; 10F.) Mrs. May.
- 200su.* General Seminar. (Ar.) Staff.

SOCIAL WORK

- 153‡-154‡-155‡su. Field Training in Case Work. (2 to 6 cred. per qtr. to be determined by the adviser in social work; grad.‡; prereq. Soc. Work 129; ar.) Mrs. Doyle, Miss Harney, Miss Pratt.
- 170su. Introductory Psychiatry (identical with Med. 130). A lecture course, includes a discussion of: mental hygiene; mental mechanisms; psychiatric history-taking; review of schools of psychiatry; classification of mental diseases. (3 cred.; grad.‡; no prereq.; MTWThF I; ar.) Dr. Hinckley.

† Primarily for graduate students, but mature students who are not graduates may be admitted with the consent of the adviser in social work.

‡ A fee of \$3.50 is charged for each course.

- 171su. Descriptive Neuropsychiatry (identical with Med. 131). A study of the general plan of the nervous system and its functions; a consideration of some of the more common functional and nervous system diseases. (3 cred.; grad.†; prereq. Soc. Work 170 or equiv.; MTWThF IX; ar.) Dr. Kamman.
- 173su. Behavior Problems (identical with C.W. 140). (3 cred.; grad.†; prereq. 12 cred. in psy., ed. psy., or soc.; MTWThF III; 202Pt.) Miss Goodenough.
- 200su.* General Seminar. One of the following will be made the focus of study: case recording, interviewing, supervision. (3 cred.; ar.) Mrs. Fenlason.
- 218su. Seminar in Family Case Work. Study of treatment methods in social case work; an analysis of case records; case presentation. (3 cred.; prereq. Soc. Work 129-130 or consent of instructor; MTWThF I; 2J.) Mrs. Fenlason.
- 221†-222†-223†su. Graduate Field Training. (Ar.) Mrs. Doyle.
- 236su.* Research Topics in Social Work. (Ar.) Staff.

SECOND TERM

SOCIOLOGY

- 1su. Introduction to Sociology. An objective analysis of culture with special attention to social change. Survey of culture patterns, cultural processes, and social interaction. (3 cred.; 3rd qtr. fr., soph., jr., sr.; no prereq.; Sec. 1, MTWThF I, 109J, Mr. Monachesi; Sec. 2, MTWThF III, 109J, Mr. Quackenbush.)
- 6su. Social Interaction. The basis and forms of social interaction and social relationships, with detailed attention to patterns of contemporary society. (3 cred.; soph., jr., sr.; prereq. Soc. 1; MTWThF II; 104J.) Mr. Quackenbush.
- 14su. Rural Sociology. A study of rural and urban relationships. The position of an agricultural class in an industrial society. (3 cred.; soph., jr., sr.; prereq. Soc. 1; MTWThF I; 6F.) Mr. Dinkel.
- 120su. Social Life and Cultural Change. A survey of some traditional concepts of change; critique of the problem of change and social organization. (3 cred.; jr., sr., grad.; prereq. 4 courses in soc. or Soc. 1 and 15 cred. in soc. sci., ed., phil., or psy.; MTWThF I; 104J.) Mr. Schneider.
- 132su. Juvenile Courts and Probation. The historical, legal, and social aspects of juvenile courts and probation. A critical survey of juvenile courts and probation work based upon a consideration of the nature of delinquent behavior; its "causes," its modification, and its prevention. (3 cred.; grad.†; prereq. Soc. 53, 102; MTWThF II; 109J.) Mr. Monachesi.
- 145su. Contemporary Sociological Theory. A survey of sociological theory from the French Revolution to the World War. Attention will be given to both the utopian and scientific aspects of modern sociological thought. (3 cred.; jr., sr., grad.; prereq. 4 courses in soc. or Soc. 1 and 15 cred. in soc. sci., ed., phil., or psy.; MTWThF III; 2J.) Mr. Schneider.
- 161su. Social Aspects of Housing and Standards of Living. An analysis of the housing of the masses in relation to the problems arising in urban overcrowding, population distribution, the standard of living as affected by the distribution of national income, and the factors related to personal and social disorganization. (3 cred.; sr., grad.; prereq. 4 courses in soc. or Soc. 1 and 15 cred. in soc. sci., ed., phil., or psy.; MTWF IV and Th VII; 109J.) Mr. Chapin.
- 200su.* General Seminar. (Ar.) Staff.

† Primarily for graduate students, but mature students who are not graduates may be admitted with the consent of the adviser in social work.

‡ A fee of \$3.50 is charged for each course.

SOCIAL WORK

- 138su. Case Work with Children. A course dealing with the problems of case work in children's agencies. (3 cred.; grad.†; prereq. Soc. Work 130, 153; MTWThF I; 2J.) Mrs. Shea.
- 153†-154†-155†su. Field Training in Case Work. (2 to 6 cred. per qtr. to be determined by the adviser in social work; grad.†; prereq. Soc. Work 129; ar.) Mrs. Shea, Miss Harney, Miss Pratt.
- 156†-157†-158†su. Field Training in Group Work. (2 to 6 cred. per qtr. to be determined by the adviser in social work; grad.†; prereq. Soc. Work 125; ar.) Miss Phillips.
- 197su. Administration of Social Work Agencies. (2 cred.; prereq. Soc. Work 109 and 129; MTW IX; 2J.) Mr. Greenstein.
- 199su. Community Organization. (2 cred.; prereq. Soc. Work 109 and 129; MTW II; 2J.) Mr. Greenstein.
- 200su.* General Seminar. One of the following will be made the focus of study: case recording, interviewing, supervision. (3 cred.; ar.) Mrs. Shea.
- 221†-222†-223†su. Graduate Field Training. (Ar.) Mrs. Shea, Miss Phillips.
- 236su.* Research Topics in Social Work. (Ar.) Staff.

SPEECH

FIRST TERM

- Speech Clinic.††† For students who have particular speech defects such as cleft palate, stuttering, lisping, dialect. (Ar. with director.) Mrs. Chapman, Miss Hull, Mr. Sailstad.
- 1su.†† Fundamentals of Speech. Speech as social adaptation and control. Emotional problems. Technique of body and voice. Oral reading. (3 cred.; soph., jr., sr.; prereq. Eng. A-B-C or Comp. 4-5-6 or exemption; MTWThF I, 301F; MTWThF VI, 308F.) Mr. Gilkinson.
- 2su.†† Fundamentals of Speech. Continuation of Course 1, above. (MTWThF III; 308F.) Ar.
- 31su.††† Introduction to the Theater. A course designed to acquaint the student with the theater of today. Readings and projects in various modern theater crafts. (3 cred.; prereq. 1-2-3 or 5-6 or concurrent registration; MTWThF I; 19Mu.) Mr. Whiting.
- 33su.††† Construction and Painting. Actual construction and painting of scene units. Knowledge and use of tools. Two lectures. (3 cred.; soph., jr., sr.; prereq. 31; MTWThF VII; MuAud.) Mr. Graham.
- 61su. Speech Hygiene. Speech correction as related to personality development. Introduction to the correction of speech disorders. Speech defects as symptoms of maladjustments and organic malformations. Literature of subject. (3 cred.; jr., sr.; prereq. 1-2-3 or 5-6; MTWThF II; 212F.) Mrs. Chapman.
- 65su.†† Radio Speech. Speech arts and psychology of the radio. Announcing and

† Primarily for graduate students, but mature students who are not graduates may be admitted with the consent of the adviser in social work.

‡ A fee of \$3.50 is charged for each course.

†† A fee of \$1 is charged for this course.

††† The clinic will accept a limited number of nonstudent patients on the payment of a fee of \$65 for a term of eight weeks.

†††† A fee of \$3 is charged for this course.

- broadcasting. The radio speech. Radio drama and interpretative reading, voice, diction, articulation, pronunciation. Practice, exercises, projects, and reports on problems of appeal and audience response. (3 cred.; jr., sr.; prereq. 1-2-3 or 5-6; MTWThF VI; 302MurH.) Mr. Ziebarth.
- 67su.‡‡ Phonetics. The study of English speech sounds as they occur separately and in connected speech. Strong and weak forms, stress, assimilation. Practice in ear training. (3 cred.; jr., sr.; prereq. 1-2-3 or 5-6; MTWThF VI; 305F.) Miss Mason.
- 77su.‡‡‡ Acting. Theory and technique. Lessons in imagination, concentration, relaxation, pantomime, and characterization. (3 cred.; jr., sr.; prereq. 1-2-3 or 5-6 and consent of instructor; MTWThF II; 19Mu.) Mr. Erekson.
- 81su.‡‡ Interpretative Reading. Esthetic theory of literature and of oral reading. Practice in reading for interpretation and mastery of technique. (3 cred.; jr., sr.; prereq. 1-2-3 or 5-6; MTWThF II; 308F.) Mr. Rarig.
- 93su.‡‡‡ Stagecraft: Costuming. Study of historical costumes and costume design; their relation to the history of the theater, the actor, and the director. Color and lighting problems are considered. (3 cred.; jr., sr.; prereq. 31-32-33; MTWThF VI; 18Mu.) Mr. Newgord.
- 101-102su.† Persuasion. Psychology of persuasion. Survey of experimental literature. Critical study of models. Structure and oral style. Written speeches. Reports. (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6 and Psy. 1-2; MTWThF III; 311F.) Mr. Rarig.
- 105su.* Theory of Reading and Acting. Literature as an art; its various forms; the psychology of the creative imagination; speech elements in literature; origins and nature of speech symbols and technique of their use. Collateral readings, problems, reports, term papers. (3 cred.; prereq. 1-2-3 or 5-6, 81-82-83, Psy. 1-2; MTWThF I; 308F.) Mr. Rarig.
- 109su. Lip Reading. The theoretical and practical factors involved in visual comprehension of oral speech. Lectures, discussion, demonstrations, designed to acquaint teachers, clinical psychologists, speech pathologists, nurses, physicians, etc., with the educational, psychological, and social problems resulting from deafness. Recent research in these problems. Laboratory experiments and clinical experience. (3 cred.; sr., grad.; prereq. 1-2-3 or 5-6 and permission of instructor; MTWThF I; 321F.) Miss Mason.
- 112su.‡‡‡ Stage Direction (Rehearsals). Director-actor relationship, blocking, and motivation. Presentation of two one-act plays. (3 cred.; prereq. 111, or consent of instructor; MTWThF III; 19Mu.) Mr. Lees.
- 115su. Playwriting (the one-act play). Theory and practice in writing one-act plays. Daily writing assignments in dialog and scenarios. (1 to 3 cred.; prereq. 31-32-33; MTWThF I; 18Mu.) Mr. Lees.
- 121su.‡‡ Advanced Speech Problems. Introduction to research; fields and methods of study; reports of research are reviewed; emphasis on psychology of speech; projects, reports. (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6, and Psy. 1-2; MTWThF II; 409F.) Mr. Gilkinson.
- 131su.‡‡ Community Dramatics (Children's Theater). The cultural values of com-

† Students may register for either quarter.

‡‡ A fee of \$1 is charged for this course.

‡‡‡ A fee of \$3 is charged for this course.

munity and children's theaters. Dramatic educational and critical literature of the field. Specimen projects, reports, term papers. (3 cred.; sr., grad.; prereq. 91-92-93, and 111-112-113, or permission of instructor; MTWF IV and 1 hr. ar.; 19Mu.) Mr. Lees, Mr. Graham.

NOTE.—By permission of the instructor, children not over 15 may be registered for participation in this course on payment of a fee of \$15.

- 151su.§ The Teaching of Speech. Orientation in problems of speech education. Review of studies. Teaching methods and special devices, voice recording, tests. Direction of extra-curricular activities. (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6 or equiv., or permission of instructor; MTWThF III; 301F.) Mr. Gilkinson.
- 163su.‡ Speech Pathology. Physiological and psychological aspects of organic and functional speech problems. Articulatory disorders. Diagnoses and treatment. Clinical observation. (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6 and 61, 67; MTWF IV and 1 hr. ar.; 406F.) Mr. Brown.
- 164-165-166su.¶ Clinical Methods and Practice in Speech Pathology. (9 cred.; sr., grad.; prereq. 1-2-3 or 5-6, and 61, 67, 162-163, Ed.Psy. 140-142; consult instructor; MWF III and other hrs. ar.; 406F.) Mr. Brown.
- 172su.* History of the Theater. A survey of the Renaissance and eighteenth-century theater. Projects and reports of research in the crafts of the theater, costuming, theater construction, and acting. (3 cred.; prereq. 31-32-33; MTWThF II; 18Mu.) Mr. Lees.
- 181su.* Readings in Speech. Directed reading and the preparation of reports on selected subjects. (Cred. ar.; jr., sr., grad.; prereq. 1-2-3 or 4-5 and 6 additional credits and consent of instructor; ar.) Staff.
- 213su.* Seminar in Dramatic Theory. An evaluation and an analysis of the critical theory of modern theatrical arts. A study of the major trends in drama as related to dramatic production. (3 cred.; grad.; prereq. 111-112-113, 171-172-173, and 115-116-117 or 191-192-193, 9 cred. in English, French, or German drama; MTWF IV; 18Mu.) Mr. Lees.
- 221su.* Seminar in the Oral Interpretation of Literature. Problems of silent and oral reading. Theories of speech in relation to language and types of literature. (2 cred.; prereq. 1-2-3 or 5-6, 81-82-83, 105, 121-122, Psy. 74; MTWTh VII.) Mr. Rarig.
- 261-262-263su.* Seminar in Speech Pathology. A study and critical analysis of current literature in the field of speech pathology. Specific cases for group study. (6 cred. for eight weeks, 3 cred. for six weeks; prereq. 1-2-3 or 5-6, 61, 67, 121-122, 162-163, Psy. 1-2; ar.) Mr. Brown.
- 291-292su.* Research in Specific Problems. Open to graduate students. (Cred. ar.) Staff.

NOTE.—There will be held at least four round table discussions on Speech Problems in the High School. In addition, there will be conferences on the high school debate question for 1940-41.

‡ A fee of \$1 is charged for this course.

§ Carries undergraduate credit only in the College of Education.

¶ Students should register for this course for eight weeks. They may take any two quarters. (Listed in Education as Ed.C.I. 174-175-176.)

SECOND TERM

- 1su.‡ Fundamentals of Speech. Same as first term. Mr. Gilkinson.
 2-3su.‡ Fundamentals of Speech. Same as first term. Mr. Gilkinson.
 32su.‡‡ Introduction to the Theater. Mr. Whiting.
 92su.‡‡ Stagecraft. (Design.) Mr. Whiting.
 121-122su.‡ Advanced Speech Problems. Mr. Gilkinson.
 181su.* Readings in Speech.
 291su.* Research in Specific Problems. Open to graduate students.

ZOOLOGY

(Credit is given for acceptable work done at any accredited marine or freshwater biological station.)

FIRST TERM

- 1su.‡‡‡§ General Zoology. Structure, physiology, embryology, classification, and evolution of animals. (5 cred.; all; no prereq.; lect. MTWF I, Th I,II, 211Z; lab. MTWF II,III,IV, 101Z.) Mr. Oliver.
 51su.‡ Introductory Animal Parasitology. An elementary course dealing with parasitic protozoa, worms, and arthropods, and their relation to diseases of man and animals. (5 cred.; jr., sr.; prereq. 1-2-3 or equiv.; lect. MTWThF VI, F VII, 211Z; lab. MTWTh VII, VIII, IX, 208Z.) Mr. Augustine.
 83su.‡ Introduction to Genetics and Eugenics. Facts and theories of heredity and application to man. (3 cred.; jr., sr.; prereq. 1-2-3 or equiv.; MWF III, IV; 211Z.) Mr. Oliver.
 144su.‡ Animal Parasites and Parasitism. Origin and biological significance of parasitism; the structure, life history, and economic relations of representative parasites. (3 cred.; jr., sr., grad.; prereq. 15 cred. in zool.; lect. MTW VII, VIII; 211Z.) Mr. Augustine.
 197su.* Problems. Advanced work in some special line. (3 cred. or more; jr., sr., grad.; prereq. 1-2-3 and special requirements; ar.) Mr. Augustine, Mr. Oliver.

SECOND TERM

- 2su.‡‡‡§ General Zoology. Continuation of 1su. (5 cred.; all; prereq. 1su or equiv.; lect. MTWF I, Th I,II, 211Z; lab. MTWF II,III,IV, 101Z.) Mr. Wodsedalek.
 198su.* Problems. Advanced work in some special line. (3 or more cred.; jr., sr., grad.; prereq. 1-2-3 and special requirements; ar.) Mr. Wodsedalek.

COURSES TO BE GIVEN AT THE BIOLOGICAL STATION, ITASCA PARK

- 54su.‡ Parasitology. (3 cred.; prereq. Zool. 15 cred.; TF.) Mr. Wallace.
 55su.‡ Natural History of Invertebrates and Fishes. (3 cred.; prereq. Zool. 1-2-3 or equiv.; WS.) Mr. Eddy.
 107su.‡ Protozoology. (3 cred.; prereq. Zool. 15 cred.; MTh.) Mr. Turner.

‡ A fee of \$1 is charged for this course.

‡‡ A fee of \$3 is charged for this course.

‡‡‡ A fee of \$1.50 is charged for this course.

§ The entire course in elementary zoology includes both 1su and 2su. No credit is given for 1su until the satisfactory completion of 2su.

- 108su.‡ Advanced Protozoology. (3 cred.; prereq. 107, or may be taken with 107; TF.) Mr. Turner.
- 115su.‡ Advanced Natural History of Invertebrates and Fishes. (3 or 4 cred.; prereq. 15 cred. in zoology; MTh.) Mr. Eddy.
- 116su.‡ Limnology. (3 cred.; prereq. Zool. 15 cred.; MTh.) Mr. Eddy.
- 147su.‡ Helminthology. (3 cred.; prereq. Zool. 51, 54, or 144; MTh.) Mr. Wallace.
- 198su.* Problems in Parasitology, Ecology, Limnology, or Protozoology. (Cred. ar.; prereq. Zool. 1-2-3, and special requirements; adv. students.) Mr. Riley, Mr. Eddy, Mr. Turner, Mr. Wallace.

For detailed description of courses offered see Biological Station Summer Session.

‡ A fee of \$1 is charged for this course.

INSTITUTE OF TECHNOLOGY

COLLEGE OF ENGINEERING AND ARCHITECTURE§

AERONAUTICAL ENGINEERING

FIRST TERM

- 1su. General Aeronautics. A general course in aeronautical engineering intended primarily for men who want to make a general study of the principles involved in the construction and operation of aircraft. History. Nomenclature. Resistance and aerodynamical characteristics of bodies. The airplane and its parts. Constructional details. Propeller theory. Performance. Principles of structural analysis of airplanes. Uses and types of aircraft and instruments. Lectures and laboratory demonstrations. Recommended for high school teachers who are often faced with general questions pertaining to aviation. (3 cred.; prereq. trigonometry; MWF I-II; 105A.) Mr. Barlow.
- 1asu. Introductory Meteorology. A general course in introductory meteorology. Problems of pressure, temperature, moisture, and the general and secondary circulation of the atmosphere are considered. The laboratory work consists of practical applied problems concerning meteorological phenomena; the construction and interpretation of weather maps and making instrumental observation of the various meteorological phenomena. Recommended for high school teachers of physical sciences who are often faced with general questions pertaining to meteorology. (3 cred.; prereq. trigonometry and high school or elementary physics; hrs. ar.; 201A.) Mr. Serebreny.

ARCHITECTURE AND FINE ARTS

FIRST TERM

- AD-Isu.†† Architectural Design, Grade I. (Page 82.) (Up to 5 cred.; no prereq.; MTWTh VI-VIII or ar.; 317E.) Mr. Cerny.
- AD-IIsu.†† Architectural Design, Grade II. (Page 82.) (Up to 6 cred.; prereq. AD-I or equiv.; MTWTh VI-VIII or ar.; 317E.) Mr. Cerny.
- SD-Isu. Stage Design. (Page 82.) (2 or 4 cred.; no prereq.; MTWTh I-III; 405E.) Mr. Burton.
- DP-Isu.‡ Drawing and Painting, Grade I. (Page 82.) (2 or 4 cred.; no prereq.; MTWTh I-III or ar.; 417E.) Mr. Burton.
- DP-IIsu.‡ Drawing and Painting, Grade II. (Page 83.) (2 or 4 cred.; prereq. DP-I or equiv.; MTWTh I-III or ar.; 417E.) Mr. Burton.
- DP-IIIsu.‡ Drawing and Painting, Grade III. (Page 83.) (2 or 4 cred.; prereq. DP-II or equiv.; MTWTh I-III or ar.; 417E.) Mr. Burton.
- DP-IVsu.‡ Drawing and Painting, Grade IV. (Page 83.) (2 or 4 cred.; sr., grad.; prereq. DP-III or equiv.; MTWTh I-III; 417E.) Mr. Burton.
- DP-Vsu. Drawing and Painting, Grade V. (Page 83.) (2 or 4 cred.; grad.; prereq. DP-IV or equiv.; hrs. ar.; 417E.) Mr. Burton.

† These courses will be given if a sufficient number of students apply for them before June 15, 1940.

‡ A fee of \$1 is charged for this course.

†† A fee of \$2 is charged for this course.

§ Page numbers in course descriptions refer to the Bulletin of the Institute of Technology for 1939-40, where further information may be found.

- M-Isu.‡ Modeling, Grade I. (Page 83.) (2 or 4 cred.; no prereq.; MTWTh I-III or ar.; 405E.) Mr. Burton.
- M-IIsu.‡ Modeling, Grade II. (Page 83.) (2 or 4 cred.; no prereq.; MTWTh I-III or ar.; 405E.) Mr. Burton.

CIVIL ENGINEERING

FIRST TERM

- 31,32,33su. Stresses and Structural Design. (Page 98.) (2, 3, and 4 cred., respectively; prereq. M.&M. 26, 141, and 128 and Draw. 23; hrs. ar.; 225E.) Mr. Wise.
- 38,39,41su. Structural Analysis and Design. (Page 98.) (9 cred.; arch.; prereq. M.&M. 93; hrs. and room ar.) Mr. Andersen.
- 134§,131-132su. Statically Indeterminate Structures, Bridge Analysis, and Bridge Design. (Page 99.) (3 cred. for 134, 2 cred. each for 131 and 132; sr. civil engr. and aero. engr. with M.&M. 128; ar.; 225E.) Mr. Wise, Mr. C. A. Hughes.
- 137su. Structural Laboratory. (Page 99.) (2 cred.; prereq. 134 [or accompanied by 134], 141; hr. ar.; Ex.) Mr. C. A. Hughes.
- 141su. Reinforced Concrete. (Page 99.) (3 cred.; prereq. M.&M. 128; hrs. ar.; 225E.) Mr. Andersen.
- 142su. Reinforced Concrete Design. (Page 99.) (3 cred.; prereq. 141; hrs. ar.; 225E.) Mr. Andersen.

DRAWING AND DESCRIPTIVE GEOMETRY

FIRST TERM

- 1,2su. Engineering Drawing. (Page 102.) (3 cred. each; prereq. solid geometry; 18 hrs. ar.; 201E.) Mr. Cruzen.
- 3su. Descriptive Geometry. (Page 102.) (3 cred.; prereq. 2, M.&M. 11; lect. MTWThF I, 205E; lab. 12 hrs. ar., 201E.) Mr. Myers.
- 7,8su. Engineering Drawing and Descriptive Geometry. (Page 102.) (3 cred. each; chem. and chem. engr.; prereq. solid geometry; 18 hrs. ar.; 201E.) Mr. Myers.
- 10su. Solid Geometry. (Page 102.) (4 cred.; prereq. plane geometry; MTWThF III, plus 3 hrs. ar.; 203E.) Mr. Cruzen.
- 11,12,13su. Engineering and Topographic Drawing. (Page 103.) (2 cred. each; miners; prereq. solid geometry, 12 hrs. ar.; 101E.) Mr. Myers.
- 14su. Descriptive Geometry. (Page 103.) (4 cred.; miners; prereq. 13; 24 hrs. ar.; 201E.) Mr. Myers.
- 21,22,23su. Drafting and Structural Detailing. (Page 103.) (2 cred. each; civil engr.; prereq. 3; 12 hrs. ar.; 101E.) Mr. Cruzen.
- 26su. Drafting. (Page 103.) (2 cred.; electrical engr.; prereq. 3; 12 hrs. ar.; 101E.) Mr. Cruzen.
- 28,29su. Drafting. (Page 103.) (2 cred. each; aero. engr.; prereq. 3; 12 hrs. ar.; 101E.) Mr. Myers.
- 34su. Lettering. (Page 103.) (1 cred.; prereq. 1; 6 hrs. ar.; 201E.) Mr. Cruzen.

‡ A fee of \$1 is charged for this course.

§ C.E. 134 is accepted as a substitute for Aero.E. 115.

- 41-42-43su.† Technical Drawing. (Page 104.) (2 cred. each; no prereq.; Sec. 1, MWF VI-VII; Sec. 2, MWF VIII-IX; Sec. 3, ar.; 411C.) Mr. Doseff.
 81-82-83su.† Advanced Drawing. (Page 104.) (3 cred. each; prereq. 43 or equiv.; Sec. 1, MWF VI-VII; Sec. 2, MWF VIII-IX; Sec. 3, ar.; 411C.) Mr. Doseff.
 86-87su.† Anatomical Drawing. (Page 104.) (3 cred. each; prereq. 43 or equiv.; Sec. 1, MWF VI-VII; Sec. 2, MWF VIII-IX; 411C.) Mr. Doseff.

SECOND TERM

- 1,2su. Engineering Drawing. (Page 102.) (3 cred. each; prereq. solid geometry; 18 hrs. ar.; 101E.) Mr. von Eschen.
 3su. Descriptive Geometry. (Page 102.) (3 cred.; prereq. 2, M.&M. 11; 18 hrs. ar.; 201E.) Mr. Potter.
 7,8su. Engineering Drawing and Descriptive Geometry. (Page 102.) (3 cred. each; chem. and chem. engr.; prereq. solid geometry; 18 hrs. ar.; 101E.) Mr. Potter, Mr. von Eschen.
 10su. Solid Geometry. (Page 102.) (4 cred.; prereq. plane geometry; MTWThF I, plus 3 hrs. ar.; 203E.) Mr. von Eschen.
 11,12,13su. Engineering and Topographic Drawing. (Page 103.) (2 cred. each; miners; prereq. solid geometry; 12 hrs. ar.; 101E.) Mr. Potter.
 14su. Descriptive Geometry. (Page 103.) (4 cred.; miners; prereq. 13; 24 hrs. ar.; 201E.) Mr. Potter.
 21,22,23su. Drafting and Structural Detailing. (Page 103.) (2 cred. each; civil engr.; prereq. 3; 12 hrs. ar.; 201E.) Mr. Potter.
 26su. Drafting. (Page 103.) (2 cred.; electrical engr.; prereq. 3; 12 hrs. ar.; 201E.) Mr. von Eschen.
 28,29su. Drafting. (Page 103.) (2 cred. each; aero. engr.; prereq. 3; 12 hrs. ar.; 201E.) Mr. von Eschen.
 34su. Lettering. (Page 103.) (1 cred.; prereq. 1; 6 hrs. ar.; 201E.) Mr. Potter.

MATHEMATICS AND MECHANICS

FIRST TERM

- 13su. Analytical Geometry. (Page 121.) (5 cred.; prereq. 11 and 12; MTWF III-IV, Th II-III, and 2 hrs. ar.; 106E.) Mr. Scherberg.
 25su. Integral Calculus. (Page 121.) (5 cred.; prereq. 24; MTWF III-IV, Th II-III, and 2 hrs. ar.; 205E.) Mr. Priester.
 26su. Technical Mechanics: Statics. (Page 122.) (5 cred.; prereq. 25; MTWF III-IV, Th II-III, and 2 hrs. ar.; 136E.) Mr. Herrick.

SECOND TERM

- 9su. Higher Algebra. (Page 120.) (5 cred.; no prereq.; MTW III-IV, Th II-III, and 2 hrs. ar.; 205E.) Mr. McNowen.
 13su. Analytical Geometry. (Page 121.) (5 cred.; prereq. 11 and 12; MTWF III-IV, Th II-III, and 2 hrs. ar.; 106E.) Mr. Poole.
 26su. Technical Mechanics: Statics. (Page 122.) (5 cred.; prereq. 25; MTWF III-IV, Th II-III, and 2 hrs. ar.; 136E.) Mr. Wilcox.

† These courses are freehand drawing courses. They are not mechanical drawing courses except as modified for industrial education students and, in part, for geology and landscape design students. The purpose of these courses is to develop the student's skill in practical drawing, design, and esthetic expression.

MECHANICAL ENGINEERING†

FIRST TERM

WOODWORKING

- 5su.‡ Pattern Practice and General Woodwork. (Page 126.) (2 cred.; no prereq.; MT I-IX, WF I-IV, Th I-III, or ar.; ME.) Mr. Richards.
- 6su.‡ Pattern Practice and General Woodwork. (Page 126.) (2 cred.; prereq. Chem. 5, Dr. 2; MT I-IX, WF I-IV, Th I-III, or ar.; ME.) Mr. Richards.
- 7su.‡ Advanced General Woodwork. (Page 126.) (3 cred.; prereq. 6; hrs. ar.; ME.) Mr. Richards.

Special Courses for Teachers

- 1su.‡ Elementary Woodworking. (Page 125.) (2 to 4 cred.; no prereq.; MT I-IX, WF I-IV, Th I-III, or ar.; ME.) Mr. Richards.
- 2su.‡ Machine Woodworking. (Page 125.) (2 to 4 cred.; prereq. 1 or permission of instructor; MT I-IX, WF I-IV, Th I-III, or ar.; ME.) Mr. Richards.
- 3su.‡ Wood Finishing. (Page 125.) (2 to 4 cred.; no prereq.; MT I-IX, WF I-IV, Th I-III, or ar.; ME.) Mr. Richards.
- 4su.‡ Furniture Construction. (Page 126.) (2 to 4 cred.; prereq. 2 or permission of instructor; MT I-IX, WF I-IV, Th I-III, or ar.; ME.) Mr. Richards.

FORGING, HEAT TREATING, AND WELDING

- 11su.‡ Forging and Metal Working. (Page 127.) (2 cred.; no prereq.; hrs. ar.; ME.) Mr. Hughes.
- 12su.‡ Forging, Heat Treating, and Welding. (Page 127.) (2 cred.; prereq. Chem. 5, Dr. 2; hrs. ar.; ME.) Mr. Hughes.
- 13su.‡ Advanced Welding. (Page 127.) (2 to 4 cred.; prereq. 12 or permission of instructor; hrs. ar.; ME.) Mr. Hughes.
- 14su.‡ General Metal Work. (Page 127.) (2 to 4 cred.; no prereq.; hrs. ar.; ME.) Mr. Hughes.

Special Courses for Teachers

- 11asu.‡ Welding Principles and Practice. Special course in theory and practice of welding. Includes gas welding, direct current, alternating current, and spot welding. Projects in iron, steel, brass, aluminum, etc. (2 to 4 cred.; no prereq.; hrs. ar.; ME.) Mr. Hughes.
- 11bsu.‡ Art Metal Work. Elementary projects in wrought iron, copper, brass, and pewter. Hot and cold forming and hammering. (2 to 4 cred.; no prereq.; hrs. ar.; ME.) Mr. Hughes.
- 11csu.‡ Art Metal Work. Continuation of Course 11b. Including work in drawing and upsetting to produce bowls, cups, and other articles with medium deep contours. (2 to 4 cred.; prereq. 11b; hrs. ar.; ME.) Mr. Hughes.
- 11dsu.‡ Art Metal Work. Continuation of Course 11c. Advanced projects involving deep drawing, embossing, enameling, soldering, and brazing of assembled projects. (2 to 4 cred.; prereq. 11c; hrs. ar.; ME.) Mr. Hughes.

† The shops are open at the hours stated. The student will arrange his program with the instructor.

‡ A fee of \$1.50 per credit is charged for this course.

MACHINE SHOP WORK

- 15su.‡ Machine Shop Practice. (Page 127.) (2 cred.; chem. engr. and prebus.; no prereq.; hrs. ar.; ME.) Mr. Crowder.
- 16su.‡ Machine Shop Practice. (Page 127.) (2 cred.; prereq. 12; hrs. ar.; ME.) Mr. Crowder.
- 17su.‡ Machine Shop Practice. (Page 127.) (3 cred.; prereq. 6, 9, 12; hrs. ar.; ME.) Mr. Crowder.
- 18su.‡ Advanced Machine Shop Practice. (Page 127.) (3 cred.; prereq. 17 or 72; hrs. ar.; ME.) Mr. Crowder.
- 71su.‡ Machine Shop Practice. (Page 128.) (2 cred.; prereq. 6, 9, 12; hrs. ar.; ME.) Mr. Crowder.
- 72su.‡ Machine Shop Practice. (Page 128.) Continuation of 71. (2 cred.; prereq. 71; hrs. ar.; ME.) Mr. Crowder.

Special Courses for Teachers

- 15asu.‡ Elementary Machine Shop Practice. Bench and vice work in chipping, filing, scraping, fitting, and polishing. Use of lathe, planer, shaper, and drill press; kinds of cutting tools and their care. (2 to 4 cred.; no prereq.; hrs. ar.; ME.) Mr. Crowder.
- 15bsu.‡ Advanced Machine Shop Practice. Advanced lathe work, milling machine operation, gear cutting, precision grinding, and layout work. (2 to 4 cred.; prereq. 15a or permission of instructor; hrs. ar.; ME.) Mr. Crowder.

FOUNDRY LABORATORY

- 8su.‡ Foundry Practice. Theory and practice in melting and casting ferrous and nonferrous metals. Practice in making cores, bench and floor molds. Problems and reports. (2 cred.; no prereq.; hrs. ar.; ME.) Mr. Holtby.
- 9su.‡ Foundry Practice. Theory and practice in melting, alloying, and casting ferrous and nonferrous metals. Theory of foundry control methods, risers, feeders, gates, and pattern design. Practice in making cores and molds in relation to part design. Problems and reports. (2 cred.; prereq. Chem. 5, Dr. 2; hrs. ar.; ME.) Mr. Holtby.
- 43su. Steam Engineering. (Page 131.) (3 cred.; prereq. Chem. 5 and Phys. 7; hrs. ar.; ME.) Mr. DuPriest.
- 110su.‡ Advanced Foundry Practice. (Page 127.) (2 cred.; prereq. 9, Chem. 16; hrs. ar.; ME.) Mr. Holtby.
- 111su.‡ Advanced Foundry Practice. (Page 127.) Continuation of 110su. (3 cred.; prereq. 110; hrs. ar.; ME.) Mr. Holtby.
- 131su. Thermodynamics. (Page 131.) (3 cred.; prereq. Phys. 9, M. & M. 25; hrs. ar.; ME.) Mr. DuPriest.
- 132su. Thermodynamics. (Page 131.) Continuation of 131su. (3 cred.; prereq. 131; hrs. ar.; ME.) Mr. DuPriest.

‡ A fee of \$1.50 per credit is charged for this course.

INSTITUTE OF TECHNOLOGY

SCHOOL OF CHEMISTRY§

An asterisk (*) indicates courses that may be taken by graduate students for independent work under Plan B. (See page 23.)

INORGANIC CHEMISTRY

FIRST TERM

- 1su.‡ General Inorganic Chemistry (Nonmetals). (Page 84.) (4 cred.; no prereq.; lect. MTWThF II, MW VI, 115C; lab. M VII-VIII, TThF VI-VII, 290C.) Mr. Taylor.
- 4su.‡ General Inorganic Chemistry (Nonmetals). (Page 85.) (4 cred.; prereq. high school chemistry; lect. MTWThF II, W VI, 325C; lab. MTThF VI-VII, 290C.) Mr. Klug.
- 6su.‡ General Inorganic Chemistry (Nonmetals). (Page 85.) (5 cred.; no prereq.; lect. MTWThF II, MW VI, 115C; lab. MW VII-VIII, TTh VI-VII, F VI-VIII, 290C.) Mr. Taylor.
- 9su.‡ General Inorganic Chemistry (Nonmetals). (Page 86.) (5 cred.; prereq. high school chemistry; lect. MTWThF II, W VI, 325C; lab. MTThF VI-VII, W VII-VIII, TTh VIII, 290C.) Mr. Klug.
- 11su.‡ Qualitative Chemical Analysis. (Page 86.) (4 cred.; prereq. 3 or 5; lect. MTWThF II, W VI, 225C; lab. MTThF VI-VII, 290C.) Mr. Heisig.
- 12su.‡ Qualitative Chemical Analysis. (Page 86.) (5 cred.; prereq. 7 or 10; lect. MTWThF II, W VI, 225C; lab. MTThF VI-VII, W VII-VIII, TTh VIII, 290C.) Mr. Heisig.
- 14su.‡ General Inorganic Chemistry (Nonmetals). (Page 86.) (4 cred.; no prereq.; lect. MTWThF II, W VI, 325C; lab. MTThF VI-VII, W VII-VIII, TTh VIII, 290C.) Mr. Taylor.
- 102su.‡ Semimicro Qualitative Analysis. (Page 87.) (3 to 5 cred.; prereq. Anal. Chem. 1, 2, Org. Chem. 52; lect. and lab. hrs. ar.) Mr. Barber.
- 103su.*‡ Advanced Inorganic Chemistry (Introductory Crystal Chemistry). (Page 87.) (3 cred. per qtr.; prereq. Anal. Chem. 1, 2, Organ. Chem. 52; MTWF IV and 1 hr. ar.; 115C.) Mr. Klug.
- 109su.*‡ Synthetic Inorganic Chemistry. (Page 87.) (3 to 5 cred.; prereq. 13 or permission of instructor; lect. and lab. hrs. ar.) Mr. Heisig.
- 115su.‡ Commercial Products and Their Analysis. (Page 87.) (5 cred.; prereq. Anal. Chem. 1 and 2; lect. and lab. hrs. ar.) Mr. Barber.
- 301su. Research in Inorganic Chemistry. (Page 87.) (Cred. and hrs. ar.) Mr. Heisig, Mr. Barber, Mr. Klug, Mr. Taylor.

SECOND TERM

- 2su.‡ General Inorganic Chemistry. (Page 84.) (4 cred.; prereq. 1; lect. MTWThF II, W VI, 225C; lab. MTThF VI-VII, 290C.) Mr. Maynard.
- 5su.‡ General Inorganic Chemistry. (Page 85.) (4 cred.; prereq. 4; lect. MTWThF II, W VI, 225C; lab. MTThF VI-VII, 290C.) Mr. Maynard.

‡ A fee of \$2 is charged for this course.

§ Page numbers in course descriptions refer to the Bulletin of the Institute of Technology for 1939-40, where further information may be found.

- 7su.‡ General Inorganic Chemistry. (Page 85.) (5 cred.; prereq. 6; lect. MTWThF II, W VI, 225C; lab. MTThF VI-VII, W VII-VIII, TTh VIII, 290C.) Mr. Maynard.
- 10su.‡ General Inorganic Chemistry. (Page 86.) (5 cred.; prereq. 9; lect. MTWThF II, W VI, 225C; lab. MTThF VI-VII, W VII-VIII, TTh VIII, 290C.) Mr. Maynard.
- 15su.‡ General Inorganic Chemistry. (Page 86.) (5 cred.; prereq. 14; lect. MTWThF II, W VI, 225C; lab. MTThF VI-VII, W VII-VIII, TTh VIII, 290C.) Mr. Maynard.
- 104su.*‡ Advanced Inorganic Chemistry. Co-ordination compounds and inorganic stereo-chemistry. (Page 87.) (3 cred.; prereq. Anal. Chem. 1, 2, Org. Chem. 52; MTWF IV and 1 hr. ar.; 115C.) Mr. Maynard.
- 301su. Research in Inorganic Chemistry. (Page 87.) (Cred. and hrs. ar.) Mr. Maynard.

ANALYTICAL CHEMISTRY

FIRST TERM

- 1su.‡ Quantitative Analysis (Gravimetric). (Page 87.) (5 cred.; prereq. qual. anal.; lect. or rec. TTh V-VI, 315C; lab. MWF V-VIII, TTh VII-VIII, 310C.) Mr. Geiger.
- 7su.‡ Quantitative Analysis. (Premed.) (4 cred.; prereq. qual. anal.; lect. or rec. WF V-VI, 315C; lab. MTTh V-VIII, WF VII-VIII, 310C.) Mr. Geiger.
- 96su.‡ Senior Thesis. (Page 88.) (5 cred.; hrs. ar.; 310C.) Mr. Geiger.
- 123-124su.‡ Advanced Analytical Chemistry. (Page 89.) (3 cred. each; prereq. grav. and vol. anal.; lect. or rec. hrs. ar.; 310C.) Mr. Geiger.
- 203su.* Selected Topics in Analytical Chemistry. (Page 89.) (Cred. and hrs. ar.; 310C.) Mr. Geiger.
- 301su.* Research in Quantitative Analysis. (Page 89.) (Cred. and hrs. ar.; 310C.) Mr. Geiger.

ORGANIC CHEMISTRY

FIRST TERM

- 1su.‡ Elementary Organic Chemistry. (Page 89.) (4 cred.; prereq. 11 or 12; lect. MTWThF I, 325C; rec. TTh II, 315C; lab. MWF II-IV, 390C; lab. conference TTh III, ar., C.) Mr. Lauer.
- 110su.‡‡ Organic Qualitative Analysis. (Page 90.) (5 cred.; prereq. 153 or equiv.; lect. MWF IV, 315C; 15 hrs. of lab. work ar.) Mr. Koelsch.
- 130su.‡ Organic Quantitative Analysis. (Page 90.) (2 or 3 cred.; prereq. 153.) Mr. Lauer.
- 140su.* Aromatic Compounds. (Page 90.) (3 cred.; prereq. 153; MTWThF I; 315C.) Mr. Koelsch.
- 301su. Research in Organic Chemistry. (Page 91.) (Cred. and hrs. ar.) Mr. Lauer, Mr. Koelsch.

SECOND TERM

- 2su.‡ Elementary Organic Chemistry. (Page 89.) (4 cred.; prereq. Org. Chem. 1; lect. MTWThF I, 325C; rec. TTh II, 215C; lab. MWF II-IV, 390C; lab. conference TTh III, ar., C.) Mr. Arnold.

‡ A fee of \$2 is charged for this course.

‡‡ A fee of \$2 is charged for this course. In addition, a charge of \$10 is made to cover special chemicals in this course.

- 139su.‡ Advanced Organic Chemistry Laboratory Work. (Page 90.) (2 or 3 cred.; prereq. 153.) Mr. Arnold.
 302su. Research in Organic Chemistry. (Page 91.) (Cred. ar.; prereq. 110; hrs. ar.) Mr. Arnold.

PHYSICAL CHEMISTRY

FIRST TERM

- 107su.‡ Elementary Physical Chemistry. (4 cred. for premedical students; acceptable towards minor for students not majoring in chemistry; prereq. 2 yr. col. chem., 1 yr. col. phys.; lect. MTWThF I, 215C; rec. MF IV, 215C; lab. TTh VI-VIII, 190C.) Mr. Glockler.
 141su. Special Topics in Physical Chemistry. (2 cred. acceptable towards minor for students not majoring in chemistry; prereq. same as for 107su; lect. ar.) Mr. Glockler.
 211su.* Advanced Physical Chemistry Laboratory. (Page 92.) (Cred. ar.; prereq. 103 or equiv.) Mr. Glockler.
 301su. Research in Physical Chemistry. (Page 92.) (Cred. and hrs. ar.) Mr. Glockler.

SECOND TERM

- 108su.‡ Elementary Physical Chemistry. (4 cred.; continuation of 107su.) Mr. Livingston.
 142su. Special Topics in Physical Chemistry. (2 cred.; see 141su above.) Mr. Livingston.
 212su.* Advanced Physical Chemistry Laboratory. (Page 92.) (Cred. ar.; prereq. 103 or equiv.) Mr. Livingston.
 302su. Research in Physical Chemistry. (Page 92.) (Cred. and hrs. ar.) Mr. Livingston.

CHEMICAL ENGINEERING

FIRST TERM

(June 17 to July 19)

- 151su.‡‡ Chemical Manufacture (Inorganic). (Page 95.) (3 cred.; sr., grad.; prereq. 103; MTWThF I-IX; 90C.) Mr. Stoppel.
 152su.‡‡ Chemical Manufacture (Organic). (Page 95.) (3 cred.; sr., grad.; prereq. 103; MTWThF I-IX; 90C.) Mr. Montonna and assistant.
 301su.‡‡‡ Research in Chemical Engineering. (Page 96.) (Cred. and hrs. ar.) Mr. Montonna, Mr. Stoppel.

SECOND TERM

(July 22 to August 23)

- 151su.‡‡ Chemical Manufacture (Inorganic). (Page 95.) (3 cred.; sr., grad.; prereq. 103; MTWThF I-IX; 90C.) Mr. Montillon and assistant.
 152su.‡‡ Chemical Manufacture (Organic). (Page 95.) (3 cred.; sr., grad.; prereq. 103; MTWThF I-IX; 90C.) Mr. Grove.
 301su.‡‡‡ Research in Chemical Engineering. (Page 96.) (Cred. and hrs. ar.) Mr. Montillon.

‡ A fee of \$2 is charged for this course.

‡‡ A fee of \$3 per term is charged for this course.

‡‡‡ A fee of \$5 per term is charged for this course.

THIRD TERM

(August 26 to September 27)

- 151su.†† Chemical Manufacture (Inorganic). (Page 95.) (3 cred.; sr., grad.; prereq. 103; MTWThF I-IX; 90C.) Mr. Rogers and assistant.
- 152su.†† Chemical Manufacture (Organic). (Page 95.) (3 cred.; sr., grad.; prereq. 103; MTWThF I-IX; 90C.) Mr. Grove.
- 301su.††† Research in Chemical Engineering. (Page 96.) (Cred. and hrs. ar.) Mr. Rogers.

†† A fee of \$3 per term is charged for this course.

††† A fee of \$5 per term is charged for this course.

COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

GENERAL INFORMATION

Agriculture offers a limited number of courses to college undergraduates interested in this field, and a larger number of courses from most of the agricultural divisions for graduate students. For high school teachers of agriculture a special group of agricultural courses is arranged which are supplementary to the courses offered by the Department of Agricultural Education (see College of Education).

The offerings in home economics are designed primarily for advanced undergraduate students and qualified graduate students. The courses listed represent the fields of foods and nutrition, related art, personal and family relationships, textiles and clothing, consumer problems, shelter problems, and home economics education. The results of recent studies and investigations and methods of attack on selected problems in each field will be discussed.

GRADUATE STUDY

Opportunity is offered in many divisions of agriculture for graduate study either for the first six-week term of the Summer Session or for the entire session of eleven weeks. In some divisions both courses and thesis work may be carried for the entire session. In other divisions thesis or course work only may be pursued through the Summer Session. Information concerning graduate work during the summer, in any division, may be obtained from the head of the division. Thesis and problem work is correlated in most divisions with the work in the Experiment Station, and the facilities offered during the summer are in most divisions especially attractive because of the field work possible only at that time.

Students intending to register for any phase of graduate work and who expect to obtain credit in the Graduate School should make arrangements through the proper committees and with the dean of the Graduate School.

ADMISSION

The undergraduate courses of the Summer Session are open to all registered students qualified to pursue the work to advantage, but college credit will be given only when college entrance requirements have been fulfilled.

For details of admission requirements, see the Bulletin of General Information.

An asterisk () indicates courses that may be taken by graduate students for independent work under Plan B. (See page 23.)*

AGRICULTURAL BIOCHEMISTRY

FIRST TERM

4su. Introduction to Organic and Biochemistry. (Page 55.§) (5 cred.; soph., jr., sr.; prereq. 1 yr. chem.; MTWThF I, II; 113SnH.) Mr. Reitz.

111su. Biochemistry. (Page 28.†) (3 cred.; jr., sr., grad.; prereq. zool. or bot., and 9 cred. in org. chem.; lect. MWF I, II; 116SnH.) Mr. Briggs.

† Page numbers in course descriptions refer to the Graduate School Bulletin for 1939-41, where further information may be found.

§ Page numbers in course descriptions refer to the College of Agriculture, Forestry, and Home Economics Bulletin for 1938-40, where further information may be found.

- 113su. Biochemical Laboratory Methods. (Page 28.†) (2 cred.; jr., sr., grad.; prereq. quant. anal., parallel 111; lect. MWF III, IV, lab. TTh I and 1 hr. ar.; 202SnH.) Mr. Briggs and assistant.
- 203asu.* Research Problems. (Page 29.†) (1½ or 2½ cred.; grad.; prereq. permission of instructor; ar.) Mr. Gortner, Mr. Geddes, Mr. Briggs, Miss Kennedy.

SECOND TERM

- 112su. Biochemistry. (Page 28.†) A continuation of Course 111su. (3 cred.; jr., sr., grad.; prereq. 111; lect. MWF I, II; 113SnH.) Mr. Sandstrom.
- 114su. Biochemical Laboratory Methods. (Page 28.†) A continuation of Course 113su. (2 cred.; jr., sr., grad.; prereq. 113; lect. MWF III, IV, lab TTh I and 1 hr. ar.; 202SnH.) Mr. Sandstrom and assistant.
- 203bsu.* Research Problems. (Page 29.†) Second part of Course 203asu. (1½ or 2½ cred.; grad.; prereq. 203a; ar.) Mr. Gortner, Mr. Geddes, Mr. Palmer.

AGRICULTURAL ECONOMICS

FIRST TERM

- 3su. Principles of Economics. (Page 56.§) (5 cred.; soph., jr., sr.; no prereq.; MTWThF III, MTWF IV and 1 hr. ar.; 213HE.) Mr. Lowe.
- 150su. Advanced Farm Finance. (Page 58.§) (3 cred.; jr., sr., grad.; prereq. 50 or equiv.; ar.; 312HH.) Mr. Jesness, Mr. Koller.
- 180su. Advanced Farm Accounting. A study of the use of farm records in analyzing and improving the farm organization, types of records and their use, calculation of measures of earnings and of organization and efficiency factors, and their application to farm business analysis. Discussion and practice. (2 cred. for 4 weeks, 3 cred. for 6 weeks; jr., sr., grad.; prereq. 2 or consent of instructor; MTWThF II; 312HH.) Mr. Pond, Mr. Engene.

SECOND TERM

- 201su.* General Seminar in Agricultural Economics. (Page 71.†) (3 cred.; grad.; ar.; 312HH.) Mr. Waite.

AGRICULTURAL EDUCATION

For list of courses in Agricultural Education see courses listed elsewhere in this bulletin under the College of Education.

AGRICULTURAL ENGINEERING

FIRST TERM

- 40su. Mechanical Training. Instruction and laboratory practice in the mechanical trades, including belts, pulleys and lacings, cement work (including construction of lily pools, seats, bird baths, and flagstone walks), leather sewing and riveting, electric wiring, rope splicing, knots, and hitches. (2 to 4 cred.; no prereq.; lect. TWThF VI; lab. ar.; 106En.) Mr. Dent.
- 41su. Metal Work. A course in metal work, including soldering and sheet metal work, hammered pewter and copper work, cold metal work (including lamps,

† Page numbers in course descriptions refer to the Graduate School Bulletin for 1939-41, where further information may be found.

§ Page numbers in course descriptions refer to the College of Agriculture, Forestry, and Home Economics Bulletin for 1938-40, where further information may be found.

flower brackets, etc.), pipe fitting and valves, forge work (including tempering and heat treatment), oxy-acetylene welding, brazing and cutting, electric arc welding. (2 to 4 cred.; no prereq.; lect. TWThF VII, lab. ar.; 106En.) Mr. Dent.

121su.* Farm Power and Machinery Problems. Special studies of farm machinery and mechanical power for the farm. (2 to 3 cred.; ar.; 105En.) Mr. Schwantes.

AGRONOMY AND PLANT GENETICS

FIRST AND SECOND TERMS

AGRONOMY

201su.* Research in Farm Crops. (Page 31.†) (3 to 9 cred.; grad.; ar.) Mr. Wilson, Mr. Army.

PLANT GENETICS

241su.* Research in Plant Genetics. (Page 32.†) (Grad.; ar.) Mr. Hayes, Mr. Immer, Mr. Burnham.

244su. Laboratory Methods in Plant Breeding. (Page 32.†) (3 cred.; grad.; ar.) Mr. Immer.

ANIMAL AND POULTRY HUSBANDRY

FIRST AND SECOND TERMS

213su.* Research in Animal Husbandry. (Page 36.†) (3 to 9 cred.) Mr. Peters, Mr. Ferrin, Mr. Winters, Mr. Harvey, Mr. Johnson.

214su.* Research in Poultry Husbandry. (Page 36.†) (3 to 9 cred.) Mr. Sloan.

DAIRY HUSBANDRY

FIRST TERM

208su. Research in Dairy Husbandry. (Page 64.†) (Prereq. preliminary graduate work.) Mr. Fitch, Mr. Petersen, Mr. Gullickson.

209su. Research in Dairy Manufacturing. (Page 64.†) (Prereq. preliminary graduate work.) Mr. Combs, Mr. Coulter.

215su. Research in Dairy Bacteriology. (Page 64.†) (Prereq. preliminary graduate work.) Mr. Macy.

SECOND TERM

210su. Research in Dairy Husbandry. (Page 64.†) (Prereq. preliminary graduate work.) Mr. Fitch, Mr. Petersen, Mr. Gullickson.

211su. Research in Dairy Manufacturing. (Page 64.†) (Prereq. preliminary graduate work.) Mr. Combs, Mr. Coulter.

216su. Research in Dairy Bacteriology. (Page 64.†) (Prereq. preliminary graduate work.) Mr. Macy.

ENTOMOLOGY AND ECONOMIC ZOOLOGY

FIRST TERM

13su. Field Zoology. Offered at Itasca Park. (1 cred.; fr.; no prereq.) Mr. Mickel, Mr. Hodson.

† Page numbers in course descriptions refer to the Graduate School Bulletin for 1939-41, where further information may be found.

FIRST AND SECOND TERMS

- 55su. Entomological Techniques. Practical laboratory instruction in mounting, preservation of insect larvae, preparation of microscopic mounts of minute insects, labeling, classifying, and cataloging specimens of insects for scientific study. (9 hrs. lab., 3 cred.; ar.) Mr. Mickel.
- 197su. Introduction to Research. Preparation for investigational work in lines of entomology. Advanced laboratory, field, and library work; training in the preparation of bibliographies and manuscripts; special problems. (2½ or more cred.; jr., sr., grad.; prereq. 9 hrs. ent., and other prescribed work; ar.; Ad.) Mr. Riley, Mr. Ruggles, Mr. Tanquary, Mr. Granovsky, Mr. Mickel, Mr. Hodson, Mr. Shepard, Mr. Swanson.
- 204su. Research in Entomology. Ample opportunity for research work in various phases of entomology will be afforded properly qualified students. This work will be individual. Students who plan to undertake special problems should correspond with the division relative to methods of collection and preparation of material. (3 or more cred.; grad.; ar.) Mr. Riley, Mr. Ruggles, Mr. Tanquary, Mr. Granovsky, Mr. Mickel, Mr. Shepard.

SECOND TERM

COURSES TO BE GIVEN AT THE BIOLOGICAL STATION, ITASCA PARK

- 59su. Field Entomology. (3 cred.; jr., sr.; prereq. Zool. 1-2-3, or equiv.; TF.) Mr. Granovsky.
- 62su. Wildlife Conservation Principles and Administration. (3 cred.; prereq. Zool. 1-2-3, or equiv.; WS.) Mr. Swanson.
- 68su. Natural History of the Higher Vertebrates. (3 cred.; prereq. Zool. 1-2-3, or equiv.; TF.) Mr. Swanson.
- 76su. Techniques of Field Biology. (2 cred.; prereq. Bot. or Zool. 10 cred. or consent of instructor; TTh.) Mr. Granovsky and staff of the station.
- 168su. Advanced Natural History of Higher Vertebrates. (3 cred.; prereq. Zool. 46-47, Ornithology, or Ent. 163, Mammalogy, or equiv; TF.) Mr. Swanson.
- 196su. Special Problems in Entomology and Economic Zoology. (Cred. ar.; adv. students with proper qualifications.) Mr. Granovsky, Mr. Swanson.

For detailed description of courses offered see Biological Station Summer Session.

FORESTRY

FIRST TERM

(Offered at Itasca Park. Open only to students who have completed at least one year of forestry in the University or one year in a junior college or other college. The schedule is so arranged as to occupy the student's full time for five and one-half days per week. All field or laboratory work. Registration is limited to a maximum of 120.)

- 2su. Field Dendrology. (Page 74.§) (1 cred.; no prereq.) Mr. Gordon.
- 5su. Field Silviculture. (Page 74.§) (2 cred.; no prereq.) Mr. Cheyney.
- 6su. Field Mensuration. (Page 75.§) (1 cred.; no prereq.) Mr. Brown.
- 9su. Camp Management. (Page 75.§) (1 cred.; no prereq.) Mr. Brown.

§ Page numbers in course descriptions refer to the College of Agriculture, Forestry, and Home Economics Bulletin for 1938-40, where further information may be found.

Bot. 3su. Forest Botany. (See under College of Science, Literature, and the Arts—Botany.)

Ent. 13su. Field Zoology. (See under Entomology and Economic Zoology.)

SECOND TERM

COURSES TO BE GIVEN AT THE BIOLOGICAL STATION, ITASCA PARK

11su. Field Dendrology. (3 cred.; prereq. bot. 10 cred., or consent of instructor; TF.) Mr. Buell.

145su. Conservation of Natural Resources. (1 cred.; prereq. one year biol. sci.; TTh.) Mr. Schantz-Hansen.

For detailed description of courses offered see Biological Station Summer Session.

HOME ECONOMICS

FIRST TERM

15su. Personal Relationships. (Page 79.§) (2 cred.; fr.; no prereq.; MTWF IV; 313HE.)

31su. Introduction to Nutrition. (Page 80.§) (3 cred.; fr.; no prereq.; MTWThF II and 1 hr. ar.; 213HE.) Miss Hunt.

86su. Home Management: Operation and Maintenance, Laboratory. (Page 82.§) (4 cred.; jr., sr.; prereq. 85 or parallel, 40, 185 parallel, H.E.Ed. 90 or C.W. 40; hrs. ar.; limited to 14.)

115su. Clothing Economics. (Page 82.§) (3 cred.; jr., sr.; prereq. 50, Agr. Econ. 3; MTWThF III and 1 hr. ar.; 307HE.) Miss Phelps.

120su. Art History and Appreciation. (Page 82.§) (3 cred.; open to Senior College and graduate students only; MTWThF VII; 313HE.) Miss Harriet Goldstein.

137su. Consumer Problems. A study of the problems confronting the homemaker as a consumer of the things needed for the comfort and satisfaction of the family. Materials and methods of consumer education. (3 cred.; prereq. Agr. Econ. 3 or permission of instructor; MTWThF I and 1 hr. ar.; 203HE.)

142su. Experimental Cookery. (Page 83.§) (3 cred.; jr., sr.; prereq. 40, Agr. Biochem. 4; MTWThF I, II and 2 hrs. ar.; 107HE.) Miss Noble.

150su. Textile Problems. Discussion and reading covering recent developments and findings in the field of textiles. Emphasis will be placed on the needs of home economics teachers, extension teachers, and teachers of adult classes, for new information in this field. (3 cred.; prereq. 3 credits in textiles or equiv.; MTWThF V and 1 hr. ar.; 307HE.) Miss Phelps.

170su. Nutrition of the Family. (Page 83.§) (3 cred.; jr., sr.; prereq. 31, 40, Agr. Biochem. 4, Physiol. 3 cred.; MTWThF VI and 1 hr. ar.; 307HE.) Miss Hunt.

180su. Home Planning and Furnishing. (Page 83.§) (5 cred.; jr., sr.; prereq. 55, 120 recommended; MTWThF I, II, III; 112HE.) Miss Vetta Goldstein.

184su. Home Management Problems. A consideration of the problems of the management of the home, including a study of foods, clothing, shelter, and money management. (3 cred.; jr., sr., grad.; prereq. 41 or equiv., H.E.Ed. 90 or equiv.; MTWF IV, MW V; 203HE.)

§ Page numbers in course descriptions refer to the College of Agriculture, Forestry, and Home Economics Bulletin for 1938-40, where further information may be found.

- 185su. Family Relationships. (Page 83.§) (2 cred.; jr., sr.; prereq. 86 or parallel, H.E.Ed. 90 or C.W. 40; MTWF VI; 203HE.)
- 296su. Home Economics Problems (Foods). (Page 114.†) (3 cred.; MTWThF VII; registration with permission of instructor; 213HE.) Miss Noble.
- 299su. Home Economics Problems (Art). A unit requiring independent work in the application of art to actual situations in the classroom, the home, or the community. (2 cred.; registration with permission of instructor; MW V; 112HE.) Miss Vetta Goldstein.

SECOND TERM

- 85su. Home Management: Operation and Maintenance, Lectures. (Page 82.§) (3 cred.; jr., sr.; prereq. 40, H.E.Ed. 90 or C.W. 40 or parallel; MTWThF III and 1 hr. ar.; 213HE.)
- 86su. Home Management: Operation and Maintenance, Laboratory. (Page 82.§) Limited to 14. (4 cred.; jr., sr.; prereq. 85 or parallel, 40, 185 parallel, H.E.Ed. 90 or C.W. 40; hrs. ar.)
- 185su. Family Relationships. (Page 83.§) (2 cred.; jr., sr.; prereq. 86 or parallel, H.E.Ed. 90 or C.W. 40; MTWF IV; 213HE.)

HOME ECONOMICS EDUCATION

For list of courses in Home Economics Education see courses listed elsewhere in this bulletin under the College of Education.

HORTICULTURE

FIRST TERM

- 125su. Landscape Planning and Plant Materials. Principles of landscape planning as applied to the small home and the farmstead. A study will be made of trees and shrubs used in landscape planting. Each student will make several elementary landscape plans. Lectures, laboratory, and field trips for study of trees and shrubs. This course is planned primarily for high school teachers. (Graduate students will be required to write an assigned term paper.)‡ (2 to 3 cred.; prereq. 7 cred. in botany or equivalent, 1 course in horticulture or equivalent; MTWTh VI, VII, VIII; 8Hr.) Mr. Longley.

FIRST AND SECOND TERMS

- 190-191-192su. Special Problems. (Page 117.†) (2 to 4 cred.; jr., sr., grad.; ar.; Hr.) Mr. Alderman, Mr. Brierley, Mr. Harvey, Mr. Krantz, Mr. Currence, Mr. Hutchins, Mr. Wilcox.
- 247su.* Report on Special Horticultural Topics. (Page 117.†) (9 cred.) Mr. Alderman, Mr. Brierley, Mr. Harvey, Mr. Krantz, Mr. Currence, Mr. Longley, Mr. Wilcox.

† Page numbers in course descriptions refer to the Graduate School Bulletin for 1939-41, where further information may be found.

§ Page numbers in course descriptions refer to the College of Agriculture, Forestry, and Home Economics Bulletin for 1938-40, where further information may be found.

‡ Not open to students with credit in Hort. 21, 22, or 24.

PLANT PATHOLOGY AND BOTANY

FIRST AND SECOND TERMS

- 206su.* Research in Plant Pathology. (Page 149† description for Course 203-204-205.) (Cred. ar.; grad.; PP.) Mr. Stakman, Mr. J. J. Christensen, Mr. Eide, Miss Dossdall.
- 210su.* Research in Mycology. (Page 149.†) (Cred. ar.; grad.; prereq. 105-106-107; PP.) Mr. Stakman, Miss Dossdall.
- 257su.* Research Problems in Applied Plant Physiology. (Page 150.†) (Cred. ar.; grad.; PP.) Mr. Harvey, Mr. Landon.

SECOND TERM

COURSES TO BE GIVEN AT THE BIOLOGICAL STATION, ITASCA PARK

- 50su. Field Mycology. (3 cred.; prereq. 1 yr. of bot. or equiv. or consent of instructor; TF.) Mr. C. M. Christensen.
- 210su.* Research in Mycology. (Cred. ar.; grad.; prereq. 105-106-107.) Mr. C. M. Christensen.

For detailed description of courses offered see Biological Station Summer Session.

† Page numbers in course descriptions refer to the Graduate School Bulletin for 1939-41, where further information may be found.

BIOLOGICAL STATION SUMMER SESSION

During the second term of the Summer Session an excellent opportunity for the study of terrestrial and fresh-water biology in its most fundamental aspects is presented by the Biological Station of the University of Minnesota, located at Itasca Park.

Conducted co-operatively by various departments in the College of Agriculture, Forestry, and Home Economics and the College of Science, Literature, and the Arts, classes at the station will be held beginning July 29, ending August 30.

GENERAL INFORMATION

Courses are designed to provide opportunity for instruction and research and to train scientific investigators in the field of terrestrial and fresh-water biology. An excellent opportunity for study of the rich flora and fauna found in the mid-western and Lake States regions is afforded at the station.

Elementary courses in field botany, field entomology, wildlife conservation, field mycology, etc., of special interest to high school teachers and others interested in conservation and the teaching of conservation, are available.

Field trips and indoor laboratory work are given on designated days. In the field the student visits typical habitats and gathers specimens for laboratory study, supplemented by informal lectures by instructors in charge of each tour. The same scholastic standards are maintained at the station as on the campus of the University of Minnesota and college credit is given for work satisfactorily accomplished.

The interested students may find the following opportunities offered by the Biological Station at Itasca Park:

1. Elementary and advanced instruction during the five weeks of the second term of the University Summer Session (July 29 to August 30) for college undergraduates, graduate students, high school and nature study teachers, and others interested.
2. Opportunities for graduate students who may wish to pursue biological investigation in the lakes, fields, or forests close to the station.
3. Opportunities for teachers of botany, zoology, and biology as well as for guest investigators for independent research in terrestrial and fresh-water biology.

FEES AND EXPENSES

Registrations will be accepted during the week of July 22 to July 29. The following fees are payable by each registrant on or before July 29 and must be paid before registration is completed:

Tuition fee	\$25.80
Health fee	1.00
<hr/>	
Total tuition fee.....	\$26.80
General deposit fee.....	2.00
Equipment fee	10.00
<hr/>	
Total fees for the term.....	\$38.80

In addition it is estimated on the basis of the experience of other groups of students that the cost of board will not exceed a total of \$30 for the five weeks.

Charges for lockers, laboratory breakage, library fines, etc., will be deducted from the \$2 deposit and the balance will be refunded by mail after the close of the term.

Equipment fees include the use of microscopes, nets, boats, various class supplies, and accessories.

The estimated cost of \$68.80 for the five-week session does not include traveling expenses, clothing, laundry, and minor incidental personal expenses.

Tuition and fees are payable on or before July 29. After July 29 the late registration fee will be charged according to the following schedule:

Tuesday,	July	30.....	\$2.00
Wednesday,	July	31.....	3.00
Thursday,	August	1.....	4.00
Friday,	August	2.....	5.00

No registration will be accepted after August 2 without the approval of the professor in charge and payment of a \$5 fee.

ADMISSION

The courses in the Biological Station are open to all qualified graduate and undergraduate students who have had usual preliminary courses in biological subjects, as well as to qualified high school graduates. Certain courses are especially designed for the teachers of biological subjects in colleges, high schools, and public schools, and others interested in plant and animal life. Graduate registrations must be approved by the major department and these submitted to the Graduate School for final approval.

Registration may be completed at any time during the months of June and July, but not later than July 29 at the registrar's office of either campus of the University of Minnesota. Application for admission to the station should be made on a form which may be obtained from the registrar's office upon request.

For the 1940 session not more than one hundred (100) applicants can be admitted, and the priority of registration will govern admission.

For further information write to the registrar of the University of Minnesota, Minneapolis, for special folder describing the Biological Station.

SECOND TERM OF SUMMER SESSION

The courses to be given at the Biological Station will begin July 29 and close August 30. Special arrangements will be made for those whose school or other duties make it impossible to remain through the final week of the session.

The following courses are offered in the Biological Station for the year 1940 at Itasca Park during the second term of the Summer Session:

BOTANY

8su. Elements of Field Taxonomy. The identification of common wild flowers, and a general study of the classification and relationship of flowering plants. Field work in forest, swamp, bog, lake, and prairie. (3 cred.; prereq. Bot. 1, or consent of instructor; WS.) Mr. Buell.

11su. Field Botany. A general elementary field course in plant life. Fundamental facts of structure, growth, reproduction, relation of plants to each other and to their environment. Excursions with lectures and demonstrations to meet

- the needs of teachers of elementary botany and nature study, scout and camp leaders, and all who would know more about Minnesota plant life. (3 cred.; no prereq.; MTh.) Mr. Buell.
- 20su. Elementary Field Ecology. An outline of the fundamental concepts of ecology illustrated directly by examples in the field. A study of the mature plant communities and the various lines of succession leading to them. (3 cred.; no prereq.; MTh.) Mr. Lawrence.
- 62su.‡ Bryophytes and Pteridophytes. A study of the structure, life histories, and classification of liverworts, mosses, and ferns. Textbook: Coulter, Barnes and Cowles, *Textbook of Botany*, Vol. 1. (3 cred.; jr., sr.; prereq. bot. 10 cred., or consent of instructor; TF.) Mr. Rosendahl.
- 116su. Advanced Field Taxonomy. A course designed to take advantage of the favorable local conditions for a systematic study of taxonomically difficult groups, particularly the pondweeds, grasses, sedges, rushes, and composites. Text required: *Gray's New Manual of Botany* or any other manual approved by instructor. (3 cred.; jr., sr., grad.; prereq. 10 cred. incl. 7 or equiv.; WS.) Mr. Rosendahl.
- 135su.‡ Field Research Methods in Ecology. An advanced course in field ecology dealing chiefly with methods of studying community characteristics, rate of vegetational change, and the technique of measuring environmental influences. (3 cred.; prereq. bot. 18 cred. incl. Bot. 21 or equiv.; WS.) Mr. Lawrence.
- 196su.* Special Problems in Ecology or Taxonomy. Advanced studies in ecology or taxonomy with opportunity for individual field work and research. (Cred. ar.; adv. students with proper qualifications.) Mr. Rosendahl, Mr. Lawrence.

ENTOMOLOGY AND ECONOMIC ZOOLOGY

- 59su. Field Entomology. A study of the insect fauna in various natural habitats of the park and surrounding areas. The course includes field trips, collection and classification of insects, as well as studies of general morphology, life histories, and habits of local species under ecological conditions governing the distribution of insect fauna of the region. (3 cred.; jr., sr.; prereq. Zool. 1-2-3 or equiv.; TF.) Mr. Granovsky.
- 62su. Wildlife Conservation Principles and Administration. A general course dealing with the various values of wildlife, the nature of the biological mechanism involved in its conservation, and the economic, administrative, and legislative consideration of a conservation program. Treats of the values of wildlife, attitudes toward this resource, the essentials of wildlife environments, the requirements of the various species, and species and population properties. The class will visit federal wildlife refuges, a national forest, and a state wildlife refuge to observe the game management work being accomplished. Text recommended: Connery, *Governmental Problems in Wildlife Conservation*. Lectures, laboratory, and field work. (3 cred.; prereq. Zool. 1-2-3 or equiv.; MTh.) Charges for car mileage for field trips will average \$4 to \$5. Mr. Swanson.
- 68su. Natural History of the Higher Vertebrates. Life histories, habits, economic importance, and identification of amphibians, reptiles, birds, and mammals, with special reference to the local species. Texts: Peterson, *Field Guide to the Birds*; Hatfield, *A Checklist of the Mammals of Minnesota with Keys for Their Identification*. References: Pratt, *Manual of Vertebrate Animals of*

‡ A fee of \$1 is charged for this course.

the United States; Wright, *Handbook of Frogs and Toads*. (3 cred.; prereq. Zool. 1-2-3 or equiv.; no credits for students who have had Zool. 46-47, Ornithology, or Ent. 163, Mammology, or the equiv.; TF.) Charges for car mileage for field trips in this course will average \$4 or \$5, or one cent per mile per student. Mr. Swanson.

- 76su. Techniques of Field Biology. A study of available flora and fauna including the methods of collection, preservation, arrangement, and demonstration of illustrative material and effective presentation to classes. Lectures, laboratory, and field work by the entire staff of the station, each instructor presenting the selected methods in his respective field. This course is primarily designed to meet the needs of teachers of biological subjects. (2 cred.; prereq. Bot. or Zool. 10 credits or consent of instructor; WS.) Mr. Granovsky and staff of the station.
- 168su. Advanced Natural History of the Higher Vertebrates. Detailed study of the life histories, habits, food habits, and classification of the higher vertebrates of northern Minnesota with especial reference to the birds and mammals. Preparation of museum study specimens. Texts recommended: Peterson, *A Field Guide to the Birds*; Anthony, *Field Book of North American Mammals*. Lectures, laboratory, and field work. (3 cred.; prereq. Zool. 46-47, Ornithology, or Ent. 163, Mammology, or equiv.; TF.) Charges for car mileage for field work in this course will average \$1 or \$2. Mr. Swanson.
- 196su. Special Problems in Entomology or Economic Zoology. Advanced work in entomology and economic zoology with ample opportunity for individual research, especially in various phases of faunistic studies in terrestrial, aquatic, and forest entomology and economic zoology. (Cred. ar.; adv. students with proper qualifications.) Mr. Granovsky, Mr. Swanson.

FORESTRY

- 11su. Field Dendrology. Trees and shrubs found in the Itasca Park region, with special reference to identification by means of constant characters. (Not open for credit to students in Forestry.) Text required: Rosendahl and Butters, *Trees and Shrubs of Minnesota*. (3 cred.; prereq. Bot. 10 cred., or consent of instructor; WS.) Mr. Buell.
- 145su. Conservation of Natural Resources. A general course surveying our natural resources, the past treatment and changes in the public attitude towards their use. Designed principally as an informational course for those who will teach conservation in junior high school. Suitable exercises for junior high school students will be demonstrated and carried out. (1 cred.; prereq. one year biol. sci.; TTh.) Mr. Schantz-Hansen.

PLANT PATHOLOGY AND BOTANY

- 50su. Field Mycology. Taxonomy and classification of fungi, particularly mushrooms, wood rotting fungi, and those which cause disease of forest trees. Field collections, laboratory work, and lectures. (3 cred.; prereq. one yr. of bot. or equiv., or consent of instructor; TF.) Mr. C. M. Christensen.
- 210su.* Research in Mycology. Research work along following suggested lines: taxonomy of natural groups, fungus flora of particular regions, localities, or habitats; investigation of fungi involved in special industrial or natural processes; morphology or physiology of special forms. (Cred. ar.; grad.; prereq. 105-106-107.) Mr. C. M. Christensen.

ZOOLOGY ·

- 54su.‡ Parasitology. A study of animal parasites and parasitism in lecture, laboratory, and field work, with special emphasis on local forms. Text required: Riley, *Introduction to the Study of Animal Parasites and Parasitism*. References: Hegner, Root, and Augustine, *Animal Parasitology with Special Reference to Man and Domesticated Animals*, and Brumpt, *Précis de Parasitologie*. (3 cred.; prereq. Zool. 15 cred.; TF.) Mr. Wallace.
- 55su.‡ Natural History of Invertebrates and Fishes. A taxonomic and ecological survey of the local fauna, including life histories and habitats. Text required: Needham and Needham, *Guide to the Study of Fresh Water Biology*. References: Ward and Whipple, *Fresh-Water Biology*. (3 cred.; prereq. Zool. 1-2-3 or equiv.; WS.) Mr. Eddy.
- 107su.‡ Protozoology. A survey of the Protozoa, with special reference to their structure and life histories. Text (not required): Kudo, *Handbook of Protozoology*. (3 cred.; prereq. Zool. 15 cred.; MTh.) Mr. Turner.
- 108su.‡ Advanced Protozoology. Continuation of 107, with emphasis on methods of collection, cultivation, and preparation of free-living and some parasitic forms. Introduction of cytology of Protozoa also included. (3 cred.; prereq. 107, or may be taken with 107; TF.) Mr. Turner.
- 115su.‡ Advanced Natural History of Invertebrates and Fishes. An advanced taxonomic and ecological survey of the local fauna including a detailed and independent ecological study of several taxonomic groups. Text required: Ward and Whipple, *Fresh-Water Biology*. (3 or 4 cred.; prereq. 15 cred. in Zool.; MTh.) Mr. Eddy.
- 116su.‡ Limnology. A study of the conditions of life and the distribution of organisms in the lakes of the Itasca region. Text required: Welch, *Limnology*. (3 cred.; prereq. zool. 15 cred.; MTh.) Mr. Eddy.
- 147su.‡ Helminthology. A survey of the worm parasites of local animals with special emphasis on classification and the study of life cycles by the experimental method. (3 cred.; prereq. Zool. 51, 54, or 144; MTh.) Mr. Wallace.
- 198su.* Problems in Parasitology, Ecology, Limnology, or Protozoology. Principles and further work in special lines adapted to needs of individual students. (Cred. ar.; prereq. Zool. 1-2-3, and special requirements; adv. students.) Mr. Riley, Mr. Eddy, Mr. Turner, Mr. Wallace.

The above described courses are listed under the respective departments of the College of Science, Literature, and the Arts and the College of Agriculture, Forestry, and Home Economics in this bulletin.

‡ A fee of \$1 is charged for this course.

MEDICAL SCHOOL

GENERAL INFORMATION

GENERAL

Any of the courses offered by the departments of the Medical School (except section clinics of limited registration) are open to any student in the Summer Session, who has the necessary preparation to benefit therefrom.

FEES—MEDICAL STUDENTS

The Medical School tuition fee for a full Summer Session is \$75 for residents of Minnesota, and \$125 for nonresidents. Less than a full program may be paid for on a clock-hour basis, namely \$3.25 (nonresidents, \$5.75) for each weekly clock hour of scheduled work per quarter. In addition each student will pay the incidental fee of \$8.50, and a deposit of \$15 for men, \$5 for women. Students in certain courses are required to furnish microscopes.

Term fees are one half the quarter fees. Laboratory fees are not required under this plan. The schedule of total fees will therefor be:

	Per Quarter	Per Term
Tuition fee	\$75.00 (\$125.00)	\$37.50 (\$62.50)
Incidental fee	8.50	4.25
Deposit (men)	15.00	15.00
Deposit (women)	5.00	5.00

Fees must be paid on the above basis by all who elect the program of clinical subjects in the senior medical year; and by all who desire time credit on the medical course in this or any other medical school.

FEES—SUMMER SESSION STUDENTS

Students who do not desire to register for time credit toward a medical degree nor for a program of clinical subjects may pay on the above basis; or at their option they may pay the regular Summer Session fee of \$30 per term, plus special course fees as indicated in course descriptions and a \$2 deposit.

CLINICAL YEARS

The Medical School offers a full regular program for any quarter of the senior year. In order to receive legal time credit toward the degree of doctor of medicine or bachelor of medicine in this institution, students must be matriculated in the Medical School; see the Bulletin of the Medical School for requirements for admission and regulations governing advanced standing. Medical students from other schools who desire to enter for the summer only may do so as unclassified students, receiving subject credit only. If such students desire legal time credit toward a medical degree, they should make arrangements with the institution from which they intend to take the degree. No obligation to accept such students into regular classes at this school is attached to unclassified registration. Such students from other medical schools may take one of the programs listed below (except section clinics if already full) or, provided there is room in the classes, make up a special program from the courses offered. Admission to any course is conditioned upon the limit set by the department concerned.

Students from other institutions should consult the Bulletin of the Medical

School to determine to what extent the courses listed fulfill their respective needs. They should consult the dean or department heads in their own schools as to equivalence of the courses offered at the University of Minnesota.

PROGRAMS FOR CLINICAL YEARS

The courses offered in the clinical years are as follows:

JUNIOR YEAR IN THE MEDICAL SCHOOL

No didactic courses for juniors are offered in the Summer Session nor is any division of the junior class in regular attendance. However, junior students of this or other schools who desire to extend their clinical knowledge may register for the courses offered if there is room in the classes. No Minnesota junior may register for clerkship work for senior credit until he has passed the Junior Comprehensive Examination.

SENIOR YEAR IN THE MEDICAL SCHOOL

The program of the summer quarter will consist of the following courses. For description and schedules see departmental statements.

Division A, Medicine Clerkship Quarter

Med. 30su, 35su, 44su, 47su; Obs. 30su; Path. 109su; Ped. 30su; Surg. 30su.

Division B, Obstetrics and Pediatrics Clerkship Quarter

Med. 30su; Obs. 30su, 35su; Path. 109su; Ped. 30su, 35su; Surg. 30su.

Division D, Surgery Clerkship Quarter

Med 30su; Obs. 30su, 35su; Path. 109su; Ped. 30su; Surg. 30su, 35su, 49su; O. and O. 36su, 37su, 38su.

Under the curriculum, senior students are assigned to a particular clerkship and to particular dispensary clinics each quarter, for which see special schedules.

LABORATORY YEARS

No regular programs for freshman or sophomore medical students are offered, but many of the courses of these years will be given (see departmental statements for description of courses, program of hours, and laboratory fees). These courses may be taken by properly prepared students from other institutions as unclassified students, without matriculation in the Medical School. But students who desire to secure time credit toward the degree of doctor or bachelor of medicine in this school must matriculate and secure written consent from the officers of the school from which they expect to receive their medical degrees.

OPPORTUNITY FOR PRACTITIONERS

All the Summer Session courses offered are open to physicians, who will be registered as special students. Attention is also called to short courses offered from time to time throughout the year under the General Extension Division and the Center for Continuation Study. These courses are exclusively for practitioners and are largely practical in nature. Circulars will be sent on request.

The regular clinics in the University of Minnesota Hospitals and Dispensary, the Minneapolis General Hospital, the Ancker Hospital, Glen Lake Sanatorium, and the Wilder Dispensary, St. Paul, will go on as usual during the Summer Session, and will be open to visiting physicians.

ELECTIVES

Various electives will be offered in the laboratory and clinical departments. See departmental statements in this bulletin and also special Summer Session programs of the Medical School for details.

GRADUATE COURSES

Attention is called to opportunities offered in Medical School departments to work during the Summer Session for advanced degrees, either in laboratory or clinical branches.

GRADING

Regular medical students are subject to the comprehensive examination rules. These examinations cover all courses of the respective years of the curriculum. The comprehensive examinations are offered at the end of the spring quarter and in the week before the opening of the University in the fall. Students desiring to enter from another medical school with advanced standing are required to take the comprehensive examination for (at least) the year preceding the one they desire to enter. For admission to the junior year, Part I of the National Board Examinations may be accepted in lieu of the comprehensive examinations of the school, provided the grades received therein are satisfactory to the Admissions Committee. Summer Session students, not candidates for the medical degree in this school, are subject to ordinary course examinations and are graded in the regular way.

STUDENTS IN NURSING

No beginning student can be received in the Summer Session. For the regular courses, requirements, etc., see the Bulletin of the School of Nursing.

Fees for Students in the School of Nursing

Students in the School of Nursing who give hospital service during the Summer Session may carry any of the following courses: Pharmacology 8; Nursing 11, 14, 15, 18, 23, 31, 35, 36, 41, 49, 53, 55, 56, 60, 68, 69, 72; Preventive Medicine and Public Health 50, 53, 55, 58, 60, 62, 63; Child Welfare 10, 40, 80; Medicine 130, 131 for which the hospital service is accepted in lieu of tuition.

Undergraduate students in the School of Nursing who are not on duty in the hospital during the summer will be charged \$1 per clock hour (nonresidents, \$1.75 per clock hour) for the above courses plus an \$8.50 incidental fee.

All students in the School of Nursing who take courses other than those listed above and any student registering in the School of Nursing for the Summer Session only will pay regular Summer Session fees for each term.

Postgraduate Nursing Students

The School of Nursing admits postgraduate students in the operating room at the beginning of the summer quarter for a one-year course. Such applicants must meet the university entrance requirements and be graduates of accredited schools of nursing. For further information see the Bulletin of the School of Nursing.

Teachers and Administrators of Nursing Schools

Special courses for teachers and administrative officers in nursing schools will be offered in the Summer Session. See departmental announcements of Nursing Instruction and of Preventive Medicine and Public Health. For a circular giving full particulars concerning these courses apply to the director of the School of Nursing.

PUBLIC HEALTH NURSING

See Department of Preventive Medicine and Public Health in this bulletin for special courses in Public Health Nursing.

COURSES FOR MEDICAL TECHNOLOGISTS

The regular course in Medical Technology is offered during the Summer Session. No special arrangement for practical work can be made without the necessary prerequisites. See special bulletin on Medical Technology, or consult Dr. W. A. O'Brien, director of the Course for Medical Technologists, University of Minnesota Hospitals.

COURSES FOR DENTAL STUDENTS

For appropriate courses in the laboratory sciences, dental students should consult the departmental statements which follow.

An asterisk () indicates courses that may be taken by graduate students for independent work under Plan B. (See page 23.)*

ANATOMY

FIRST TERM

- 59su. Systematic Anatomy. A general course in gross anatomy. (5 cred.; fr. dent.; prereq. Zool. 1-2-3; MTWThF I, II, III, MTWF IV; 308 IA.) Course fee \$5. Dr. Miller.
- 61su. Histology and Embryology. Minute structure and development of the tissues and organs, with special emphasis upon the oral region and digestive tract. (6 cred.; fr. dent.; prereq. Zool. 1-2-3, Anat. 59; MTWThF I, II, III, MTWF IV, V; 102,215 IA.) Course fee \$7.50, microscope fee \$1.50. This course may also be taken for 5 credits with reduced laboratory work, as a substitute for Zoology 21, required for medical technologists. For this reduced course, the course fee is \$5, microscope fee \$1.50. Dr. Rasmussen and assistant.
- 65su. Hematology. For medical technologists. Lecture and laboratory work. Class limited to 45. Application should be made in advance at the Anatomy office. (5 cred.; prereq. Anat. 103 or equiv.; MTWThF VI, VII, VIII; 102,213 IA.) Microscope fee \$1.50. Miss Sundberg and assistant.
- 100su. Gross Human Anatomy. Dissection of abdomen and lower extremity. Disarticulated skeletons issued for study of osteology. Class limited to 32. Application for admission must be made in advance to the Department of Anatomy. (9 cred.; fr. med.; prereq. Zool. 1-2-3; MTWThF I, II, III, MTWF IV, MTWTh VI, VII, VIII; 304,306 IA.) Course fee \$7.50. Dr. Boyden and assistants.
- 103su. Human Histology. Minute structure of the various tissues and organs. (9 cred.; fr. med.; prereq. Zool. 1-2-3, Anat. 100, 101; MTWThF I, II, III, V, MTWF IV, MWF VII, VIII; 102,215 IA.) Course fee \$7.50, microscope fee \$1.50. (Medical students are required to furnish their own microscopes.) Dr. Rasmussen and assistant.
- 111su. Human Neurology. Morphology of the central nervous system and sense organs. (6 cred.; soph. med. and others; prereq. Anat. 103, 107; lect. daily 7:00 a.m., lab. MTWThF I, II, III; 102,214 IA.) Course fee \$5, microscope fee \$1.50. (Medical students are required to furnish their own microscopes.) Dr. Rasmussen and assistant.

- 156su. Advanced Anatomy. Individual problems in gross anatomy, histology, embryology, or neurology. Includes advanced work for clinical graduate students. Permission of instructor required. (Cred. and hrs. ar.) Course fee \$1 per credit. Dr. Boyden, Dr. Rasmussen, Dr. Miller.
- 204su. Research in Anatomy. Research work in gross or microscopic anatomy, histology, embryology, or neurology. Permission of instructor required. (Cred. and hrs. ar.) Dr. Boyden, Dr. Rasmussen.

SECOND TERM

- 60su. Anatomy of the Head and Neck. Class limited to 16. (6 cred.; fr. dent.; prereq. Anat. 59; MTWThF I, II, III, V, MTWF IV; 308 IA.) Course fee \$5. Dr. Miller.
- 101su. Gross Human Anatomy. Dissection of head, neck, thorax, and upper extremity. Continuation of 100su. Class limited to 32. (9 cred.; MTWThF I, II, III, MTWF IV, MTWThF VI, VII, VIII; 304,306 IA.) Course fee \$7.50. Dr. Blount and assistants.
- 156su. Advanced Anatomy. See under first term, Course 156. Permission of instructor required. (Cred. and hrs. ar.) Course fee \$1 per credit. Dr. Blount, Dr. Miller.
- 204su. Research in Anatomy. See under first term, Course 204. Permission of instructor required. (Cred. and hrs. ar.) Dr. Blount.

BACTERIOLOGY AND IMMUNOLOGY

FIRST TERM

- 41su. Principles of Bacteriology. (Page 18.†) (5 cred.; prereq. general chemistry and biology; MTWThF I, II, III; 214,201MH.) Course fee \$1.50. Dr. Larson, Mr. Ordal.
- 116su.* Immunity. (Page 19.†) (3 cred.; prereq. Bact. 41; MTThF II, III; 201MH.) Course fee \$1.50. Dr. Larson.
- 201su.* Research in Bacteriology. (Page 39.§) (Cred. and hrs. ar.) Dr. Larson.

SECOND TERM

- 102su. Medical Bacteriology. (Page 18.†) (4 cred.; prereq. Bact. 41; MTWThF VI, VII, VIII; 214,201MH.) Course fee \$1.50, microscope fee \$1.50. Dr. Henrici, Dr. Hoyt.
- 114su.* Molds, Yeasts, and Actinomycetes. (Page 19.†) (4 cred.; prereq. Bact. 41 and 102; hrs. ar.; 201MH.) Dr. Henrici.
- 201su.* Research in Bacteriology. (Page 39.§) (Cred. and hrs. ar.) Dr. Henrici.

MEDICINE

FIRST AND SECOND TERMS

Required Courses

- 30su. Clinic in Medicine. (22 hrs.; 6th yr., Divs. A, B, D; TTh 8:00-8:50; EMH and MGH.) Dr. Fahr and others.

† Page numbers in course descriptions refer to the Medical School Bulletin for 1939-40, where further information may be found.

§ Page numbers in course descriptions refer to the Graduate School Bulletin for 1939-41, where further information may be found.

- 35su. § Clinical Clerkship in Medicine. The personal observation of patients in hospital; taking and recording of case histories; making of provisional diagnosis; and study of treatment. (200 hrs. cred.; 6th yr., sections of Div. A.) See special schedule. Dr. Watson and staff.
- 35vsu. Admission Clerkship. Assignment to admission service, University of Minnesota Hospitals. Part of medical clerkship. Dr. Wetherby.
- 35xsu. Same as 35 at the Minneapolis General Hospital. Dr. Fahr and staff.
- 35ysu. Physical Diagnosis and Therapy. Conducted with sections in the following dispensary clinics: (1) general medicine; (2) heart clinic; (3) chest clinic; (4) metabolism; (5) gastrointestinal clinic. Part of medical clerkship, Course 35. (6th yr.)

Elective Courses

- 25su. Physical Diagnosis and Therapy. Conducted with sections in the following dispensary clinics: (a) general medicine; (b) cardiac and vascular diseases; (c) respiratory diseases and tuberculosis; (d) food; (e) gastrointestinal diseases. Elective for juniors in summer to the extent of facilities. See special schedule. Dr. Wetherby.
- 57su. Advanced Physical Diagnosis of the Chest. Practical dispensary work on tuberculous patients. Not less than 3 nor more than 6 students. Dr. Weisman.
- 102su. ¶ The Respiratory Organs in Health and Disease. For students who desire training in preparation of scientific papers for publication. The student selects a problem pertaining to some part of the respiratory tract, which he pursues independently or in collaboration with instructor. Limit, 5 students. (Cred. and hrs. ar.; 5th and 6th yr.) Dr. Myers.
- 105su. ¶ Problems in Pathological Physiology. Experimental work. One to four students. (Problems and cred. ar.; soph.; hrs. ar.; laboratory of Pathological Physiology, MH.) Dr. Fahr, Dr. Watson, and staff.
- 106su. ¶ Problems in Clinical Physiology. Experimental and clinical investigations of the pathological functions in cardiovascular, renal, gastrointestinal, and respiratory diseases. One to four students. (Problems and cred. ar.; jr., sr.; laboratory of Pathological Physiology, MH, MGH, UD.) Dr. Fahr, Dr. Watson, and staff.
- 107su. ¶ Resident Clerkship in Tuberculosis. Elective may be substituted for a portion of the medical clerkship. (Seniors in medical clerkship quarters; Glen Lake Sanatorium.) Dr. Mariette and staff.
- 203su. ¶ Research in Medicine. (Cred. and hrs. ar.) Dr. Fahr.

DIVISION OF DERMATOLOGY

Required Courses

- 47su. Diagnosis and Therapy. Observation and study of cases in the University Dispensary and Minneapolis General Hospital; a part of medical clerkship, Medicine 35. (40 or 24 hrs. cred.; see special schedule, sections of sr. class; daily 1:00-3:00.) Dr. Michelson, Dr. Sweitzer, Dr. Lynch, Dr. Madden, Dr. Rusten.

Elective Courses

- 93su. Assistantship, Dermatology and Syphilis. One student. (Prereq. medical clerkship; MGH.) Dr. Winer.

§ Course 35su or the separate parts thereof including Med. 44 and 47 will be open as electives to prepared students other than Division A seniors to the extent that facilities permit.

¶ Permission of instructor required.

- 94su. Assistantship and Conference in Dermatology. (Prereq. medical clerkship and Med. 97; EMH, UD.) Dr. Michelson and staff.
- 97su. Therapy of Syphilis. One student. (Prereq. medical clerkship; daily 1:00-3:00; EMH.) Dr. Michelson, Dr. Lynch, Dr. Laymon.

DIVISION OF NERVOUS AND MENTAL DISEASES

Required Courses

- 44su. Nervous and Mental Diseases. Observation and study of cases in the University Dispensary; required of clerks in nervous and mental service at University of Minnesota Hospitals. (Credit included in clerkship, Med. 35.) Dr. McKinley, Dr. Baker, Dr. Schiele, and staff.

Elective Courses

- 121su.§ Resident Clerkship in Psychiatry. Two weeks or more arranged at a state hospital. Dr. G. H. Freeman, Dr. Patterson, and staffs.
- 124su.¶ Advanced Neuropathology. Individual gross and microscopic studies on existing preparations in neuropathology. Limit, 2 students. (Cred. and hrs. ar.; prereq. Path. 102; 126MH.) Dr. Baker.
- 125su.¶ Problems in Neuropathology. The student will be assigned a topic for special study. Limit, 2 students. (Cred. and hrs. ar.; prereq. Path. 102; 126MH.) Dr. McKinley, Dr. Baker.

FIRST TERM

- 130su. Introductory Psychiatry. (MTWThF 4:00-5:00 p.m.) Dr. Hinckley.
- 131su. Descriptive Neuropsychiatry. (MTWThF 4:00-5:00 p.m.) Dr. Kamman.

OBSTETRICS AND GYNECOLOGY

FIRST AND SECOND TERMS

Required Courses

- 30su. Obstetrics and Gynecology Clinic. Lectures, class clinics, and case analysis of the pathology of obstetrics and gynecology. (22 hrs.; sr.; MF 8:00-8:50.) Dr. McKelvey, Dr. McLennan, and staff.
- 35su. Clinical Clerkship in Obstetrics and Gynecology. The study and care of assigned patients in the University of Minnesota Hospitals and Dispensary, Minneapolis, and Salvation Army Home, St. Paul; manikin practice, case histories, physical and laboratory examinations; parturition and bedside clinics, and operations. Includes 35xsu, 35ysu. (240 hrs.; selection of Div. B, sr.; prereq. Courses 20, 21, 22, 23; daily through either term, 9:00-5:00; EMH.) Dr. McKelvey and staff.
- 35xsu. Clinical Clerkship in Obstetrics and Gynecology. Part of Course 35su, but given at the Minneapolis General Hospital. (MTWThFS 9:00-5:00.) Dr. Lang, Dr. Simons, and staff.
- 35ysu. Residence in Obstetrics. Part of Course 35. (Ancker Hospital.) Dr. Barry and staff.

§ The dean's office will be glad to assist in making arrangements.

¶ Permission of instructor required.

Elective Courses

- 55su. Prenatal Clinic. Limited to one student. (Th 1:30 p.m.; Wells Memorial.) Dr. Abramson.
- 55asu. Prenatal Clinic. Limited to one student. (F 1:30 p.m.; Margaret Barry Settlement House.) Dr. Abramson.

OPHTHALMOLOGY AND OTOLARYNGOLOGY

FIRST AND SECOND TERMS

Required Courses

- 36su. Clinic in Diseases of the Eye. Diagnosis and treatment of cases. Part of the required section clinics, surgical clerkship period. (35 hrs.; UD.) Dr. Burch, Dr. Macnie, Dr. Hansen, Dr. Hymes, Dr. Benkwitz, Dr. Walsh.
- 37su. Clinic in Diseases of the Ear. Diagnosis and treatment of cases. Part of section clinics, surgical clerkship period. (18 hrs.; UD.) Dr. Newhart, Dr. Fjeldstad, Dr. Delavan, Dr. Hilger, Dr. Loenholdt, Dr. Priest.
- 38su. Clinic in Diseases of the Nose and Throat. Diagnosis and treatment of cases. Part of required section clinics, surgical clerkship period. (18 hrs.; UD.) Dr. Boies, Dr. Bryant, Dr. Hilger, Dr. Loenholdt, Dr. Priest.

Elective Courses

- 53su. Didactic and Practical Instruction in Refraction. (Cred. and hrs. ar.; UD.) Dr. Tracht, Dr. Benkwitz, Dr. Walsh.
- 54su. Operative Clinic in Eye. Limited to six students. (12 hrs. cred.; Th 3:00-4:30; TM.) Dr. Burch, Dr. Macnie, Dr. Hansen, Dr. Hymes.
- 57su. Operative Clinic in Ear, Nose, and Throat. Limited to six students. (13 hrs. cred.; F 8:00-10:00; TM.) Dr. Newhart, Dr. Boies, Dr. Bryant, Dr. Fjeldstad, Dr. Phelps, Dr. Hilger.
- 58su. Clinical Otorhinolaryngology. Demonstration of diagnosis and treatment of cases with special reference to the needs of the general practitioner. Classroom and bedside instruction. (Days ar. 1:00-3:00.) Staff.

A didactic course in ophthalmology can be given (Dr. Macnie) during the Summer Session, if sufficient students desire it.

PATHOLOGY

FIRST TERM

- 107su. Surgical Pathology with Special Attention to Tumors. This course is intended for those specializing in pathology or surgery. (6 cred.; MTWThF 8:00-11:00 a.m.) Dr. McCartney.

FIRST AND SECOND TERMS

- 104su. Autopsies. Post-mortem technique; examination of fresh organs, etc. (Cred. and hrs. ar.; prereq. Path. 102; 110 IA.) Staff.
- 109su. Clinical Pathological Conference. Presentation of clinical data on selected cases and of the pathological specimens from the same, with discussions of etiology and diagnosis. Required in clerkship period. Elective for others. (1 cred.; F 4:00-4:50; 104 IA.) Staff.
- 109xsu. Clinical Pathological Conference. Elective. (Th 11:30-12:30; MGH.) Staff.

- 111su. Conference on Autopsies. (1 cred.; T 12:30 to 2:00 p.m.; 104 IA.) Staff.
 201su. Research. Students of the necessary preliminary training may elect research, either as major or minor in pathology. Permission required. (Cred. and hrs. ar.) Dr. Bell, Dr. Clawson, Dr. McCartney, Dr. Noble.

NOTE.—All courses may be taken either or both terms.

PEDIATRICS

FIRST AND SECOND TERMS

Required Courses

- 30su. Amphitheater Clinic. Detailed consideration of diagnoses, prognosis, prophylaxis, and treatment in individual clinical cases representing all phases of pediatric practice. (Sr. and other prepared students; S 8:00-9:00 a.m.; Eustis Amphitheater.) Dr. McQuarrie and senior staff.
 35su. Clinical Clerkship in Pediatrics. Patients in the pediatric wards, dispensaries, and special clinics are assigned to individual students for history taking, complete examination, treatment, and "follow-up" observation under supervision. Bedside clinics for one hour daily. One sixth of class on pediatric clerkship at one time, part of work at the University of Minnesota Hospitals, the other part at the Minneapolis General Hospital. Required time for each student, daily from 9:00 a.m. to 5:00 p.m. for 6 weeks. Dr. McQuarrie, Dr. Clarke, Dr. C. A. Stewart, Dr. Hansen, Dr. Stoesser, and staffs.

Elective Courses¶

- 106su.§ Advanced Study of Noncontagious Diseases. Both clinical and experimental subject-matter included. Dr. McQuarrie, Dr. Hansen, Dr. Ziegler, Dr. Anderson.
 108su.§ Advanced Study of Contagious Diseases. Dr. Platou.
 112su.§ Common Behavior Disturbances in Childhood—Their Recognition and Management. Dr. Clarke, Dr. Lippman, Dr. Jensen.
 208su. Pediatric Research. Special problems in the various subdivisions of the pediatric field may be selected for study. Students may collaborate with members of the staff or with other students where suitable arrangements can be made. Dr. McQuarrie and staff.

PHARMACOLOGY

FIRST TERM

- 8su. Elementary Pharmacology. (Page 20.†) (3 cred.; prereq. Anat. 3, Physiol. 2; MW VI-VIII incl.; lect. 113 MeS; lab. 101MH.) Dr. Wright.
 108su. Prescription Writing. (Page 21.†) (1 cred.; soph. or higher class medical students, grad. or other students; prereq. physiology or equiv.; hrs. ar.; 102MH.) Dr. Wright.
 109su. Pharmacological Problems. (Page 21.†) (3 cred. or ar.; soph. or higher class medical students, grad., or other students; prereq. physiology or equiv.; 3:00-6:00 p.m., or ar.; 132MH.) Course fee \$1 per credit. Dr. Hirschfelder, Dr. Wright.

† Page numbers in course descriptions refer to the Medical School Bulletin for 1939-40, where further information may be found.

§ Not offered to fewer than ten students.

¶ Time and credit to be arranged with Dr. McQuarrie.

- 115,115xsu. General Pharmacology for Medical and Dental Students. (Page 21.†) (115su equivalent to 101w and 102s; 115xsu equivalent to 54w.) (115su, soph. or higher class medical students, grad. or other students; prereq. physiology or equiv.; course fee \$5 per term; 115xsu, jr. or higher class dental students; prereq. physiology or equiv.; course fee \$2 per term; MTWThF V-VIII incl., or ar.; 101MH.) Dr. Hirschfelder, Dr. Wright.
- 203su. Research in Pharmacology. (Page 21.†) (Cred. ar.; grad. and adv. students; permission required; 132MH.) Dr. Hirschfelder, Dr. Wright.

SECOND TERM

- 8su. Elementary Pharmacology. (Page 20.†) (3 cred.; prereq. Anat. 3, Physiol. 2; MW VI-VIII incl.; lect. 113MeS; lab. 101MH.) Dr. Wright.
- 103su. General Pharmacology. (Page 21.†) (2 cred.; jr. medical students, grad.; prereq. 102; hrs. ar.; 102MH.) Dr. Wright.
- 104su. General Pharmacology. (Page 21.†) (2 cred.; jr. medical students, grad.; prereq. 102, 103; hrs. ar.; 102MH.) Dr. Wright.
- 109su. Pharmacological Problems. (Page 21.†) (3 cred. or ar.; soph. or higher class medical students, grad., or other students; prereq. physiology or equiv.; 3:00-6:00 p.m., or ar.; 132MH.) Course fee \$1 per credit. Dr. Wright.
- 203su. Research in Pharmacology. (Page 21.†) (Cred. ar.; grad. and adv. students; permission required; 132MH.) Dr. Wright.

NOTE.—Sophomore Comprehensive Examination includes Pharm. 115su. Junior Comprehensive Examination includes Pharm. 105su, 106su, and 108su. Students from other schools can arrange to complete all required work in pharmacology by registering for 105su, 106su, 108su, and 115su.

Special arrangements can be made by each student to adapt work in pharmacology to the special needs for the school which he is attending.

PHYSIOLOGY

FIRST TERM

- 4su. Human Physiology. An elementary course consisting of lectures and demonstrations for students desiring an introduction to the subject. (4 cred.; prereq. high school or college biology and chemistry; lect. and dem. MTWThF I, II; 113MeS.) Course fee \$2. Dr. King and assistant.
- 58su. Human Physiology. An introductory course for academic, dental, and other students, lectures and laboratory. (7 cred.; prereq. college chemistry and human anatomy or zoology; lect., rec., and dem. MTWThF I, II, 12MeS; lab. MW III, IV, TThF IV, V, 301MH.) Course fee \$5. Dr. Scott and others.
- 100su. Physiological Chemistry. An advanced course for upper division medical and graduate students. Applications of physiological chemistry to biological problems and the metabolism of carbohydrates and fats. (7 cred.; prereq. organic chemistry and physics; lect. MTWThF I, IV, 15MeS; lab. MTWThF II, III, 310MH.) Course fee \$7.50. Lectures only, 5 cred., may be registered for as 100xsu; laboratory only as 100ysu. Dr. Hemingway, Dr. Samuels.
- 103su. Physiology. An advanced course for medical, graduate, and other qualified students, covering general physiology, the functions of neuro-motor apparatus, circulation, and respiration. (8 cred.; prereq. organic chemistry and zoology;

† Page numbers in course descriptions refer to the Medical School Bulletin for 1939-40, where further information may be found.

lect. MTWThF I, II, 12MeS; rec. TF III, ar.; lab. § MW III, IV, V, TThF IV, V, 301MH.) Course fee \$7.50. Lectures only, 5 cred., may be registered for as 103xsu. Dr. Scott and others.

113asu. Seminar on Heart and Circulation. Survey of our present knowledge of the physiology of the heart and circulation with lectures, discussions, laboratory, and assigned reading, limited to twenty qualified students. Advance registration by permission will be necessary. (2 cred.; hrs. ar.) Course fee \$1 per credit. Dr. Visscher.

203su. Research in Physiology. (Cred. and hrs. ar.) Dr. Visscher.

205su. Research in Physiological Chemistry. (Cred. and hrs. ar.) Dr. Hemingway.

SECOND TERM

59su. Human Physiology. Continuation of 58su. (7 cred.; prereq. 58; lect. MTWThF I, II, 12MeS; rec. TF III, ar.; lab. MW III, IV, V, TThF IV, V, 301MH.) Course fee \$5. Dr. Code and others.

101su. Physiological Chemistry. Continuation of 100su. Metabolism of nitrogenous materials, digestion, endocrinology, and inorganic metabolism. (6 cred.; prereq. 100; lect. MTWThF I, IV, 214MH; lab. MTWThF II, III, 319MH.) Course fee \$7.50. Lectures only, 4 cred., may be registered for as 101xsu; laboratory only, as 101ysu. Dr. Samuels, Dr. Arnow.

104su. Physiology. Continuation of 103, covering the nervous system and senses, endocrines, metabolism, nutrition, digestion, and renal function. (7 cred.; prereq. 103 or organic chemistry and neurology; lect. MTWThF I, II, 12MeS; rec. TF III, ar.; lab. MW III, IV, V, TThF IV, V, 301MH.) Course fee \$7.50. Lectures only, 5 cred., may be registered for as 104xsu. Dr. Code and others.

113bsu. Seminar on Osmosis in Living Systems. Lectures, discussions, assigned reading, and experiments on osmotic phenomena in living systems, limited to twenty qualified students. Advanced registration by permission will be necessary. (2 cred.; hrs. ar.) Course fee \$1 per credit. Dr. Visscher.

203su. Research in Physiology. (Cred. and hrs. ar.) Dr. Visscher.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

FIRST TERM

60su. Tuberculosis and Its Control. History of tuberculosis movement and campaign in the United States. Early diagnosis and treatment. Tuberculosis in children. The psychology of tuberculosis, supervision of returned sanatoria patients. State program for the eradication of tuberculosis; legislation. (2 cred.; jr., sr.; prereq. 50, 52, or 53; MTWF IV; †.) Dr. Myers.

61su. Mental Hygiene. Emotional reaction to the environment; prevention of mental disturbances; relationship of these problems to work of public health nurses. (3 cred.; public health nurses; prereq. 53 and/or 62 which may be taken concurrently; MTWThF I; †.) Miss Shalit.

62-63su. Principles and Special Fields of Public Health Nursing. History and development of public health nursing, a study of the underlying principles of organization, administration, and service, and their application in a program of individual and family health supervision in the specialized fields such as

† Room schedule posted in 121 Millard Hall.

§ Students who find it more convenient may do part of their laboratory work in the afternoon.

maternal and infant welfare, preschool, school, tuberculosis, and industrial nursing. (6 cred.; public health nurses; prereq. 53 or equiv. but may be taken with 53. Students who have previously taken Course 62 or equivalent course in principles of public health nursing but wish to take 63 must register for Courses 63 and 171; MTWThF II-III; †.) Miss Parker.

- 67su. Field Practice with Family Health Agency. Lectures, demonstrations, and supervised experience in prenatal and infant clinics and in home visiting. This includes bedside care of all types of cases, with emphasis on promotion of physical and mental health and recognition of social problems. (Cred. ar.; 6-11 weeks; public health nurses; prereq. 62, registration limited and only by prior arrangement with department.) Miss Arnstein, Miss Draper, Mrs. Lyons.
- 101su. Public Health Administration and Field Work. Demonstrations of health agencies at work; boards of health, laboratories, filtration, pasteurization, and garbage disposal plants. Presentation of actual health problems. (2 cred.; groups of 10 to 15 medical students for 6 weeks [18 hrs.]; sr. medics; prereq. 100 hrs., see clerkship schedule, Medical School.) Dr. Anderson and staff.
- 170su. Supervision in Public Health Nursing. Nature of supervision, historical survey, classification of activities; methods of supervision, including field visitation, individual counseling, group conferences, staff education programs, administrative functions of supervisors, preparation and selection of supervisors. (3 cred.; prereq. 53, 61, 63, or by permission; MTWThF II; †.) Miss Arnstein.
- 171su.* Advanced Problems in Public Health Nursing. For experienced public health nurses. Will include a discussion of advanced problems dealing with administrative practice, organization, and the establishment of relationships with medical and community groups, etc. (3 cred.; public health nurses; prereq. 53, 61, 62, experience in public health nursing or permission of instructor; MTWThF ar.; †.) Miss Arnstein.
- 200su. Research. Opportunities will be offered by the University and by the various co-ordinated organizations for qualified students to pursue research work. (Cred. ar.; grad.) Dr. Anderson and staff.

SECOND TERM

- 53su. Elements of Preventive Medicine. Susceptibility, resistance, and immunity to disease; methods of spread and prevention of communicable and degenerative diseases; sanitation of the environment; proper types and protection of food, water, and milk. (5 cred.; prereq. 3 or 50 or equiv.; public health nurses and medical social workers; MTWThF III, MTWF IV; †.) Dr. Anderson.
- 58su. Maternal and Child Hygiene. History and development of maternal and child health in the United States; maternal hygiene problems; maternal mortality and morbidity; public health measures in maternal health field; origin and conduct of infant welfare programs in cities and rural areas; development and care of infant and preschool child. (2 cred.; jr., sr., public health nurses only; prereq. 53; MTWF I; †.) Dr. Williams.
- 67su. Field Practice with Family Health Agency. Limited to those students who have begun such work during the first term.
- 70su. Special Methods and Supervised Teaching in Health Education for Public Health Nurses. Includes practice in planning instruction and in teaching adults. Class limited to fifteen to twenty. Application should be made by June 15, 1940,

† Room schedule posted in 121 Millard Hall.

- to the instructor. (6 cred.; prereq. permission of instructor; MTWThF III, MTWF IV; †.) Miss Palmer.
- 101su. Public Health Administration and Field Work. Same as first term.
- 102su. Environmental Sanitation. Public health supervision, purification, and distribution of water supplies; the production, processing, and distribution of milk and other foods; the treatment and disposal of sewage, excreta, garbage, and other wastes, bathing places; the control of occupational health hazards and of animals and insects involved in the spread of disease. Lectures, field and laboratory demonstrations. (5 cred.; prereq. Bact. 41, P.M.&P.H. 53, 100 or equiv. or consent of instructor; MTWThF I, VI-VIII; †.) Mr. Pierce, associates, and guest lecturers.
- 106su.* Public Health Administration. Structure, basic functions, and activities of public health agencies; public health laws and regulations; administrative procedures in public health practice; relationship to other governmental and social activities. For physicians, engineers, nurses, social workers, and others by arrangement. (3 cred.; prereq. 53, 100, 109, or equiv. or to be taken simultaneously with any of these prereq.; MTWThF II; †.) Dr. Anderson.
- 200su. Research. Same as first term.

BIOMETRY

FIRST TERM

- 110su. Biometric Principles. An introduction to statistical analysis with emphasis on the basic principles of statistical reasoning, the description of univariate distributions, normal correlations, simple tests of significance, and goodness of fit. Course 111 will be taken concurrently. (3 cred.; prereq. 18 cred. in biol. sci. or math. through anal. geom.; MTWThF I; 118MH.) Mr. Treloar.
- 111su.‡ Biostatistics Laboratory. Practical training in machine calculation and statistical techniques discussed in Course 110. (2 cred.; lab. 10 hrs. ar.; 118MH.) Mr. Treloar.
- 140su.*‡ Topics in Biometry. Reference reading and laboratory work in special subjects as advanced students may require them. (3 cred.; sr., grad.; prereq. 120 and 130 or consent of instructor; hrs. ar.; 118MH.) Mr. Treloar.

RADIOLOGY

FIRST AND SECOND TERMS

Required Course

- 35x,y,zsu is offered as part of clerkships in Medicine, Pediatrics, and Surgery (see Bulletin of the Medical School).

Elective Courses

- 85su. Plate Reading: Limit 4 students. (Cred. and hrs. ar.; jr. or sr.; EMH.) Dr. Rigler and others.
- 88asu. X-Ray Diagnosis. Four to 10 students. (22 hrs.; jr. or sr.; M 9:00-11:00; MGH.) Dr. Ude.
- 88bsu. X-Ray Diagnosis. Four to 10 students. (11 hrs.; jr. or sr.; W 1:00-2:00 p.m.; EMH.) Dr. M. B. Hanson.

† Room schedule posted in 121 Millard Hall.

‡ A fee of \$1 per term is charged for this course.

- 95su. Clinic in X-Ray Therapy. (Hrs. ar.; jr. or sr.; EMH.) Dr. Stenstrom.
- 101su. Surgical-Roentgenological Conference. Part of Surg. 35. For surgical clerks and graduate students. Dr. Rigler.
- 103su. Physical Therapy Clinic. (Cred. and hrs. ar.; T.) Dr. Knapp.
- 107su. Medical-Roentgenological Conference. Part of Med. 35. For medical clerks and graduate students. Dr. Rigler.
- 108su. Pediatric-Roentgenological Conference. For pediatric clerks and graduate students. Dr. Rigler.
- 200su. Research in Roentgen Diagnosis. (Cred. and hrs. ar.) Dr. Rigler.
- 205su. Research Related to Radiation Therapy. (Cred. and hrs. ar.) Dr. Stenstrom.
- 207su. Roentgen and Radium Therapy. Treatment of patients under supervision both with medium and high voltage machines and with radium. Problems in connection with these treatments will be thoroly discussed. (Cred. and hrs. ar.) Dr. Stenstrom.

SURGERY

FIRST AND SECOND TERMS

Required Courses

- 30su. Surgical Clinic for Seniors. Amphitheater clinic. (Sr.; 55 hrs.) Surgery staff.
- 35su. Clinical Clerkship. The individual study of assigned patients; case histories, laboratory examinations, provisional diagnoses with suggestions as to therapy; attendance at operation and observation of postoperative management. (Sr.; 300 hrs.; EMH, MGH.) Surgery staff.
- 35asu. Clinical Pathology of Tumors. A combined clinical and pathological consideration of tumors. Insofar as available material permits, a systematic presentation of the manifestations and effects of malignant tumors which come in the province of general surgery and its divisions. Part of Course 35. Surgery staff.
- 35bsu. Reading Course. A weekly recitation during the clerkship on assigned reading in a standard textbook of surgery. Quiz and lecture. Part of Course 35. Surgery staff.
- 35csu. Surgical-Pathological Conference. A review of the gross and microscopic findings of surgical specimens removed during the preceding week; also an attempt will be made to review systematically some of the aspects of surgical pathology which are of especial importance to surgeons. Part of Course 35. Surgery staff.
- 35dsu. Roentgenological-Surgical Conference. The films of all surgical patients presenting interesting roentgen findings are reviewed. Part of Course 35 (see also Radiology program). Radiology and Surgery staffs.
- 35esu. Surgical Conference. Cases presenting interesting problems are presented and discussed. Part of Course 35. Surgery staff.
- 35fsu. Anesthetics. Administration of anesthetics under supervision. Part of Course 35. (EMH.) Dr. Knight and others.
- 35gsu. Outpatient Surgical Clinic, including Minor Surgery and Proctology. Sections daily in the Outpatient Department. Part of Course 35. Dr. Wangenstein, Dr. Peyton, Dr. Bratrud, Dr. W. A. Hanson, Dr. Leven, Dr. McKinney, Dr. Paine, Dr. Rea, Dr. J. K. Anderson, Dr. Bergh, Dr. W. P. Ritchie, Dr. Sperling.

- 35hsu. Clerkship on Fractures. Under the supervision of the hospital staff the student participates in the care of fractures. Part of Course 35 (MGH.) Surgery staff.
- 35isu. Practical Laboratory Surgery. Class divided into operating teams and perform selected operations with aseptic technique upon the dog. Surgical staff.
- 35jsu. Applied Surgical Anatomy. Exercises in surgical anatomy upon the cadaver. Surgical staff.

Elective Courses

- 52su. Diagnosis of Tumors. Study, in the Outpatient Department, of patients with malignant diseases. (22 hrs.) Dr. Peyton and others.
- 53su. Problems in Clinical Investigation. A study of special case records correlated with literature study. (Cred. and hrs. ar.) Dr. Wangensteen, Dr. Creevy, Dr. Peyton, Dr. Paine, Dr. Rea, Dr. Bergh.
- 67su. Problems in Experimental Surgery. Students under supervision will investigate problems assigned to them. As their experience increases they are permitted to do the operations incident to their problems. (Cred. and hrs. ar.; prereq. Surg. 53.) Dr. Wangensteen, Dr. Creevy, Dr. Peyton, Dr. Paine.

DIVISION OF NEUROSURGERY

Required Courses

- 62su. Outpatient Clinic in Neurosurgery. Opportunity is here afforded for examination and observation of patients with surgical diseases of the nervous system before and after operation. Senior year. Part of Course 35. Dr. Peyton and associates.
- 63su. Clinical Clerkship in Neurosurgery. Cases admitted for observation and operation will be assigned to students for study. Senior year. Part of Course 35.

Elective Course

- 64su. Head Injuries. Junior or senior year. (11 hrs.; MGH.) Dr. Zierold and associates.

DIVISION OF ORTHOPEDIC SURGERY

Required Course

- 45su. Orthopedic Outpatient Clinic. A part of required section clinics. Three times weekly. Senior year. A part of Course 35. Orthopedic surgery staff.

DIVISION OF UROLOGY

Required Courses

- 48su. Cystoscopic Clinic. Demonstration of cystoscopy. Senior year. Part of Course 35. Dr. Gere, Dr. Meland, Dr. Olson.
- 49su. Outpatient Clinic in Urology. The observation, examination, and treatment of patients. Senior year. Part of Course 35. Urology staff.

DIVISION OF ANESTHESIA

Required Course

- 35su. Individual Instruction in Anesthesia. Part of surgical clerkship, Surgery 35. Dr. Knight and others.

Elective Course

- 36su. Case Problems in Anesthesia. Time arranged with instructor. Limited to two students. Dr. Knight.

SCHOOL OF NURSING

FIRST TERM

Courses for graduate nurses. See also courses in Preventive Medicine and Public Health.

- 60su. Ward Administration. Principles of administration and their application to ward management. A study of the opportunities for clinical teaching through efficient ward administration. (4 cred.; MTWTh I-II; 111MeS.) Miss Harrington.
- 69su. A Study of Conditions and Trends in Nursing. A study of conditions existing in nursing as revealed in literature and various reports. An attempt to define tendencies in nursing with a view to designating those which appear most favorable to social progress. (3 cred.; MWF VI-VII; 116MH.) Miss Densford.
- 72su. Teaching and Supervision in Schools of Nursing. Principles of teaching applicable in schools of nursing. Planning of class work. Use of patient studies, ward clinics and demonstrations, and assignment of practice, as methods of clinical teaching. Methods of evaluating students' work. Principles of supervision and their application for the improvement of nursing practice. (5 cred.; MTWThF III, MTWF IV; 113MeS.) Miss Petry.
- 73su. Administration and Organization in Schools of Nursing. This course is planned for graduate nurses who are concerned with the problems of administration and organization in nursing schools, present-day administrative problems, and objectives in nursing education. (2 cred.; MTWThF III, MTWF IV; 116MH.) Miss Thompson.

SCHOOL OF DENTISTRY

FIRST AND SECOND TERMS

Courses will be offered in the School of Dentistry as follows:

Clinical Practice. Clinical work will be offered in each of the following divisions under the direction of the division chairman: Crown and Bridge Work, Dr. Wells; Operative Dentistry, Dr. Green; Orthodontia, Dr. Rudolph; Prosthetic Dentistry, Dr. Flagstad; Oral Surgery, Dr. Griffith; Major Oral Surgery of the Mouth and Jaws, Dr. Waldron. (Jr., sr., grad.; MTWThF 9:00-12:00 a.m., and 1:30-4:30 p.m.)

Fee: for residents—full time, \$30, half time, \$15, for each term; for non-residents—full time, \$40, half time, \$20, for each term. In addition each student pays an incidental fee of \$4.25 per term, and a general deposit fee of \$5.‡

Courses in contributing departments are announced elsewhere in this bulletin. See particularly Anatomy, Bacteriology and Immunology, Pathology, Pharmacology, Physiology.

‡ Student registering for half time in dentistry and for part time in other departments will not be required to duplicate the incidental fee.

COLLEGE OF EDUCATION

Courses in the College of Education presuppose completion of Junior College requirements in the University of Minnesota or the equivalent in colleges of similar grade elsewhere. Graduation from the advanced course of Minnesota state teachers colleges is accepted as equivalent. Students with this training may be admitted to any course for which they have satisfied the prerequisite as stated under each course.

For all general matters relating to admission, advanced standing, credits, honor points, curricula, and requirements for graduation, students should consult the College of Education Bulletin. Students expecting to become candidates for a degree should seek as early as possible the advice of the major adviser in the department concerned in order to learn the requirements of the special curriculum they will need to complete.

SUMMER DEMONSTRATION HIGH SCHOOL

The University High School will be in session during the first term of the Summer Session. Instruction will be offered in English, mathematics, general science, chemistry, physics, biology, history, social studies, shorthand, typing, and other high school subjects. The school is a six-year high school comprising grades seven to twelve. The courses will be organized to provide individual attention to the needs and capacities of the pupils.

Admission to the Summer Session is open to any pupil of normal high school age. Children of teachers or other professional workers who are attending the Summer Session of the University are especially welcomed in the summer term of the University High School. For information regarding fees and registration procedure, address the Principal's Office, University High School, Minneapolis, Minnesota.

Students registered in Ed.T. 52su will be assigned to observation and directed teaching in the classes of the high school. The facilities of the school are available to the college classes in special methods and in other courses for demonstration purposes. (MTWThF I, II, III, IV.)

SUMMER DEMONSTRATION ELEMENTARY SCHOOL

An elementary school, grades one to six inclusive, will be in operation during the first term of the Summer Session. This school will be staffed by the principal and teachers of the Tuttle School and the demonstration elementary school of the College of Education, by a co-operative agreement with the Board of Education of the city of Minneapolis. The school will be conducted on an activity basis and may be observed by students of elementary school methods and supervision. (MTWThF I, II, III, IV; Tuttle School, Talmadge Street and Eighteenth Avenue S.E.)

NURSERY SCHOOL AND KINDERGARTEN

The Institute of Child Welfare maintains a nursery school and kindergarten in the first term of the Summer Session which is open to children under the conditions described on page 110. These schools are also available for demonstration and observation. Courses, offered by the institute and listed on pages 110 and 111, are given for teachers who wish nursery school and kindergarten training or who are interested in child development.

MINIMUM FEE FOR GRADUATE STUDENTS

Graduate students who have completed all their graduate work with the exception of their thesis will be allowed to register for the Summer Session for thesis work only upon the payment of a fee of \$5 plus a \$2 deposit.

DETAILED DESCRIPTION OF COURSES

For detailed description of courses and curricula in education see the College of Education Bulletin.

NOTICE CONCERNING STARRED COURSES

Graduate students who wish to work on individual problems to count toward the nine credits in problems courses required for the Master's degree under Plan B, may register for this credit in any course starred in the following list. Other students taking these courses will not be held to the same quality of individual problems work, nor will written reports always be required of them. (See page 23.)

GENERAL COURSES

FIRST TERM

- Ed.51Asu.† Introduction to Secondary School Teaching. (3 cred.; jr., sr.; prereq. 6 cred. in psy.; MTWThF VI; 114UHS.) Mr. Dugan.
- Ed.51Bsu.†† Introduction to Secondary School Teaching. (3 cred.; jr., sr.; prereq. Ed. 51A or consent of instructor; MTWThF VII; 204bUHS.) Mr. Fattu.
- Ed.51Csu.† Introduction to Secondary School Teaching. (3 cred.; jr., sr.; prereq. Ed. 51B or consent of instructor; MTWThF VI; 204aUHS.) Mr. Curtis.
- Ed.61Asu.§ Introduction to Elementary School Teaching. (3 cred.; prereq. 6 cred. in psy.; MTWThF VI; 114UHS.) Mr. Dugan.
- Ed.104su. Adult Education. (3 cred.; jr., sr., grad.; MTWThF III; 206WeH.) Mrs. May.
- Ed.105su‡ (formerly Ed.C.I.105). Visual Aids in Teaching. (3 cred.; jr., sr., grad.; MTWThF III; 101WeH.) Miss Clark.
- Ed.107su‡ (formerly Ed.C.I.107). Radio in Education. (3 cred.; jr., sr., grad.; MTWThF I; 209EdH.) Mr. Tyler.
- Ed.133su. Guidance in Secondary Schools. (3 cred.; sr., grad.; prereq. 9 hrs. in ed.; Section A, primarily for administrators; MTWThF II; 201WeH; Section B, primarily for teachers and counselors; MTWThF III; 201WeH.) Mr. Hahn.
- Ed.167su. Junior High School. (3 cred.; sr., grad.; prereq. 10 hrs. in ed. including Ed. 51 or consent of instructor; MTWF IV and 1 hr. ar.; 100Pt.) Mr. Carlson.
- Ed.176su. Conflicting Issues in Modern Education. An introduction to the basic controversies in current educational philosophy. The effects on educational practice of progressive, essentialist, and radical viewpoints. (3 cred.; jr., sr.,

† The entire course including the final examination covering all three units must be successfully completed before credit is received for any quarter. Exceptions may be made by the Students' Work Committee when credit is to be transferred to another institution.

‡ A fee of \$1 per credit is charged for this course.

§ The entire course (Ed.61A,B,C) including the final examination covering all three units must be successfully completed before credit is allowed for this course. Exceptions may be made by the Students' Work Committee when credit is to be transferred to another institution. Ed. 61A,B,C should not be taken by graduates of normal schools.

- grad.; not open to students who have taken Ed. 76; prereq. 6 hrs. in psy.; MTWThF II; 204aUHS.) Mr. Brameld.
- Ed.180su. Education and the Social Order. The relation of education and the state; the role of education in social reconstruction; the meaning of academic freedom in a democracy. (3 cred.; jr., sr., grad.; prereq. 6 hrs. in soc. sci.; MTWThF I; 204aUHS.) Mr. Brameld.
- Ed.208su.* Methods in Educational Research. (3 cred.; grad.; MTWThF II; 112VH.) Mr. Johnson.
- Ed.225su. Seminar in Elementary School Problems. (No cred.; prereq. consent of instructor; F V; 210Bu.) Mr. Brueckner.
- Ed.228su.*¶ Problems in Higher Education—Workshop. (3 to 9 cred.; grad.; MTWThF II, other hrs. ar.; 206WeH) Mr. McConnell, Mr. Peik, Mr. Wrenn, Mr. MacLean, Mr. McGrath, and others.
- Ed.233su.* Problems in Guidance and Personnel Work. (Cred. ar.; grad.; prereq. consent of instructor; ar.) Mr. Wrenn.
- Ed.250su. Higher Education in the United States. (3 cred.; grad.; prereq. 15 hrs. in ed.; MTWThF II; 206WeH.) Mr. McConnell and others.
- Ed.276su.* Problems in Educational Philosophy. (Cred. ar.; grad.; prereq. consent of instructor; ar.) Mr. Brameld.
- Ed.285su. Professional Education of Teachers. (3 cred.; grad.; prereq. 15 hrs. in ed.; MTWThF III; 204aUHS.) Mr. Carlson.
- Ed.Wsu.** Professional Preparation for Teaching. (Minimum of 45 cred.; prereq. consent of Mr. Carlson, course adviser.)

SECOND TERM

- Ed.51Asu.† Introduction to Secondary School Teaching. (3 cred.; jr., sr.; prereq. 6 cred. in psy.; MTWThF VI; 202EdH.) Mr. Anderson.
- Ed.51Bsu.‡‡ Introduction to Secondary School Teaching. (3 cred.; jr., sr.; prereq. Ed. 51A or consent of instructor; MTWThF VII; 202EdH.) Mr. Anderson.
- Ed.51Csu.† Introduction to Secondary School Teaching. (3 cred.; jr., sr.; prereq. Ed. 51B or consent of instructor; MTWThF III; 106Pt.) Mr. Cooper.
- Ed.61Asu.§ Introduction to Elementary School Teaching. (3 cred.; prereq. 6 cred. in psy.; MTWThF VI; 202EdH.) Mr. Anderson.
- Ed.101su. Historical Foundations of Modern Education. (3 cred.; jr., sr., grad.; prereq. 6 cred. in psy.; MTWThF II; 9F.) Miss Alexander.
- Ed.102su. History of Modern Secondary and Higher Education. (3 cred.; jr., sr., grad.; prereq. 6 cred. in psy.; MTWF IV, and 1 hr. ar.; 9F.) Miss Alexander.
- Ed.105su.‡ (formerly Ed.C.I.105). Visual Aids in Teaching. (3 cred.; jr., sr., grad.; MTWThF II; 101WeH.) Miss Clark.

† The entire course including the final examination covering all three units must be successfully completed before credit is received for any quarter. Exceptions may be made by the Students' Work Committee when credit is to be transferred to another institution.

‡ A fee of \$1 per credit is charged for this course.

§ The entire course (Ed.61A,B,C) including the final examination covering all three units must be successfully completed before credit is allowed for this course. Exceptions may be made by the Students' Work Committee when credit is to be transferred to another institution. Ed. 61A,B,C should not be taken by graduates of normal schools.

¶ Inquire of Mr. T. R. McConnell, 301 Eddy Hall, for detailed announcement.

** This course is designed for students already holding a baccalaureate degree and desiring to complete their preparation for teaching. Such students should consult the adviser, and outline for approval a program covering at least three quarters' study for completion of work for a teacher's certificate. The entire course, including the final examination, must be completed successfully before credit is given for any quarter.

- Ed.107su.‡ (formerly Ed.C.I.107). Radio in Education. (3 cred.; jr., sr., grad.; MTWThF I; 209EdH.) Mr. Tyler.
- Ed.133su. Guidance in Secondary Schools. (3 cred.; sr., grad.; prereq. 9 hrs. in ed.; MTWThF I; 206WeH.) See also Ind. 110su. Mr. Hahn.
- Ed.167su. Junior High School. (3 cred.; sr., grad.; prereq. 10 hrs. in ed. including Ed. 51 or consent of instructor; MTWF IV and 1 hr. ar.; 200Pt.) Mr. Cooper.
- Ed.225su. Seminar in Elementary School Problems. (No cred.; prereq. consent of instructor; F V; 210Bu.) Mr. Brueckner.
- Ed.233su.* Problems in Guidance and Personnel Work. (Cred. ar.; grad.; prereq. consent of instructor; ar.) Miss Edwards.

AGRICULTURAL EDUCATION

FIRST TERM

- Agr.Ed.232su.* Research in Agricultural Education. Introduction to investigational work in problems of teaching agriculture in the high schools. Experience in selecting programs, preparation of bibliographies, analyzing and interpreting data, and preparing manuscripts. (Cred. ar.; grad.; prereq. 15 hrs. in ed.; lect. hrs. and individual work ar.; 102Ad(UF).) Mr. Field, Mr. Ekstrom.
- Agr.Ed.237su. Adult Education in Agriculture. The organization, objectives, and techniques for conducting evening schools and part-time schools for farmers and out-of-school youth. (2 to 3 cred.; grad.; prereq. 15 hrs. in ed.; MTWThF III; 102Ad(UF).) Mr. Ekstrom.
- Agr.Ed.238su. Planning and Evaluating Programs of Agricultural Education. Surveying community needs and the establishment of objectives and goals to meet these needs. Developing long-time and annual programs in agricultural education with suggestions as to means of accomplishments and the evaluation of outcomes. (2 to 3 cred.; grad.; prereq. 15 hrs. in ed.; MTWThF VI; 102Ad(UF).) Mr. Ekstrom.
- Agr.Ed.247su.‡ Foundations of Methods in Teaching Agriculture. A study of the progressive philosophy which forms the basis for the current trends in the organization and methods of procedure in teaching agriculture in the secondary schools. Emphasis on the problem of co-ordinating farm practice and the course of study activities of individual students. Critical evaluation of procedures in the adaptation of the learning activities to the level of the individual needs, abilities, and interests of the students. Evaluation of the results of learning, diagnosis of student difficulties, and planning remedial measures. (2 to 3 cred.; grad.; prereq. 15 hrs. in ed.; MTWF IV and 1 hr. ar.; 102Ad(UF).) Mr. Field.

ART EDUCATION

FIRST TERM

Courses in art education have been planned on the assumption that art should be a fundamental component of a school or college curriculum. The courses in this department will be of value to many teachers besides those working directly in the field. Students registering in Art Education should consult the adviser for assistance in selecting courses.

- ArtEd.1su. (Group A) Fundamental Experiences in Design. (3 cred.; prereq. high school art or ArtEd. 14-15-16 or consent of instructor; MTWThF I-II; 207aJ.) Mr. Hilpert.

‡ A fee of \$1 per credit is charged for this course.

- ArtEd.17su. (Group A) Art for Elementary Teachers. Practical art problems for those planning to teach young children. (3 cred.; no prereq.; MTWThF III, MTWF IV, and 1 hr. ar.; 207J.) Mr. Hilpert.
- ArtEd.31su. (Group B) Orientation in Handcraft Processes. Work with materials and processes useful for teachers, social workers, summer camp leaders, etc. (3 cred.; prereq. design or taken concurrently; MTWThF VI-VII; 10, 11J.) Miss Smythe.
- ArtEd.61,62,63,66,67, or 68su. (Group C) Individual Problems in Drawing and Painting. (Consult instructor in selecting number of course for registration.) (2 cred.; prereq. ArtEd. 28 or consent of instructor; MTWF III-IV; 203J.) Mr. Ziegfeld.
- ArtEd.70su. (Group A) Fundamental Experiences in Design II. (3 cred.; prereq. ArtEd. 3 or equiv.; not open to those who have taken ArtEd. 20; MTWThF I-II; 207bJ.) Miss Smythe.
- ArtEd.290E or 292Esu. (Group D) Special Problems in Art Education. (Cred. ar.; open to candidates for M.Ed. degree in art ed.; prereq. consent of instructor; ar.) Mr. Hilpert.

SECOND TERM

- ArtEd.2su. (Group A) Fundamental Experiences in Design. (3 cred.; prereq. ArtEd. 1 or equiv.; MTWThF I-II; 207J.) Mrs. Clair.
- ArtEd.6 or 8su. (Group C) Exploratory Experiences in Drawing and Painting. (3 cred.; no prereq.; MTWThF I-II; 203J.) Mr. Gayne.
- ArtEd.18su. (Group A) Art for Elementary Teachers. (3 cred.; prereq. Art Ed. 17 or equiv.; MTWThF III, MTWF IV, and 1 hr. ar.; 207J.) Mr. Gayne.
- ArtEd.61,62, or 63su. (Group C) Individual Problems in Drawing and Painting. (2 cred.; prereq. ArtEd. 28 or equiv.; MTWF III-IV; 203J.) Mrs. Clair.
- ArtEd.84su.‡ (Group E) Teaching of Art in the Elementary Grades. Problems and methods in applying art materials in elementary school teaching. (3 cred.; prereq. Ed. 61A,B,C, or equiv.; MTWThF VI-VII; 207J.) Mr. Ziegfeld.
- ArtEd.124E,126E, or 128Esu. (Group C) Advanced Individual Problems in Painting. (2 cred.; prereq. consent of instructor; MTWF III-IV; 203J.) Mrs. Clair.

CURRICULUM AND INSTRUCTION

FIRST TERM

- Ed.C.I.102su.‡ Contents and Activities of the Social Studies in the Elementary Grades. (3 cred.; prereq. Ed. 61A,B,C, or equiv.; MTWF IV and 1 hr. ar.; 105VH.) Mr. Barnes.
- Ed.C.I.103su.‡ Problems in the Teaching of Elementary School Science. (3 cred.; prereq. Ed. 61A,B,C, or equiv.; MTWThF I; 105VH.) Mr. Watkins.
- Ed.C.I.106su. Demonstration Physics. (This course is also listed as Physics 151su.) (3 cred.; prereq. general course in college physics; MTWF IV and Th V; 133Ph.) Mr. Buchta.
- Ed.C.I.109su.§ Advanced Course in Sight Conservation. Administrative and teaching problems in sight-saving classes. The relation of eye hygiene to sight conservation. (9 cred.; prereq. completion of an accredited elementary course

‡ A fee of \$1 per credit is charged for this course.

§ This course is offered through the co-operation of the National Society for the Prevention of Blindness, the Minnesota Society for the Prevention of Blindness, the Minnesota Academy of Ophthalmology, and the Department of Ophthalmology and Otolaryngology and the College of Education, University of Minnesota.

- for the preparation of teachers and supervisors of sight-saving classes or successful experience in the teaching of sight-saving classes; enrolment limited to thirty students; admission by approval of the dean of the College of Education; MTWThF I-III and MTWF IV; E525TMH.) Dr. Burch, Mrs. Hathaway.
- Ed.C.I.110su. Education of Handicapped Children. (3 cred.; prereq. Ed. 51A or equiv.; MTWThF I; 201WeH.) Mr. Rockwell.
- Ed.C.I.113su. High School Curriculum. (3 cred.; sr., grad.; prereq. 10 hrs. in ed. including Ed. 51 or equiv.; MTWThF I; 106Pt.) Mr. Bossing.
- Ed.C.I.117su. Rural School Management and Instruction. (3 cred.; jr., sr., grad.; prereq. 10 hrs. in ed. including Ed. 61 or equiv.; MTWF IV and 1 hr. ar.; 204aUHS.) Miss Gustin.
- Ed.C.I.119su. Elementary School Curriculum. (3 cred.; sr., grad.; prereq. Ed. 61C or equiv.; MTWF IV and 1 hr. ar.; 201WeH.) Miss Clark.
- Ed.C.I.122su. Literature for Adolescents. (3 cred.; jr., sr., grad.; prereq. Ed. 51C or junior-senior high school teaching experience; MTWF IV and 1 hr. ar.; 204bUHS.) Miss Smith.
- Ed.C.I.129su.‡ Principles and Problems of Teaching Social Hygiene. Emphasis will be placed on methods of teaching social hygiene in the public schools and materials for instructional use in the elementary and secondary schools. (3 cred.; jr., sr., grad.; prereq. 9 hrs. in ed.; MTWThF VI; 100Pt.) Mr. Griffiths.
- Ed.C.I.130su. Problems of Childhood Education. (2 cred.; sr., grad.; prereq. 9 cred. in ed. including Ed.T. 55 or equiv.; MTWF III; 100Pt.) Mrs. Foster.
- Ed.C.I.140su.‡ The Teaching of Speech. Orientation in problems of speech education. Review of studies of teaching methods and special devices, voice recordings, tests. Direction of extra-curricular activities. (3 cred.; jr., sr., grad.; prereq. Sp. 1-2-3 or Sp. 5-6 or equiv. or permission of instructor; MTWThF II; 321F.) Mr. Gilkinson.
- Ed.C.I.143su.‡ Teaching of Reading in the Elementary School. (3 cred.; jr., sr., grad.; prereq. 9 hrs. in ed. including Ed. 61A or equiv.; MTWThF II; 106Pt.) Mr. G. Bond, Mr. E. Bond.
- Ed.C.I.145su.‡ Remedial Reading. (3 cred.; prereq. Ed.C.I. 143 or 144 or 159; MTWThF III; 106Pt.) Mr. G. Bond, Mr. E. Bond.
- Ed.C.I.149su.‡ The Teaching of Intermediate Grade Arithmetic. (3 cred.; sr., grad.; prereq. Ed. 61A,B,C or equiv.; MTWThF I; 202UHS.) Mr. Thiele.
- Ed.C.I.150su.‡ Supervision and Improvement of Instruction. (3 cred.; sr., grad.; prereq. Ed. 61C or equiv.; MTWF IV and W V; 106Pt.) Mr. Brueckner.
- Ed.C.I.151su.‡ Diagnostic and Remedial Instruction. (3 cred.; sr., grad.; prereq. Ed.C.I. 150 or equiv.; MTWThF II; 206Pt.) Mr. Thiele.
- Ed.C.I.160su.‡ Supervision of Elementary Subjects. (3 cred.; sr., grad.; prereq. Ed.C.I. 150; MTWThF VI; 209EdH.) Mr. Brueckner and others.
- Ed.C.I.168su. Current Developments in the Social Studies. (3 cred.; MTWThF I; 2VH.) Mr. Barnes.
- Ed.C.I.170su. Curriculum and Course of Study Construction. (3 cred.; sr., grad.; prereq. 15 hrs. in ed.; MTWThF II; 205aUHS.) Mr. Bossing.
- Ed.C.I.174-175-176su.‡§ Clinical Methods and Practice in Speech Pathology. (9 cred.; sr., grad.; prereq. Sp. 1, 2, 3, 61, 67, 162, Psy. 4-5, Zool. 83 or Psy. 52,

‡ A fee of \$1 per credit is charged for this course.

§ Ed.C.I.174-175-176 must be completed before credit is allowed. Passing the qualifying examination in English usage and a C+ average in the major is prerequisite to registration in this course. Students should register for this course for eight weeks. They may take any two quarters listed in Speech as 164-165-166su.

- Ed.Psy. 60, Human Physiol. 2, Human Anat. 3, and permission of instructor; MWF III and other hrs. ar.; 406F.) Mr. Brown.
- Ed.C.I.181su.‡ Foundations of Elementary School Methods. (3 cred.; sr., grad.; prereq. 9 hrs. in ed.; MTWThF III; 209EdH.) Mr. Archer.
- Ed.C.I.186su.‡ Laboratory in Elementary Instructional Practices. Daily observation of elementary classes, with discussion of techniques, emphasis on activity unit, visual aids, enriched materials, individual differences, and socialized situations. Students enrolling in this course must carry at least one other course in the College of Education. (2 cred.; experienced teachers only; observation 4 hrs. weekly, MTWThF ar., Tuttle School; lecture TW VI, 200Pt.) Mr. Staudenmaier.
- Ed.C.I.187su.‡ Laboratory in Elementary Instructional Practices. A full program for six weeks, open to twenty Kellogg Foundation students and thirty additional applicants. Mornings, observation at Demonstration Elementary School; afternoons, discussion of problems of elementary teaching, emphasizing diagnostic and remedial procedures, wider use of varied materials, and socializing the learning process. Special consideration of problems of teaching in double grade situations in village and small-city schools. (9 cred.; prereq. permission of the dean of the College of Education; not open to those who have received credit in Ed.C.I. 187 or 188 in previous sessions; observation daily I-IV; discussion hrs. ar.; Tuttle School.) Mr. F. A. Miller.
- Ed.C.I.191su.‡ Advanced Course in the Teaching and Supervision of Secondary School Mathematics. (3 cred.; prereq. Ed. 51C or consent of instructor; MTWThF I; 115UHS.) Mr. Walker.
- Ed.C.I.201su.* Problems in Teaching the Social Studies. (3 cred.; grad. and teachers; prereq. consent of instructor; MTWThF II; 105VH.) Mr. Wesley.
- Ed.C.I.204su.* Social Studies Curriculum. (3 cred.; grad. and teachers; prereq. consent of instructor; MTWThF III; 105VH.) Mr. Wesley, Miss Ylvisaker.
- Ed.C.I.261su.* Special Problems in School Supervision: Appraising Educational Programs. (3 cred.; MTWThF II; 114UHS.) Mr. Brueckner.
- Ed.C.I.263su.* Research in Arithmetic Instruction. (Cred. ar.; prereq. consent of instructor; ar.) Mr. Thiele.
- Ed.C.I.266su. Supervision of High School Instruction. (3 cred.; grad.; MTWThF III; 206Pt.) Mr. Ziegel.
- Ed.C.I.271su.* Problems in Curriculum Construction. (Cred. ar.; prereq. credit or current enrolment in Ed.C.I. 113, 119, 170, or equiv., and consent of instructor; ar.) Mr. Bossing.
- Ed.C.I.273su.* Problems in Reading. (Cred. ar.; prereq. consent of instructor; W V; 210Bu.) Mr. G. Bond, Mr. E. Bond.
- Ed.C.I.287su.‡ Advanced Course in the Teaching of Science. (3 cred.; sr., grad.; prereq. Ed. 51C; MTWThF II; 115VH.) Mr. Watkins.
- Ed.C.I.294su.*‡ Advanced Course in Methods of Teaching English. (3 cred.; prereq. Ed.T. 66A,B,C, or equiv.; MTWThF II; 204BUHS.) Miss Smith.

See also Speech Department courses in phonetics and lip-reading, of value to teachers in special education.

SECOND TERM

- Ed.C.I.113su. High School Curriculum. (3 cred.; sr., grad.; prereq. 10 hrs. in ed. including Ed. 51 or equiv.; MTWThF II; 106Pt.) Mr. Hughes.

‡ A fee of \$1 per credit is charged for this course.

- Ed.C.I.119su. Elementary School Curriculum. (3 cred.; sr., grad.; prereq. Ed. 61C or equiv.; MTWThF VI; 209EdH.) Miss Cutright.
- Ed.C.I.135su. Teaching of Occupations and Group Guidance. (3 cred.; sr., grad.; prereq. 9 hrs. in ed.; MTWThF III; 339Lib.) Miss Wright.
- Ed.C.I.144su.‡ Teaching of Reading in Secondary Schools. (3 cred.; sr., grad.; prereq. 9 hrs. in ed. including Ed. 51A; MTWThF I; 201WeH.) Mr. G. Bond, Mr. E. Bond.
- Ed.C.I.145su.‡ Remedial Reading. (3 cred.; prereq. Ed.C.I. 143 or 144 or 159; MTWThF III; 201WeH.) Mr. G. Bond, Mr. E. Bond.
- Ed.C.I.150su.‡ Supervision and Improvement of Instruction. (3 cred.; sr., grad.; prereq. Ed. 51C or equiv.; MTWThF II; 201WeH.) Mr. Brueckner.
- Ed.C.I.153su. Supervision and Teaching of English in the Elementary School. (3 cred.; sr., grad.; prereq. Ed. 61A,B,C, or equiv.; MTWF IV and 1 hr. ar.; 106Pt.) Mr. Archer.
- Ed.C.I.168su. Current Developments in the Social Studies. (3 cred.; MTWThF III; 204bUHS.) Mr. Wesley.
- Ed.C.I.169su. Extra-curricular Activities. (3 cred.; prereq. 10 hrs. in ed. including Ed. 51A; MTWThF I; 204bUHS.) Mr. Carlson.
- Ed.C.I.254su. Supervision of the Social Studies. (3 cred.; sr., grad.; prereq. Ed. 61A,B,C, or equiv.; MTWThF II; 204bUHS.) Mr. Wesley.
- Ed.C.I.263su.* Research in Arithmetic Instruction. (3 cred.; prereq. Ed.C.I. 156 or 148 or 149 or equiv.; MTWF IV and W V; 100Pt.) Mr. Brueckner.
- Ed.C.I.266su. Supervision of High School Instruction. (3 cred.; grad.; MTWThF I; 106Pt.) Mr. Hughes.
- Ed.C.I.271su.* Problems in Curriculum Construction. (Cred. ar.; prereq. credit or current enrolment in Ed.C.I. 113, 119, 170, or equiv., and consent of instructor; ar.) Mr. G. Bond, Mr. E. Bond.
- Ed.C.I.293su.* Foundations of Secondary School Methods. (3 cred.; grad.; MTWThF III; 204aUHS.) Mr. Johnson.

EDUCATIONAL ADMINISTRATION

FIRST TERM

- Ed.Ad.104su. Minnesota School Laws and Regulations. Important school laws and opinions of the attorney-general. The application of recent legislation and State Department of Education regulations to current problems of school organization. (3 cred.; MTWThF VI; 210Bu.) Mr. Caldwell.
- Ed.Ad.111su. Rural School Administration and Supervision. (3 cred.; MTWThF III; 204bUHS.) Miss Gustin.
- Ed.Ad.115su. Organization of the Elementary School. Problems relating to the organization for instruction and classification of pupils in elementary schools with critical examination of current practices. (3 cred.; jr., sr., grad.; prereq. 10 hrs. in ed.; MTWF IV and 1 hr. ar.; 200Pt.) Mr. von Borgersrode.
- Ed.Ad.124su. Public School Administration. The organization, administration, and general support of public schools in state and local school districts. (3 cred.; sr., grad.; prereq. 10 hrs. in ed.; MTWThF I; 210Bu.) Mr. Oppenheimer.
- Ed.Ad.125su. Techniques in Administration. Standard practices regarding child-accounting problems, records, and reports; procedures having to do with teach-

‡ A fee of \$1 per credit is charged for this course.

- ing personnel; standard office practices, including textbooks and supply management. (3 cred.; sr., grad.; prereq. Ed.Ad. 124; MTWThF II; 200Pt.) Mr. Schweickhard.
- Ed.Ad.206su. State School Administration. State educational organization and control. Educational planning, the financing of education, improvement of instruction, and other problems from the point of view of the state. (3 cred.; grad.; prereq. Ed.Ad. 124, 125; MTWThF VII; 210Bu.) Mr. Caldwell.
- Ed.Ad.210su.* Financial Aspects of School Business Administration. Financial program planning, budgeting, accounting, cost finding, income and expenditure control, and the preparation and analysis of financial reports. (3 cred.; grad.; prereq. Ed.Ad. 124, 125; MTWThF I; 200Pt.) Mr. Reeder.
- Ed.Ad.226su. School Plant Planning and Management. Plant program planning and financing, including operation and maintenance of public school buildings. (3 cred.; grad.; prereq. Ed.Ad. 124, 125; MTWThF III; 210Bu.) Mr. Neale.
- Ed.Ad.228su.* Special Problems in Educational Administration. For the summer of 1940 this course will deal with recent research in the field of school administration. Superintendents may work on research problems in connection with their own school systems. (3 to 6 cred.; grad.; prereq. Ed.Ad. 124, 125; MTWF IV and 1 hr. ar.; 210Bu.) Mr. Neale.
- Ed.Ad.230su.* Public Relations for Schools. Theory and practice of educational interpretation. Principles involved; machinery and personnel; the teacher's contacts with the community; the role of the pupil; professional and lay organization; techniques and mediums of educational interpretation. Layout; news and feature writing; radio broadcasting; bulletins and reports; exhibits; special occasions. (3 cred.; prereq. Ed.Ad. 124, 125; MTWThF II; 210Bu.) Mr. Reeder.
- Ed.Ad.234su.* Research in Educational Administration. Techniques of research in the field of school administration. (3 cred.; grad.; prereq. Ed.Ad. 124, 125; MTWThF III; 200Pt.) Mr. von Borgersrode.
- Ed.Ad.235su. Seminar in Educational Administration. Enrolment limited to candidates for Master's degrees under Plan A and candidates for Ph.D. degrees in educational administration. (No cred.; T VI; 115UHS.) Mr. Neale.
- Ed.Ad.264su. High School Administration. (3 cred.; grad.; MTWF IV and 1 hr. ar.; 206Pt.) Mr. Ziegel.
- Ed.Ad.270su.* Special Problems in Secondary Education. (Cred. ar.; prereq. consent of instructor; ar.) Mr. Bossing, Mr. Ziegel.
- Ed.Ad.274su. The Junior College. Organization and control, faculty and employee personnel administration, administrative relationships to problems of curriculum and instruction. (3 cred.; grad.; MTWThF III; 114UHS.) Mr. Oppenheimer.

See also Industrial Education.

SECOND TERM

- Ed.Ad.115su. Organization of the Elementary School. (3 cred.; jr., sr., grad.; prereq. 10 hrs. in ed.; MTWThF III; 100Pt.) Mr. von Borgersrode.
- Ed.Ad.124su. Public School Administration. (3 cred.; sr., grad.; prereq. 10 hrs. in ed.; MTWThF I; 210Bu.) Mr. DeYoung.
- Ed.Ad.125su. Techniques in Administration. (3 cred.; sr., grad.; prereq. Ed.Ad. 124; MTWThF II; 200Pt.) Mr. von Borgersrode.
- Ed.Ad.210su.* Financial Aspects of School Business Administration. (3 cred.; grad.; prereq. Ed.Ad. 124, 125; MTWThF III; 200Pt.) Mr. DeYoung.

- Ed.Ad.226su. School Plant Management. (3 cred.; grad.; prereq. Ed.Ad. 124, 125; MTWF IV and 1 hr. ar.; 210Bu.) Mr. Neale.
- Ed.Ad.228su.* Special Problems in Educational Administration. (3 to 6 cred.; grad.; prereq. Ed.Ad. 124, 125; W III and other hrs. ar.; 210Bu.) Mr. Neale.
- Ed.Ad.235su. Seminar in Educational Administration. See description under first term. (No cred.; T II; 115UHS.) Mr. Neale.
- Ed.Ad.265su. High School Administration. (3 cred.; grad.; MTWThF II; 210Bu.) Mr. Carlson.
- Ed.Ad.270su.* Special Problems in Secondary Education. (Cred. ar.; prereq. consent of instructor; ar.) Mr. Carlson, Mr. Hughes.
- See also Industrial Education.

EDUCATIONAL PSYCHOLOGY

FIRST TERM

- Ed.Psy.60su. Introduction to Statistical Methods. (3 cred.; jr., sr.; prereq. 6 cred. in psy.; MTWThF VI; 204bUHS.) Mr. Fattu.
- Ed.Psy.113su. Psychology of Elementary School Subjects. (3 cred.; jr., sr., grad.; prereq. 10 cred. in psy. and ed.; MTWThF I; 113VH.) Mr. Van Wagenen.
- Ed.Psy.120su. Basic Principles of Measurement. (3 cred.; sr., grad.; prereq. Ed. Psy. 60 or equiv.; MTWThF II; 209EdH.) Mr. Cook.
- Ed.Psy.140Esu. Tests and Measurements for Elementary Schools. (3 cred.; sr., grad.; prereq. Ed.Psy. 120 or consent of instructor; MTWThF II; 113VH.) Mr. Van Wagenen.
- Ed.Psy.140Ssu. Tests and Measurements for Secondary Schools. (3 cred.; sr., grad.; prereq. Ed.Psy. 120 or consent of instructor; MTWF IV and 1 hr. ar.; 209EdH.) Mr. Cook.
- Ed.Psy.148su. The Development of the Elementary School Child. (3 cred.; sr., grad.; prereq. 12 cred. in psy. or equiv.; students receiving credit in C.W. 132 or in Ed.C.I. 187 may not register for this course; MTWThF I and 1 hr. ar.; 202Pt.) Miss Goodenough.
- Ed.Psy.216su. Statistical Methods in Education. (3 cred.; grad.; MTWThF III; 112VH.) Mr. Johnson.
- Ed.Psy.225su.* Diagnosis and Counseling in Guidance. (3 cred.; grad.; prereq. Ed. 133 and Ed.Psy. 120 or equiv.; MTWThF I; 306WeH.) Mr. Wrenn.
- Ed.Psy.253su.* Research Problems. (Cred. ar.; grad.; prereq. consent of instructor; ar.) Mr. Johnson, Mr. McConnell, Mr. Wrenn, Mr. Cook, Mr. Van Wagenen.
- Ed.Psy.281su. Guidance Clinic. (3 cred.; grad.; limited enrolment, admission by consent of instructor only; ar.; 101EdH.) Mr. Darley.
- Ed.Psy.294su.* The Improvement of Learning. (3 cred.; grad.; prereq. 12 cred. in psy. and ed. psy.; MTWThF I; 206WeH.) Mr. McConnell.

SECOND TERM

- Ed.Psy.60su. Introduction to Statistical Methods. (3 cred.; jr., sr.; prereq. 6 cred. in psy.; MTWThF I; 115UHS.) Mr. Johnson.
- Ed.Psy.114su. Psychology of Elementary School Subjects. (3 cred.; jr., sr., grad.; prereq. 10 cred. in psy. and ed.; MTWThF II; 100Pt.) Mr. Van Wagenen.
- Ed.Psy.120su. Basic Principles of Measurement. (3 cred.; sr., grad.; prereq. Ed. Psy. 60 or equiv.; MTWThF II; 209EdH.) Mr. Cook.

- Ed.Psy.141su. Construction and Use of Group Aptitude Tests. (3 cred.; sr., grad.; prereq. Ed.Psy. 120 or equiv.; MTWF IV and 1 hr. ar.; 209EdH.) Mr. Cook.
- Ed.Psy.158su. Psychology of Adolescence. (3 cred.; jr., sr., grad.; prereq. Ed. 51A or equiv.; MTWThF III; 206WeH.) Miss Edwards.
- Ed.Psy.159su. Personality Adjustments in Education. (3 cred.; sr., grad.; prereq. 9 hrs. in ed. or Ed. 51A and Ed.Psy. 116; MTWF IV and 1 hr. ar.; 206WeH.) Mr. McConnell, Mr. Ryans.
- Ed.Psy.183su. Psychology of Gifted Children. (3 cred.; jr., sr., grad.; prereq. Ed. 51A or equiv.; MTWThF I; 100Pt.) Mr. Van Wagenen.
- Ed.Psy.253su.* Research Problems. (Cred. ar.; grad.; prereq. consent of instructor; ar.) Mr. Johnson, Mr. McConnell, Mr. W. S. Miller, Mr. Cook, Mr. Van Wagenen.
- Ed.Psy.291su. Individual Differences. (3 cred.; grad.; prereq. Ed. 51A and Ed. Psy. 60 or equiv. and permission of instructor; MTWThF III; 301Psy.) Mr. W. S. Miller.
- Ed.Psy.292su. Recent Literature in Educational Psychology. (3 cred.; prereq. Ed. 51A and Ed.Psy. 60 or equiv. and permission of instructor; hrs. ar.; 301Psy.) Mr. W. S. Miller.
- Ed.Psy.293su.* Psychology of Learning. (3 cred.; grad.; prereq. 12 cred. in psy. and ed. psy.; MTWThF II; 206WeH.) Mr. McConnell, Mr. Ryans.

See also courses offered in the Institute of Child Welfare, page 110, and the Department of Psychology, page 38.

HOME ECONOMICS EDUCATION

FIRST TERM

- H.E.Ed.193su. Home Economics Curricula. A study of general problems of curriculum reorganization with their implications for home economics at the various levels and in different type situations. Special attention will be given to the newer uses of home economics, including an integrated program, work for boys, nonlaboratory classes. Class time will be used for general discussion, small group and individual work on special problems. (3 cred.; jr., sr., grad.; MTWThF I and 1 hr. ar.; 213HE.) Miss Inman.
- H.E.Ed.194asu. Adult Education Problems. Development of unit outlines in various fields of home economics. Discussion of teaching methods. This course is planned for high school and extension teachers and supervisors of home economics classes. (3 cred.; prereq. H.E.Ed. 91 or equiv.; MTWThF VII and 1 hr. ar.; 106HE.) Miss Pollard.
- H.E.Ed.194bsu. Adult Education Problems. Development of materials including bibliography for use in adult classes. This course is planned for teachers and supervisors of local leader groups or adult classes. (3 cred.; prereq. H.E.Ed. 91 or equiv.; MTWThF I and 1 hr. ar.; 106HE.) Miss Pollard.
- H.E.Ed.197su. Organization and Methods for Related Art Teaching. Special problems selected from the field of related art education. Studies may include objectives, organization, and methods of teaching related art. (3 cred.; prereq. H.E.Ed. 91, H.E. 180 or parallel; MTWThF V and 1 hr. ar.; 114HE.) Miss Harriet Goldstein.
- H.E.Ed.243su. Trends in Home Economics Education. A study of present social situations and trends (sociological, political, and economic—and their effect on various social institutions—especially the family) with emphasis on the

challenge to education and to home economics. Small groups may select single aspects for intensive study. The entire group will discuss the implications of the more significant problems for education and home economics, interpreting these in terms of their individual situations. (3 cred.; MTWThF VI; 213HE.) Miss McNeal, Miss Inman.

INDUSTRIAL EDUCATION

FIRST TERM

- Ind.11su.‡ Special-Class Woodwork. (Page 95.†) Limited to 24; women only; for teachers of art, subnormal, and primary work; not open to those having college credit in woodworking. Not a part of the four-year curriculum in industrial education. (3 cred.; no prereq.; MTWThF VII-VIII; 6Pt.) Mr. Micheels.
- Ind.70su.‡ Methods in Shop Subjects. (Page 96.†) (3 cred.; prereq. Ind. 40, 42, or consent of instructor; MTWThF I; 202EdH.) Mr. Widdowson.
- Ind.105su. Industrial Education (Administration). (Page 97.†) (Not a part of the four-year curriculum but may be substituted for certain courses. An overview course for students in the specialty and for those majoring in administration and supervision. (3 cred.; jr., sr., grad.; MTWThF II; 202EdH.) Mr. Smith.
- Ind.108su. Apprenticeship. (Page 97.†) (3 cred.; jr., sr., grad.; prereq. Ind. 60, 61, or 105 or consent of instructor; MTWThF III; 202EdH.) Mr. Widdowson.
- Ind.115su. Supervision of Industrial Education. (Page 97.†) Not a part of the four-year curriculum but may be substituted for certain courses. For advanced students in the specialty and for those majoring in administration and supervision. (3 cred.; grad.; prereq. Ind. 60, 80, and Ed.Ad. 124 or consent of instructor; MTWThF I; 114UHS.) Mr. Schweickhard.
- Ind.171su. Evening Industrial Schools. (Page 97.†) (3 cred.; jr., sr., grad.; prereq. Ind. 170 or consent of instructor; MTWF IV and 1 hr. ar.; 114UHS.) Mr. Craigo.
- Ind.200su.* Research Problems. (Plan B Papers.) (Page 97.†) (3, 6, or 9 cred.; first degree students admitted to the Graduate School, with consent of instructor; MTWF IV; 202EdH.) Mr. Smith.

SECOND TERM

- Ind.60su. Philosophy of Vocational Education. (Page 96.†) (3 cred.; no prereq.; MTWThF I; 202EdH.) Mr. Widdowson.
- Ind.107su. Co-ordination. (Page 97.†) (3 cred.; jr., sr., grad.; prereq. Ind. 60, 61, or 105, or consent of instructor; MTWThF III; 202EdH.) Mr. Widdowson.
- Ind.110su. Guidance in the Schools. (Page 97.†) (3 cred.; prereq. Ed. 51A or equiv.; MTWThF II; 202EdH.) Mr. Smith.
- Ind.250su. Problems in Vocational Education. (Page 97.†) Recommended for Plan A and Plan B candidates in industrial education; open to others. (3 cred.; prereq. admission to the Graduate School; MTWF IV and 1 hr. ar.; 202EdH.) Mr. Smith.

† Page numbers in course descriptions refer to the College of Education Bulletin for 1938-40, where further information may be found.

‡ A fee of \$1 per credit is charged for this course.

Shop and Drawing Courses

All first degree candidates should keep in mind the maximum of 45 quarter credits in shopwork and drawing combined. More credits may be taken and recorded, but they will not be counted toward the degree. Twenty quarter credits of shopwork and 10 quarter credits of drawing are required. Fifteen elective credits may be used in either or both of these fields. See also the requirement of six credits in art education.

Shop and drawing courses may be pursued by graduate students, but such courses will not be counted toward advanced degrees.

Shop and drawing credits in wide variety are listed elsewhere in this bulletin. See Architecture and Fine Arts, Drawing and Descriptive Geometry, Mechanical Engineering, and Agricultural Engineering.

Notes

A description of the department, showing the four-year curriculum, will be mailed upon request. Acquaintance with this curriculum and consultation with the adviser will aid students in selecting required and elective courses from other sections of this Summer Session Bulletin. Graduate programs are planned individually.

Correspondence is invited upon such matters as the transfer of undergraduate credit, graduate status and program, thesis work if elected, certification for federally aided positions (Smith-Hughes and George-Deen), etc. Address inquiries to Professor Homer J. Smith, 200 Eddy Hall. The usual bulletin requests should go to the registrar in the Administration Building. Those planning to enroll at Minnesota for the first time, in the summer of 1940, cannot be urged too strongly to begin the preliminary steps at once.

METHODS AND DIRECTED TEACHING

FIRST TERM

- Ed.T.52su.†† Practice Teaching. (Cred. ar.; prereq. consent of instructor; ar.; UHS.) Mr. Carlson.
- Ed.T.55su. Principles of Early Childhood Education. (3 cred.; jr., sr.; prereq. C.W. 80; MTWThF I and 1 hr. ar.; 100Pt.) Mrs. Foster.
- Ed.T.57su.‡ Plastic Materials. (3 cred.; jr., sr.; prereq. Ed.T. 30; MTWThF VII and 1 hr. ar.; 202Pt.) Miss Headley.
- Ed.T.58su. Rhythms, Games, and Music for the Young Child. (2 cred.; jr., sr.; prereq. Ed.T. 30; MTWTh VI; 202Pt.) Miss Greer.
- Ed.T.66Amsu.†† The Teaching of Composition in the Senior High School. (2 cred.; sr.; TWThF VI; 111UHS.) Miss Handlan.
- Ed.T.66Bmsu.†† The Teaching of Literature in the Senior High School. (2 cred.; sr.; TWThF V; 111UHS.) Miss Handlan.
- Ed.T.68Am,Bmsu.†† Methods of Teaching Secondary School Science. (4 cred.; sr.; prereq. consent of instructor; TWThF V-VI; 215UHS.) Mr. Peterson.
- Ed.T.69Am,Bmsu.†† Methods of Teaching History and Social Studies. (4 cred.; jr., sr.; prereq. consent of instructor; MTWF IV-V; 112UHS.) Miss Ylvisaker.
- EdT.73A,Bsu.†† Special Methods in Teaching Commercial Subjects. (4 cred.; sr.; prereq. consent of instructor; TWThF VI-VII; 206UHS.) Miss Kean.
- Ed.T.76Asu.‡ Methods and Observation in the Nursery School. (1 cred.; jr., sr.; prereq. Psy. 1-2, Ed.T. 55 or simultaneously; F VI and observation hrs. ar.; 202Pt.) Miss Greer.
- Ed.T.76Csu.‡ Methods and Observation in the Kindergarten. (1 cred.; jr., sr.; prereq. Psy. 1-2, Ed.T. 55 or simultaneously; F VI and observation hrs. ar.; 202Pt.) Miss Headley.

† Passing the qualifying examination in English usage and an average of C+ (1.5 honor points per credit) in the major field are prerequisite to registration in this course.

‡ A fee of \$1 per credit is charged for this course.

MUSIC EDUCATION

FIRST TERM

- Mu.Ed.4-5-6su.‡ Applied Instrumental Technique. (2 cred.; no prereq.; MTWThF I; 5NMA.) Mr. Pepinsky.
- Mu.Ed.50Asu.‡ Primary Methods. (2 cred.; no prereq.; MTWF IV and 1 hr. ar.; 4Mu.) Mr. Rhodes.
- Mu.Ed.53su.‡ High School Methods. (3 cred.; prereq. Ed. 51A and Mu. Ed. 50A,B; MTWThF I; 4Mu.) Mr. Rhodes.
- Mu.Ed.55su.‡ Survey and Evaluation of Vocal Materials and Methods. (4 cred.; sr.; prereq. Mu.Ed. 50A, 50B, and 53; MTWThF III; 4Mu.) Mrs. Nohavec.
- Mu.Ed.64su.‡ Band Organization. (3 cred.; prereq. Mu.Ed. 4-5-6; MTWF IV and 1 hr. ar.; 4NMA.) Mr. Prescott.
- Mu.Ed.65su.‡ Instrumentation. (3 cred.; prereq. Phys. 15; MTWThF II; 5NMA.) Mr. Pepinsky.
- Mu.Ed.68su. Conducting of Instrumental Music and Survey of Materials. (4 cred.; sr.; prereq. Mu.Ed. 65; MTWThF VI; 5NMA.) Mr. Pepinsky.
- MuEd.101su. Tests and Measurements in Music. (2 cred.; sr. and candidates for the M.Ed. degree in music education; prereq. consent of instructor; MTWThF II; 4Mu.) Mrs. Nohavec.
- Mu.Ed.220Esu. Survey and Application of Research in Music Education. (3 cred.; prereq. Mu.Ed. 101; open to candidates for the M.Ed. degree in music education and others with consent of instructor; ar.) Mrs. Nohavec.
- Mu.Ed.224Esu. Seminar and Individual Research Problems in Music Education. (Cred. ar.; prereq. consent of instructor; ar.) Mr. Pepinsky, Mrs. Nohavec.
- Mu.Ed.225Esu. Advanced Applied Music. (Cred. ar.; prereq. entrance exam.; ar.) Ar.

See also courses offered in the Music Department in the College of Science, Literature, and the Arts, p. 33.

‡ A fee of \$1 per credit is charged for this course.

PHYSICAL EDUCATION AND ATHLETICS

PHYSICAL EDUCATION FOR MEN

Credit for courses taken in the Summer Session will be given toward a regular teacher's certificate in physical education where the courses are included in the physical education major.

The gymnasium, tennis courts, baseball diamonds, running track, and handball and squash courts will be available to students in the Summer Session. The swimming pools in Cooke Hall and University Farm gymnasium will be open for recreational swimming from 2:30 to 5:30 p.m. each day except Saturdays.

FIRST TERM

- 1su. Beginning Swimming. Instruction for men who are unable to swim. Altho the correct form is stressed from the very beginning and no attempt is made to hurry the learner, most men will be able to swim the length of the pool in three or four weeks. Different strokes will be taught as the ability of individuals warrants. (1 cred.; MTWThF VIII; Recreation Pool, CH.) Mr. Ostrander.
- 5Asu.† Physical Education Activities. Calisthenics, conditioning drills, mimetics, corrective exercises, exhibition drills, story plays, and marching tactics. (1 cred.; MTWThF VII; Gym., CH.) Mr. Piper, Mr. Bartelma.
- 5Bsu.† Physical Education Activities. Rhythms: fundamental dance steps, folk dances, square dances, and social dances. (1 cred.; MTWThF VII; Gym., CH.) Mr. Piper.
- 5Csu.† Physical Education Activities. Stunts and play gymnastics. Individual and combination stunts with and without equipment, tumbling stunts, apparatus stunts. (1 cred.; MTWThF VII; Gym., CH.) Mr. Ostrander.
- 6Asu.† Intramural Sports. Soccer, speedball, touchball, softball, volleyball. (1 cred.; MTWThF III; Gym., CH.) Mr. Beise.
- 6Bsu.† Intramural Sports. Handball, squash rackets, boxing, wrestling, golf. (1 cred.; MTWThF III; Gym., CH.) Mr. Bartelma.
- 6Csu.† Intermediate Swimming. For those who can swim at least fifty yards. Instruction in the form of various strokes, diving, lifesaving, water games and stunts. Designed to aid those men who may be called upon to teach swimming in schools, playgrounds, or camps, as well as for men who wish to improve their own performance. (1 cred.; MTWThF VII; Recreation Pool, CH.) Mr. Piper.
- 7Asu.† Recreational Games and Sports. Playground and gymnasium games, social games, progressive game parties, mixers, noon-hour activities. (1 cred.; MTWThF VI; Gym., CH.) Mr. Ostrander.
- 7Bsu.† Recreational Games and Sports. Badminton, aerial darts, archery, horse-shoes, table tennis, tennis, deck tennis, paddle tennis. (1 cred.; MTWThF VI; Gym., CH.) Mr. Piper.
- 48su. Organization of Boy Scout and Camp Activities. Especially designed to assist men leading groups in leisure time activities and to train others to qualify as scout masters and camp leaders. (2 cred.; MTWThF I; 214CH.) Mr. Osell.

† All activity courses will be professionalized in respect to emphasis on teaching methods as well as actual performance. Men are requested to see Mr. Piper for advice before registering for activity courses.

- 50su. Human Anatomy. A study of the structure of the human body with emphasis upon bones, nerves, and muscles and their significance in physical education. (3 cred.; MTWThF III; 206CH.) Dr. Hauser, Mr. Osell.
- 51su. Mechanics of Movement. A discussion of the principles and mechanics of bodily movements; the effect of various exercises upon the tissues and organs of the body. (2 cred.; MTWF IV; 206CH.) Mr. Osell.
- 53,54,55su.‡ Methods and Materials in Physical Education. Application of principles of methodology to physical education; analysis and study of the techniques of measurement devices for grading and classifying pupils. (3 cred.; MTWF IV, Th V; 215CH.) Mr. Bartelma.
- 57su. Operation and Conduct of Play Centers. Study of the facilities, programs, leadership, and administration of playgrounds and community centers. (3 cred.; MTWThF III; 214CH.) Mr. Haislet.
- 60su. Prevention and Care of Injuries. Principles governing conditioning of men for various sports; diet, sleep, exercise, bathing, massage. Overtraining; its cause, diagnosis, prevention, and cure. Prevention and treatment of common athletic injuries. (2 cred.; MTWThF II; 206CH.) Dr. Hauser, Mr. Stein.
- 63su. Organization and Administration of Physical Education and Athletics. Problems of organization, administration, and supervision. Arrangement of program; schedule making; construction; equipment, and care of gymnasias and athletic fields. (3 cred.; MTWThF V; 206CH.) Mr. Piper, Mr. Bartelma, Mr. Gibson.
- 101Esu.§ Principles of Physical Education. A study of the aims, scope, and biological aspects of physical education with special treatment of its place in education. (3 cred.; MTWThF I; 215CH.) Mr. Keller, Mr. Haislet, Mr. Gibson.
- 133Esu.§ Special Administrative Problems in Physical Education. Survey of staff organizations in typical situations such as small towns, cities, states, schools, and colleges; construction, maintenance, and policies for use of facilities; purchase, care, and use of equipment; legal aspects of physical education and athletic activities. (3 cred.; sr., grad.; prereq. 63 or equiv.; MTWF IV, and 1 hr. ar.; 214CH.) Mr. Nordly.
- 134Esu.§ The Curriculum in Physical Education. Theory and principles of program construction applied to physical education. Critical analysis of existing programs and evaluation of activities in the light of modern trends. Practical application of principles in the construction of a program for a specific situation. (3 cred.; sr., grad.; prereq. 63 or equiv.; MTWF IV; 205CH.) Mr. Nordly.
- 135Esu.§ Tests and Measurements in Physical Education. Critical analysis of existing research studies in physical education with special emphasis upon tests and measurements. Study of current tests from both practical and theoretical standpoints. The use of tests in the administration of physical activity programs. Application of the principles of test construction to specific problems in physical education. (3 cred.; sr., grad.; prereq. 60 or equiv.; MTWThF II; 215CH.) Mr. Gibson.
- 136Esu.§ Leadership in Recreation. A study of problems of leadership in community recreation; finance, co-ordination of existing agencies promoting recreation activities, facilities, and public relations. (3 cred.; MTWThF 7:00 a.m.; 206CH.) Mr. Haislet.

‡ A fee of \$1 per credit is charged for this course.

§ Courses marked "E" carry credit toward the degree of master of education.

SECOND TERM

- 1su. *Beginning Swimming.* Instruction for men who are unable to swim. Altho the correct form is stressed from the very beginning and no attempt is made to hurry the learner, most men will be able to swim the length of the pool in three or four weeks. Different strokes will be taught as the ability of individuals warrants. (1 cred.; MTWThF VII; Recreation Pool, CH.) Mr. Ostrander.
- 5Bsu.† *Physical Education Activities.* Rhythms: fundamental dance steps, folk dances, square dances, and social dances. (1 cred.; MTWF IV, Th V; Gym., CH.) Mr. Ostrander.
- 6Csu.† *Intermediate Swimming.* For those who can swim at least fifty yards. Instruction in the form of various strokes, diving, lifesaving, water games, and stunts. Designed to aid those men who may be called upon to teach swimming in schools, playgrounds, or camps, as well as for men who wish to improve their own performance. (1 cred.; MTWThF VIII; Recreation Pool, CH.) Mr. Piper.
- 7Asu.† *Recreational Games and Sports.* Playground and gymnasium games, social games, progressive game parties, mixers, noon-hour activities. (1 cred.; MTWThF VI; Gym., CH.) Mr. Ostrander.
- 7Bsu.† *Recreational Games and Sports.* Badminton, aerial darts, archery, horse-shoes, table tennis, tennis, deck tennis, paddle tennis. (1 cred.; MTWThF VI; Gym., CH.) Mr. Piper.
- 53,54,55su.‡ *Methods and Materials in Physical Education.* Application of principles of methodology to physical education; analysis and study of the techniques of measurement devices for grading and classifying pupils. (3 cred.; MTWThF III; 215CH.) Mr. Bartelma.
- 101Esu.§ *Principles of Physical Education.* A study of the aims, scope, and biological aspects of physical education with special treatment of its place in education. (3 cred.; MTWF IV, Th V; 215CH.) Mr. Haislet.
- 134Esu.§ *The Curriculum in Physical Education.* Theory and principles of program construction applied to physical education. Critical analysis of existing programs and evaluation of activities in the light of modern trends. Practical application of principles in the construction of a program for a specific situation. (3 cred.; sr., grad.; prereq. 60 or equiv.; MTWThF I; 215CH.) Mr. Nordly.
- 136Esu.§ *Leadership in Recreation.* A study of problems of leadership in community recreation; finance, co-ordination of existing agencies promoting recreation activities, facilities, and public relations. (3 cred.; MTWThF III; 206CH.) Mr. Haislet.
- 137Esu.§ *Recent Literature and Research in Physical Education.* Directed readings and class discussions of recent literature; critical analysis of research in physical education; selection and presentation of an outline for the solution of a problem. (3 cred.; grad.; prereq. permission of instructor; MTWThF II; 215CH.) Mr. Nordly.

† All activity courses will be professionalized in respect to emphasis on teaching methods as well as actual performance. Men are requested to see Mr. Piper for advice before registering for activity courses.

‡ A fee of \$1 per credit is charged for this course.

§ Courses marked "E" carry credit toward the degree of master of education.

PHYSICAL EDUCATION FOR WOMEN

The course offerings present representative opportunities toward fulfillment of all the important lines of development offered regularly by the department: graduate work; the undergraduate minor and major; the nine-credit state endorsement plan; recreational activity and elementary skills courses.

Courses applying to the degree of master of education with a major in physical education are: Phys.Ed. 111E, 112E, 113E, and 114E.

Courses applying to the major in physical education are: Phys.Ed. 5, 10, 11, 13, and 18.

Courses applying to the new state minor in physical education are: Phys.Ed. 4, 5, 10, 13, 16, 18, 37, 51, 52, and 53.

Courses applying to the nine-credit endorsement for teaching in the state of Minnesota are: Phys.Ed. 4, 5, 10, 13, 16, 18, 37, 52, and 53.

FACILITIES FOR RECREATION

The swimming pool is open for recreational use from 12:00 m. to 12:45 p.m. Monday through Friday and from 2:00 to 3:00 p.m. Monday through Thursday during the first term; and from 12:00 m. to 12:45 p.m. Monday through Friday during the second term.

The university tennis courts and the university golf course are open to students.

A daily sports hour from 2:00 to 3:00 p.m. is arranged in the sports room of the Women's Gymnasium for the enjoyment of women students; activities such as aerial darts, badminton, and table tennis will be available.

FEES

Tickets for the rental of suits and towels for swimming are 10 cents apiece. The charges for tennis are \$1 for each term and for golf 50 cents for 18 holes (45 cents if one buys a coupon book of ten tickets). Towels for shower bath may be procured from the matron for 5 cents apiece.

The maximum course fee for students taking two or more courses in physical education is \$3.50 per term.

FIRST TERM

4su. Fundamentals of All Rhythmic Work. (1 cred.) (Not offered in 1940.)

5su.‡ Methods of Coaching and Conducting Organized Games for the Junior and Senior High School. Special techniques for team games such as field ball, speed ball, soccer, hockey, volleyball, basketball, and baseball. Organization of extra-curricular activities, e.g., athletic associations, after-school programs, tournaments suited to various games, play days, methods of teaching, practice teaching within the group. Practical work MTWThF II may be taken for one credit. (2 cred.; prereq. permission of dept.; MTWThF II and TTh VI; 153,201WGm.) Miss Snell.

7su. Tennis for Beginners. (½ cred.; no prereq.; TTh 7:00 a.m. and 1 hr. ar.; 60WGm.) Miss Thomas.

8su. Golf for Beginners. Limited to 20. (½ cred.; no prereq.; MW 7:00 a.m. and 1 hr. ar.; 60WGm.) Miss Thomas.

9su. Elementary-Intermediate Golf. (½ cred.) (Not offered in 1940.)

10su.‡ Teacher's Course in Fundamentals of Physical Education. The fundamentals of skill in balance, timing, force, and direction are applied to games and self-

‡ A fee of \$1.75 is charged for this course.

- testing activities. Study of the use of underlying principles in teaching activities. Emphasis will be placed upon motor experiences to develop a perspective on activity in general as well as the resulting outcomes, e.g., posture. (1 cred.; no prereq.; MTWTh I, and 1 hr. ar.; 60WGm.) Miss Thomas.
- 11su.‡ Modern Dance. The fundamental elements of rhythm are applied to work in modern dance. The course content is suited to teaching senior high school girls, but will give any Summer Session student relaxation and rhythmic body training. (1 cred.; no prereq.; MTWF IV and 1 hr. ar.) Miss Schloz.
- 12su. Social Dancing and Mixers. (1 cred.) (Not offered in 1940.)
- 13su.‡ Tumbling, Stunts, and Pyramids for Junior and Senior High Schools. Instruction and practice in technique of individual, companion, and group tumbling and stunts with progression from elementary to more advanced. Discussion and application of principles underlying pyramid building. Self-testing activities and track and field events for girls of junior and senior high school age. (1 cred.; no prereq.; MTWTh I and 1 hr. ar.; 153WGm.) Miss Snell.
- 16su.‡ Elementary Tap and Social Dancing. Primarily an intensive skill experience in routines, dances, and basic steps in clog, tap, and social dancing. (1 cred.; no prereq.; MTWTh II and 1 hr. ar.; 151WGm.) Miss Phillips.
- 18su.‡ Elementary Folk Dancing and Games. This course presents material primarily for those teaching in the elementary and secondary school. Consideration is given to the methods of organizing and teaching the activities. (1 cred.; no prereq.; MTWTh 7:00 a.m. and 1 hr. ar.; 151WGm.) Miss Schloz.
- 32su.‡ Elementary Swimming. Class instruction given. Sections limited to 25. (1 cred.; prereq. phys. exam.; Sec. 1 MTWF IV and 1 hr. ar.; Sec. 2 MTWTh VI and 1 hr. ar.; 51WGm.) Miss Thomas.
- 33su.‡ Intermediate and Advanced Swimming. (1 cred.) (Not offered in 1940.)
- 37su.‡ Individual and Dual Games. This course deals with the various methods and techniques suitable for the teaching of the following sports: table tennis, archery, badminton, deck tennis, tether ball, shuffleboard. Consideration of group methods adaptable to the organization and teaching of these activities on the junior and senior high school level. The course consists of lectures and laboratory work. There is opportunity for practice teaching within group and for individual skill development. (1 cred.; no prereq.; MTWTh V and 1 hr. ar.; 60WGm.) Miss Schloz.
- 51su. School Health and Safety Education. Study of principles, materials, and problems of health and safety education in preparation for teaching. Observation and practice in tests and observation of techniques of health work. (2 cred.; prereq. permission of instructor; MTWTh I; 201WGm.) Miss Starr.
- 52su. Principles and Curriculum of Physical Education. In this course principles of philosophy, curriculum, method, and evaluation are studied in the light of their psychological, biological, and social significance. (2 cred.; prereq. permission of instructor; MTWF IV; 201WGm.) Miss Cook.
- 53su. Organization and Administration of Physical Education. Study of the care and use of facilities and equipment; organization of the physical education program from the standpoint of classification of the students, appraisal of activities, management of class. Relationship of physical education program to community. (2 cred.; prereq. permission of instructor; MTWTh III; 201WGm.) Miss Snell.

‡ A fee of \$1.75 is charged for this course.

- 112Esu.† Supervision of Physical Education. Presents a consideration of the function, organization, and administration of supervision in physical education; adaptations of accepted procedures for inspection, guidance, and training of teachers in the field; standards for qualifications of supervisors; problems peculiar to supervision of physical education. (3 cred.; prereq. permission of instructor; MTWThF III; 3WGm.) Miss Cook.
- 113Esu.† Physical Education in the Elementary Schools. (3 cred.) (Not offered in 1940.)
- 114Esu.† The Administration of the School Health Education Program. Study of various health organizations in city and state; integration of health teaching within the school. Opportunities for guidance and supervision of health teachers by physical educator. Administration of a safety program. (3 cred.; prereq. permission of instructor; MTWThF II; 201WGm.) Miss Starr.

SECOND TERM

- 18su.‡ Elementary Folk Dancing and Games. This course presents material primarily for those teaching in the elementary and secondary school. Consideration is given to the methods of organizing and teaching the activities. (1 cred.; no prereq.; MTWTh II and 1 hr. ar.; 151WGm.) Miss Graybeal.
- 37su.‡ Individual and Dual Games. This course deals with the various methods and techniques suitable for the teaching of the following sports: archery, table tennis, badminton, deck tennis, tether ball, shuffleboard. Consideration of group methods adaptable to the organization and teaching of these activities on the junior and senior high school level. The course consists of lectures and laboratory work. There is opportunity for practice teaching within the group and for individual skill development. (1 cred.; no prereq.; MTWF IV and 1 hr. ar.; 60WGm.) Miss Graybeal.
- 111Esu.†‡‡ An Advanced Course in Methods of Teaching in Physical Education. The purpose of this course is to give an overview of the activity program in reference to instructional content and procedures. A comparison of specific fields of activity should reveal existent strengths and weaknesses according to the best scientific findings and empirical standards. Outstanding results of the course should be increased perspective of the common problems in the various activities as well as those peculiar to each activity, possible solutions for conspicuous instructional needs, and a more integrated view of the entire field. (3 cred.; prereq. permission of instructor; MTWThF III; 201WGm.) Miss Graybeal.

† Courses marked "E" carry credit toward the degree of master of education.

‡ A fee of \$1.75 is charged for this course.

‡‡ A fee of \$1 per credit is charged for this course.

SCHOOL OF BUSINESS ADMINISTRATION

GENERAL INFORMATION

ADMISSION

For admission to the School of Business Administration a student must have satisfied the requirements of one of the two-year prebusiness courses, either in the College of Science, Literature, and the Arts, the College of Agriculture, Forestry, and Home Economics, or the Institute of Technology. A student must have a minimum of 90 credits, with one honor point per credit or a smaller number of credits determined as follows: For every five honor points in excess of one per credit, the number 90 is diminished by one.

SPECIAL STUDENTS

High school graduates who have reached the age of twenty-four and can furnish evidence that they have had business experience in an executive capacity may be admitted as special students. If later they decide to become candidates for a degree, they must complete the requirements for admission.

STUDENTS IN OTHER SCHOOLS OR COLLEGES OF THE UNIVERSITY

Regularly enrolled students in other schools or colleges of the University may be admitted to such courses in the School of Business Administration as are authorized by the faculties of the School of Business Administration and the school or college concerned. Such students are urged to select their business subjects in accordance with a definite plan, and as far as possible to complete a systematic course of business study.

NOTE.—Special provision has been made this summer for the direction of graduate students working on theses. For further information inquire at the dean's office of the School of Business Administration.

An asterisk () indicates courses that may be taken by graduate students for independent work under Plan B. (See page 23.)*

FIRST TERM

Econ.3su. Elements of Money and Banking. The basic principles of money and a description of the various types of financial institutions, their functions and relations to the whole economic organization. (3 cred.; 2nd and 3rd qtr. fr., soph., jr., sr.; no prereq.; MTWThF V; 2VH.) Mr. Graves.

Econ.5su. Elements of Statistics. Elementary concepts in statistical method; averages, ratios, errors, sampling, index numbers, graphic representation, collection of material. (3 cred.; 3rd qtr. fr., soph., jr., sr.; no prereq.; MTWThF III; 207VH.) Mr. Graves.

Econ.6su. Principles of Economics. A course in the fundamental principles of economics intended to serve as a foundation for advanced courses in business administration and economics. (3 cred.; soph., jr., sr.; no prereq.; MTWF IV and 1 hr. ar.; 6VH.) Mr. Boddy.

Econ.20su. Elements of Accounting. The principles underlying bookkeeping and accounting. Sufficient practice in technical processes will be given to serve as a background for more advanced work. Preparation and analysis of statements. (3 cred.; 3rd qtr. fr., soph., jr., sr.; no prereq.; MTWThF II; 6VH.) Mr. Upgren.

- Econ.25su.† Principles of Accounting. The corporate balance sheet and income statement, capital stock, stock subscriptions, premium and discount on stock, surplus, reserves, dividends, bond valuation, and amortization. (3 cred.; soph., jr., sr.; prereq. Econ. 20; MTWThF I; 6VH.) Mr. Reighard.
- B.A.101su. Advanced General Economics. (For the Summer Session this course is the equivalent of Econ. 103.) A detailed analysis of price determination under competitive and monopolistic conditions, with special emphasis on rigorous training in the techniques of modern economic analysis. The major topics are laws of return, demand curves, cost curves, and short and long run prices under various types of competition. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83; Sec. 1, MTWThF II, 1 VH, Mr. Stigler; Sec. 2, MTWThF V, 6VH, Mr. Boddy.)
- Econ.108su. Applications of Economic Theory. Detailed applications of formal economic theory to current problems in social policy, such as monopoly prices, conservation, and justice in taxation. Each student will prepare a report on a problem of his own selection. (3 cred.; jr., sr., grad.; prereq. B.A. 101-102 or Econ. 103-104; MTWThF III; 1 VH.) Mr. Stigler.
- B.A.135su. Auditing and Public Accounting. The application of principles and technical methods used in professional auditing practice. Typical fraud and errors in accounting records, auditors' working papers, financial exhibits, certificates, and reports are studied. (3 cred.; jr., sr., grad.; prereq. B.A. 139 or 150-151; MTWThF III; 6VH.) Mr. Reighard.
- Econ.149su.* Business Cycles. Analysis of factors involved in business fluctuations. Comparison of theories of the cause of prosperity and depression. Introduction to the statistical data and methods of business forecasting. (3 cred.; sr., grad.; prereq. Econ. 141 or B.A. 142 or consent of instructor; MTWF IV and 1 hr. ar.; 1 VH.) Mr. Marget.
- Econ.161su. Labor Problems and Trade Unionism. A discussion of employment, hours, wages, types of unionism, policies and practices of labor organization. Special emphasis upon economic implications of modern working conditions. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83; MTWThF III; 2VH.) Mr. Yoder.
- B.A.167su. Personnel Administration. Evaluation of managerial policies and devices designed to secure the co-operation and efficient participation of employees in business, industry, and government. Attention is directed especially to the determination of labor needs, job analysis and classification, methods of recruiting workers, selective devices, training and safety programs, service rating, employment stabilization, collective bargaining, and compensation. (3 cred.; jr., sr., grad.; prereq. Econ. 161; MTWThF I; 1 VH.) Mr. Yoder.
- Econ.174su. Government and Economic Systems. A survey of different economic systems, the role of government in each of them, and the vital economic functions to be performed by any system. Attention is given particularly to an examination of recent modifications in our own economic system; their origins, causes, and economic consequences. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83; MTWThF V; 1 VH.) Mr. Uppgren.
- Econ.176su. International Commercial Policies. Theory of international commerce; protective tariffs, free trade, reciprocity, subsidies, preferential treatment, the open door, international finance, commercial treaties, foreign politics,

† Students who have had a high school course or experience in bookkeeping will be admitted to Econ. 25 by passing a placement test. For other students Elements of Accounting (Econ. 20) is a prerequisite to Econ. 25.

and other governmental and organized efforts to affect trade. American problems emphasized. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83; MTWThF II; 207VH.) Mr. Blakey.

Econ.178su. Consumer Economics. A course dealing with the origins and distribution of income; consumption patterns of various social and economic groups; control and regulation of the marketing processes; the elements that enter into the prices of consumer goods; the present status and growth of the consumer movement. Of interest to general students of political economy and, especially, to teachers of social science and commercial education in secondary schools. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83; MTWThF II; 2VH.) Mr. Vaile.

Econ.185su. Economics of Marketing. (For the Summer Session this course may be substituted for B.A. 77.) A course dealing with (1) the role of market distribution in our total economy; (2) the costs of market distribution; (3) regional specialization and market distribution; (4) public, quasi-public, and corporate control of market distribution; (5) the role of the consumer in market distribution. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83; MTWF IV and 1 hr. ar.; 2VH.) Mr. Vaile.

Econ.189su. Principles of Taxation. (For the Summer Session this course may be substituted for B.A. 58.) Development of taxation; property, income, commodity, sales, inheritance and other taxes; shifting, incidence, and other effects; federal, state, and local relations; special problems. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83; MTWThF I; 207VH.) Mr. Blakey.

NOTE.—A student may not receive credit for both Econ. 189 and Econ. 191-192.

Econ.243su.* Seminar in Money and Banking. The seminar will be concerned with an examination of the analytical devices available for accounting for the role of money in the determination of prices. Emphasis will be placed upon the relation of these devices to one another, and their place in a systematic analytical structure for dealing with the central problems of monetary theory. (3 cred.; grad.; MTWThF VI; 1 VH.) Mr. Marget.

SECOND TERM

Econ.7su. Principles of Economics. A continuation of Econ. 6su. (3 cred.; soph., jr., sr.; prereq. Econ. 6; MTWF IV and 1 hr. ar.; 1 VH.) Mr. Myers.

Econ.26su. Principles of Accounting. Problems of income determination such as cost of sales, different methods of sales, inventory problems, manufacturing costs, depreciation, intangibles, nonoperating incomes and expenses, bond interest, capital gains and losses. Review of the financial statements and classifications, introduction to the problem of statement analysis. (3 cred.; soph., jr., sr.; prereq. Econ. 25; MTWThF II; 6VH.) Mr. Heilman.

B.A.89su. Production Management. Location and layout of industrial plants; types of operating organization; shop personnel; standards of operation; purchasing and inventory control; routing, scheduling, and dispatching of product; scientific management; practical problems in production control. (3 cred.; jr., sr.; no prereq.; MTWThF III; 1 VH.) Mr. Filipetti.

B.A.93su. Accounting Laboratory. A long practice problem will be worked under supervision. Required of majors in accounting and in commercial education. (1 cred.; jr., sr.; prereq. Econ. 26, MTWThF VI; 301VH.) Ar.

B.A.102su. Advanced General Economics. (A continuation of B.A. 101su. For the Summer Session this course is the equivalent of Econ. 104.) Theory of the

- distribution of wealth and income. General distribution theory, wages, rent, and interest. (3 cred.; jr., sr., grad.; prereq. B.A. 101 or Econ. 103; MTWThF IV and 1 hr. ar.; 6VH.) Mr. Mudgett.
- B.A.112su.‡ Business Statistics. Survey and criticism of methods used in analyzing time series, with special applications to the study of cyclical fluctuations of economic phenomena. (3 cred.; jr., sr., grad.; prereq. Econ. 5 or B.A. 70; MTWThF II; 2VH.) Mr. Mudgett.
- B.A.139su.*‡ Advanced General Accounting. A course intended particularly for the general student of business. Interpretation of accounts and statements, statement preparation, and analysis. Utilization of the statements by the executive. Accounting methods and statements in a number of business fields. (3 cred.; jr., sr., grad.; prereq. Econ. 25-26; MTWThF I; 2VH.) Mr. Heilman.
- B.A.142su. Advanced Money and Banking. (For the Summer Session this course is the equivalent of Econ. 141.) The problems of a central bank and the theory of the value of money. Includes control of reserves, providing a scientific currency, regulation of credit, fluctuations of the general price level—their causes and possible reduction. (3 cred.; jr., sr., grad.; prereq. Econ. 3 and either 6-7 or 83; MTWThF V; 1 VH.) Mr. Myers.
- B.A.146su. Investments. A general survey of the external and internal factors influencing the prices of securities and of the principles of an investment policy for the needs of the average conservative investor. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83; MTWThF II; 1 VH.) Mr. Stehman.
- B.A.155su. Corporation Finance. (For the Summer Session this course is equivalent to Econ. 160.) Incorporation. The various types of corporate securities and their uses. Financial plans for industrial, utility, and other types of corporations. Financial affairs of an established business. General financial problems of the holding company, consolidations, mergers, and reorganizations. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83; MTWThF III; 2VH.) Mr. Stehman.
- B.A.184su.* The Administration of Industrial Enterprises (Scientific Management in Industry). The purpose of the course is to provide an interpretation of the function of administration in the field of business organization and operation. It includes an analysis of the evolution, present status, and trend of administration; of the relationship of administration to public policy and to the management of industry. Persons interested in business fields, government administration, or in teaching business subjects will find this course of particular value. (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or equiv.; MTWThF I; 1 VH.) Mr. Filipetti.

‡ A fee of \$1 is charged for this course.

INSTITUTE OF CHILD WELFARE

The Institute of Child Welfare was organized for three purposes: for research on child development; for the training of students and future workers; and for bringing to the people of the state through a parent education program the information accumulated in it and other research centers. Co-operating with the institute in its program are a number of university departments: Anatomy, Education, Home Economics, Nervous and Mental Diseases, Pediatrics, Psychology, Public Health Nursing, Sociology, and the General Extension and Agricultural Extension Divisions.

NURSERY SCHOOL AND KINDERGARTEN

The Nursery School will be in session from 9:00 a.m. to 1:00 p.m. beginning June 17 and closing July 26. Applications for the enrolment of children will be received at the office of the institute. The fee will be \$20 for tuition, including orange juice and lunch at noon. A few additional children can be accommodated from 9:00 to 11:45 a.m. with no lunch served but including orange juice at a tuition fee of \$15.

The Kindergarten will be in session beginning June 17 and closing July 26, from 9:00 to 11:45 a.m. at a tuition fee of \$10, including orange juice. Special arrangements may be made for a few kindergarten children to stay for lunch at a fee of \$5 for the term. Children in either the Nursery School or Kindergarten, living in the southeast district, may be transported for an additional fee of \$8.

An asterisk () indicates courses that may be taken by graduate students for independent work under Plan B. (See page 23.)*

FIRST TERM

- C.W.40su. Child Training. (3 cred.; soph., jr., sr.; prereq. Psy. 1-2; MTWF V and 2 hrs. observation as ar.; 202Pt.) Mrs. Faegre.
- C.W.82su. Later Childhood and Adolescence. (3 cred.; jr., sr.; prereq. Psy. 1-2; MTWThF II and 1 hr. ar.; 100Pt.) Mrs. Faegre.
- C.W.130su. Motor, Linguistic, and Intellectual Development of the Child. (3 cred.; sr., grad.; prereq. 12 cred. in child welfare or psy. or equiv.; MTWThF II; 202Pt.) Mr. Anderson.
- C.W.132su. The Development of the Elementary School Child. (3 cred.; sr., grad.; prereq. 12 cred. in psy. or equiv. Students receiving credit for Ed.Psy. 148su or Ed.C.I. 187su may not register for C.W. 132su; MTWThF I and 1 hr. ar.; 202Pt.) Miss Goodenough.
- C.W.140su. Behavior Problems. (3 cred.; sr., grad.; prereq. 12 cred. in psy., ed. psy., or soc.; MTWThF III; 202Pt.) Miss Goodenough.
- C.W.170su. Parent Education. (2 cred.; sr., grad.; prereq. 15 cred. in child welfare, home econ., ed. psy., soc. or prev. med.; MTWF IV; 202Pt.) Mrs. Faegre.
- C.W.270su.* Readings in Child Development. (Cred. ar.; grad. students only; hrs. ar.) Mr. Anderson.

The following courses: Ed.T. 55su, Principles of Early Childhood Education; Ed.T.57su, Plastic Materials; Ed.T. 58su, Rhythms, Games, and Music for the Young Child; Ed.T. 76Asu, Methods and Observation in the Nursery School;

Ed.T.76Csu, Methods and Observation in the Kindergarten, listed under Methods and Directed Teaching on page 98, and Ed.C.I. 130su, Problems of Childhood Education, listed under Curriculum and Instruction on page 91, are also offered by the Institute of Child Welfare.

SECOND TERM

- C.W.80su. Child Psychology. (3 cred.; jr., sr.; prereq. Psy. 1-2; MTWThF II and 1 hr. ar.; 202Pt.) Mrs. Davis.
- C.W.131su. Personality, Emotional, and Social Development of the Child. (3 cred.; sr., grad.; prereq. 12 cred. in child welfare or psy. or equiv.; MTWThF III and 1 hr. ar.; 202Pt.) Mrs. Davis.
- C.W.270su.* Readings in Child Development. (Cred. ar.; grad. students only; hrs. ar.) Mrs. Davis.

LIBRARY INSTRUCTION

Academic credit is given only to students with at least two full years of approved work of collegiate grade. Candidates for a degree in library instruction must have had at least *three* years of approved work of collegiate grade in addition to a full year (45 quarter credits) in Library Instruction. "No-credit" students will be admitted only with the approval of the Library Division of the Minnesota State Education Department (in the case of residents of Minnesota) or of the director of the Division of Library Training (in the case of those not residents of Minnesota). Admission of "no-credit" students will be limited to candidates under appointment or promise of appointment to definite library positions. Candidates for "no-credit" standing should in every case present written evidence of such appointment or promise of appointment.

FIRST TERM

- Lib.Meth.52su. Cataloging. Elements of dictionary cataloging. Lectures, problems, and practice. Required of all candidates for a degree in library methods. (3 cred.; no prereq.; MTWThF I; 5Lib.) Miss Brainard.
- Lib.Meth.53su. Advanced Cataloging. Continuation of Lib.Meth. 52, with special attention to difficult books and administrative aspects of a catalog department. (3 cred.; prereq. Lib.Meth. 52; MTWThF III; 3Lib.) Miss Hutchinson.
- Lib.Meth.54su. Classification. Classification by the Dewey Decimal System, author numbers, shelf and accession records. Required of all candidates for a degree. (3 cred.; no prereq.; MTWThF II; 5Lib.) Miss Hutchinson.
- Lib.Meth.57su. Secondary School Libraries. Administrative methods and problems, including methods of teaching the use of the library. (3 cred.; prereq. 9 cred. in library methods; MTWThF I; 3Lib.)
- Lib.Meth.64su. Selection of Books for Adolescents. Principles of selection and criticism of representative books. Study and preparation of book lists for adolescents in school and public libraries. (3 cred.; prereq. 9 cred. in lib. meth.; MTWThF III; 5Lib.) Miss Scott.

SECOND TERM

- Lib.Meth.51su. Bibliography. Trade and national bibliography of the United States, Great Britain, and Europe; book-ordering method. (3 cred.; no prereq.; MTWThF III; 5Lib.) Mr. Settelmayer.
- Lib.Meth.52su. Cataloging. Elements of dictionary cataloging. Lectures, problems, and practice. Required of all candidates for a degree in library methods. (3 cred.; no prereq.; MTWThF I; 5Lib.) Mr. Settelmayer.
- Lib.Meth.62su. Reference. Reference books and other material with emphasis on methods of search and adaptation of material to needs of users. Required of all candidates for a degree in library methods. (3 cred.; no prereq.; MTWThF II; 5Lib.) Miss Fraser.

FACULTY

GRADUATE SCHOOL

Wilford S. Miller, Ph.D., Acting Dean

(The faculty of the Graduate School is included among those listed under the various schools and colleges.)

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

John T. Tate, Ph.D., D.Sc., Dean

ANTHROPOLOGY

Wilson D. Wallis, Ph.D., Professor

ASTRONOMY

Willem J. Luyten, Ph.D., Professor

BOTANY

C. Otto Rosendahl, Ph.D., Professor

Murray F. Buell, Ph.D., Assistant Professor, University of North Carolina

Ned L. Huff, M.A., Assistant Professor

Elmer S. Miller, Ph.D., Assistant Professor

Thomas T. Earle, Ph.D., Instructor, Newcomb Memorial College, Tulane University of Louisiana

Donald B. Lawrence, Ph.D., Instructor

William E. Gordon, B.A., Teaching Assistant

B. Lennart Johnson, B.S., Teaching Assistant

CLASSICS

Marbury B. Ogle, Ph.D., Professor

Robert V. Cram, Ph.D., Assistant Professor

ENGLISH

Joseph W. Beach, Ph.D., Professor

Warner G. Rice, Ph.D., Professor, University of Michigan

Martin B. Ruud, Ph.D., Professor

Arthur W. Secord, Ph.D., Professor, University of Illinois

James T. Hillhouse, Ph.D., Associate Professor

Tremaine McDowell, Ph.D., Associate Professor

Charles W. Nichols, Ph.D., Associate Professor

William P. Dunn, Ph.D., Assistant Professor

John T. Flanagan, Ph.D., Assistant Professor

Lewis B. Hessler, Ph.D., Assistant Professor

Elizabeth Jackson, Ph.D., Assistant Professor

Anna H. Phelan, Ph.D., Assistant Professor

James Gray, B.A., Lecturer, Staff of *St. Paul Dispatch-Pioneer Press*

Arthur P. Bouvier, B.A., Instructor

Frank Buckley, Ph.D., Instructor
 Ruth Christie, M.A., Instructor
 John W. Clark, M.A., Instructor

FINE ARTS

Buford L. Pickens, B.S., M.A., Instructor, Wayne University, Detroit, Mich.

GEOGRAPHY

Darrell H. Davis, Ph.D., Professor
 William O. Blanchard, Ph.D., Professor, University of Illinois
 Ralph H. Brown, Ph.D., Associate Professor
 Samuel N. Dicken, Ph.D., Assistant Professor

GEOLOGY

Clinton R. Stauffer, Ph.D., Professor
 John W. Gruner, Ph.D., Associate Professor
 George M. Schwartz, Ph.D., Associate Professor
 George A. Thiel, Ph.D., Associate Professor

GERMAN

Oscar C. Burkhard, Ph.D., Professor
 Alan Holske, Ph.D., Assistant Professor
 Alvin E. Prottengeier, M.A., Instructor

HISTORY

Lester B. Shippee, Ph.D., Professor
 George M. Stephenson, Ph.D., Professor
 Harold C. Deutsch, Ph.D., Associate Professor
 Ernest S. Osgood, Ph.D., Associate Professor
 Lawrence D. Steefel, Ph.D., Associate Professor
 Tom B. Jones, Ph.D., Assistant Professor
 Alice F. Tyler, Ph.D., Assistant Professor
 David H. Willson, Ph.D., Assistant Professor
 Guy W. C. Ross, M.A., LL.D., Lecturer
 Rodney C. Loehr, Ph.D., Instructor

JOURNALISM

Ralph D. Casey, Ph.D., Professor
 Ralph O. Nafziger, Ph.D., Professor
 Mitchell V. Charnley, M.A., Associate Professor
 Fred L. Kildow, B.A., Assistant Professor

MATHEMATICS

Dunham Jackson, Ph.D., Professor
 Anthony Underhill, Ph.D., Associate Professor
 S. Elizabeth Carlson, Ph.D., Assistant Professor
 Gladys E. C. Gibbens, Ph.D., Assistant Professor
 Howard H. Campaigne, Ph.D., Instructor
 Fulton Koehler, Ph.D., Instructor
 Margaret P. Martin, M.A., Teaching Assistant

William R. McEwen, M.A., Teaching Assistant
 Leonard W. Swanson, B.A., Teaching Assistant

MUSIC

Donald N. Ferguson, M.A., Professor
 Earle G. Killeen, M.Mus., Professor
 Gertrude R. Hull, Associate Professor
 Arthur B. Jennings, Associate Professor and University Organist
 Abe Pepinsky, Ph.D., Associate Professor
 Blanche Kendall, Assistant Professor
 Clyde Stephens, Assistant Professor
 Eunice Norton Lewis, Guest Instructor in Piano

PHILOSOPHY

George P. Conger, Ph.D., Professor
 Alburey Castell, Ph.D., Assistant Professor
 Millard S. Everett, Ph.D., Assistant Professor

PHYSICS

J. William Buchta, Ph.D., Professor
 Edward L. Hill, Ph.D., Associate Professor
 Lynn H. Rumbaugh, Ph.D., Associate Professor
 Joseph Valasek, Ph.D., Associate Professor
 John H. Williams, Ph.D., Associate Professor
 John Bardeen, Ph.D., Assistant Professor
 Alfred O. C. Nier, Ph.D., Assistant Professor

POLITICAL SCIENCE

Kenneth C. Cole, Ph.D., Professor, University of Washington
 Lloyd M. Short, Ph.D., Professor
 Clarence C. Ludwig, M.A., C.P.A., Associate Professor
 Lennox A. Mills, Ph.D., Associate Professor
 Asher N. Christensen, B.A., Assistant Professor
 Evron M. Kirkpatrick, Ph.D., Assistant Professor
 Joseph R. Starr, Ph.D., Assistant Professor

PSYCHOLOGY

Charles Bird, Ph.D., Professor
 Miles A. Tinker, Ph.D., Associate Professor
 Kenneth H. Baker, Ph.D., Assistant Professor
 Howard P. Longstaff, Ph.D., Assistant Professor
 B. Frederic Skinner, Ph.D., Assistant Professor
 William S. Carlson, Ph.D., Instructor
 Ray C. Hackman, M.A., Teaching Assistant

ROMANCE LANGUAGES

Francis B. Barton, Docteur de l'Université de Paris, Professor
 Irville C. Lecompte, Ph.D., Professor
 Colbert Searles, Ph.D., Professor
 Edward H. Sirich, Ph.D., Professor
 Raymond L. Grismer, Ph.D., Associate Professor

Herbert E. Cleifton, Ph.D., Assistant Professor
 Marguerite Guinotte, M.A., Assistant Professor
 Joe O. Embry, M.A., Teaching Assistant
 Irving Spiegel, M.A., Teaching Assistant
 Lawrence A. Wilson, M.A., Assistant

SCANDINAVIAN

Alrik Gustafson, Ph.D., Assistant Professor

SOCIOLOGY

F. Stuart Chapin, Ph.D., Professor
 Joseph K. Folsom, Ph.D., Professor, Vassar College
 Florence L. Goodenough, Ph.D., Professor
 Lowry Nelson, Ph.D., Professor
 Anne F. Fenlason, M.A., Associate Professor
 Elio D. Monachesi, Ph.D., Associate Professor
 Alice Leahy Shea, Ph.D., Associate Professor
 Monica K. Doyle, M.A., Assistant Professor
 Robert G. Hinckley, B.S., M.D., Assistant Professor
 Gordon R. Kamman, B.S., M.D., Clinical Assistant Professor
 Harry Greenstein, LL.B., Lecturer, Executive Director of Associated Jewish Char-
 ities, Baltimore, Maryland
 Elizabeth Eckhardt May, Ed.D., Lecturer
 Helen U. Phillips, M.S.S., Lecturer
 Svend H. Riemer, Ph.D., Lecturer
 Claudia K. Harney, Ph.B., Instructor
 Grace E. Pratt, B.A., Instructor
 Orville F. Quackenbush, B.A., B.S., Instructor
 Joseph Schneider, Ph.D., Instructor
 Robert M. Dinkel, M.A., Teaching Assistant
 Edgar C. McVoy, M.A., Teaching Assistant

SPEECH

Frank M. Rarig, M.A., Professor
 C. Lowell Lees, Ph.D., Associate Professor
 Howard Gilkinson, Ph.D., Assistant Professor
 Marie Mason, M.A., Lecturer, University of Iowa
 Spencer F. Brown, Ph.D., Instructor
 Myfanwy Chapman, B.S., Instructor
 Henrietta Hull, M.S., Instructor
 E. William Ziebarth, Ph.M., Instructor
 Reid Erikson, B.A., Teaching Assistant
 Kenneth Graham, M.A., Teaching Assistant
 William B. Newgord, M.A., Teaching Assistant
 Robert Sailstad, M.A., Teaching Assistant
 Frank M. Whiting, M.A., Teaching Assistant

ZOOLOGY

Donald L. Augustine, Ph.D., Professor, Harvard Medical School
 Jerry E. Wodsedalek, Ph.D., Professor
 Clarence P. Oliver, Ph.D., Associate Professor

INSTITUTE OF TECHNOLOGY

Samuel C. Lind, Ph.D., D.Sc., Dean

COLLEGE OF ENGINEERING AND ARCHITECTURE

Charles A. Koepke, M.S.(M.E.), Administrative Assistant

AERONAUTICAL ENGINEERING

Howard W. Barlow, B.S.(M.E.), M.S.(Aero.E.), Assistant Professor
Sydney M. Serebreny, B.S.(Aero.Ed.), Instructor

ARCHITECTURE AND FINE ARTS

S. Chatwood Burton, M.A., Professor
Robert G. Cerny, M.Arch., Assistant Professor

CIVIL ENGINEERING

Chester A. Hughes, M.A.Sc., Associate Professor
Joseph A. Wise, B.S.(C.E.), Associate Professor
Paul Andersen, Ph.D., Assistant Professor

DRAWING AND DESCRIPTIVE GEOMETRY

Howard D. Myers, B.S.(C.E.), Associate Professor
Ivan Doseff, B.S., Assistant Professor
Orrin W. Potter, E.M., M.S., Assistant Professor
Fred T. Cruzen, B.S.(E.E.), Instructor
Garvin L. von Eschen, B.Aero.E., M.S., Instructor

MATHEMATICS AND MECHANICS

George C. Priester, Ph.D., Professor
Hugh B. Wilcox, M.S., Professor
Carl A. Herrick, M.E., Associate Professor
John S. McNown, M.S., Instructor
Albert R. Poole, Ph.D., Instructor
Max G. Scherberg, Ph.D., Instructor

MECHANICAL ENGINEERING

John R. DuPriest, B.S.(E.E.), M.M.E., Professor
Thomas P. Hughes, M.S.(Met.), Assistant Professor
William H. Richards, Assistant Professor
Bert A. Crowder, B.S.(M.E.), Instructor
Fulton Holtby, M.E., M.S., Instructor

SCHOOL OF CHEMISTRY

Lloyd H. Reyerson, Ph.D., Administrative Assistant

INORGANIC CHEMISTRY

Gladstone B. Heisig, Ph.D., Associate Professor
Hervey H. Barber, Ph.D., Assistant Professor
Harold P. Klug, Ph.D., Assistant Professor
J. Lewis Maynard, Ph.D., Assistant Professor

T. Ivan Taylor, Ph.D., Instructor
 Frederic G. Bordwell, B.Ch., Teaching Assistant
 Carl E. Bryan, B.A., Teaching Assistant
 Clayton Huggett, B.S., Teaching Assistant

ANALYTICAL CHEMISTRY

I. William Geiger, Ph.D., Associate Professor
 Isadore Shapiro, B.Ch.E., Teaching Assistant
 James I. Watters, B.S., Teaching Assistant

ORGANIC CHEMISTRY

Walter M. Lauer, Ph.D., Professor
 C. Frederick Koelsch, Ph.D., Associate Professor
 Richard T. Arnold, Ph.D., Instructor
 Franklin L. Austin, B.S.(Chem.), Teaching Assistant
 John A. King, B.A., Teaching Assistant
 Fred J. Lucht, B.S., Teaching Assistant
 Enos H. McMullen, B.A.(Chem.), Teaching Assistant
 Harold E. Laugg, B.A., Teaching Assistant

PHYSICAL CHEMISTRY

George Glockler, Ph.D., Professor
 Robert S. Livingston, Ph.D., Associate Professor
 Herman Seelig, B.S.(Ch.E.), Teaching Assistant

CHEMICAL ENGINEERING

George H. Montillon, Ph.D., Professor
 Ralph E. Montonna, Ph.D., Professor
 Marvin C. Rogers, Ph.D., Assistant Professor
 Arthur E. Stoppel, Ph.D., Assistant Professor
 Cornelius S. Grove, M.S.(Ch.E.), Instructor
 John W. Clegg, B.S.(Ch.E.), Teaching Assistant
 George Rieger III, B.(Ch.E.), Teaching Assistant
 Edward C. Ritchell, B.(Ch.E.), Teaching Assistant

COLLEGE OF AGRICULTURE, FORESTRY, AND
HOME ECONOMICS

Walter C. Coffey, M.S., LL.D., Dean and Director of the Department of Agriculture
 Edward M. Freeman, Ph.D., Dean of the College of Agriculture, Forestry, and Home Economics

AGRICULTURAL BIOCHEMISTRY

Ross A. Gortner, Ph.D., D.Sc., Professor
 William F. Geddes, Ph.D., Professor
 Leroy S. Palmer, Ph.D., Professor
 David R. Briggs, Ph.D., Associate Professor
 Cornelia Kennedy, Ph.D., Associate Professor
 William M. Sandstrom, Ph.D., Associate Professor
 Henry C. Reitz, Ph.D., Instructor

AGRICULTURAL ECONOMICS

Oscar B. Jesness, Ph.D., Professor
Warren C. Waite, Ph.D., Professor
George A. Pond, Ph.D., Associate Professor
E. Fred Koller, Ph.D., Assistant Professor
Selmer A. Engene, B.S., Instructor
Percy M. Lowe, M.S., Instructor

AGRICULTURAL ENGINEERING

Arthur J. Schwantes, M.S., Associate Professor
J. Grant Dent, Instructor

AGRONOMY AND PLANT GENETICS

Herbert K. Hayes, D.Sc., Professor
Forrest R. Immer, Ph.D., Professor
Harold K. Wilson, Ph.D., Professor
Albert C. Army, M.S., Associate Professor
Charles R. Burnham, Ph.D., Associate Professor

ANIMAL AND POULTRY HUSBANDRY

Walter H. Peters, M.Agr., Professor
Evan M. Ferrin, M.Agr., Professor
Laurence M. Winters, Ph.D., Professor
Hubert J. Sloan, Ph.D., Professor
Philip A. Anderson, B.S., Assistant Professor
Alfred L. Harvey, M.S., Assistant Professor
Donald W. Johnson, Ph.D., Assistant Professor
Thomas H. Canfield, M.S., Instructor

DAIRY HUSBANDRY

James B. Fitch, M.S., Professor
Willes B. Combs, M.A., Professor
Harold Macy, Ph.D., Professor
William E. Petersen, Ph.D., Professor
Samuel T. Coulter, Ph.D., Assistant Professor
Thor W. Gullickson, Ph.D., Assistant Professor

ENTOMOLOGY AND ECONOMIC ZOOLOGY

William A. Riley, Ph.D., D.Sc., Professor
Arthur G. Ruggles, M.A., Professor
Maurice C. Tanquary, Ph.D., Professor
Alexander A. Granovsky, Ph.D., Associate Professor
Clarence E. Mickel, Ph.D., Associate Professor
Alexander C. Hodson, Ph.D., Assistant Professor
Harold H. Shepard, Ph.D., Assistant Professor
Gustav A. Swanson, Ph.D., Assistant Professor

FORESTRY

Edward G. Cheyney, B.A., Professor
Randolph M. Brown, M.F., M.S., Assistant Professor

HOME ECONOMICS

Wylle B. McNeal, M.A., Professor
 Harriet Goldstein, Associate Professor
 Isabel Noble, Ph.D., Associate Professor
 Ethel L. Phelps, M.S., Associate Professor
 Vetta Goldstein, Assistant Professor
 Hope Hunt, Ph.D., Instructor

HORTICULTURE

William H. Alderman, B.S.A., Professor
 Wilfrid G. Brierley, Ph.D., Professor
 Rodney B. Harvey, Ph.D., Professor
 Fred A. Krantz, Ph.D., Professor
 Troy M. Currence, Ph.D., Associate Professor
 Arthur E. Hutchins, Ph.D., Assistant Professor
 Lewis E. Longley, Ph.D., Assistant Professor
 Arthur N. Wilcox, Ph.D., Assistant Professor

PLANT PATHOLOGY AND BOTANY

Elvin C. Stakman, Ph.D., Professor
 Jonas J. Christensen, Ph.D., Professor
 Rodney B. Harvey, Ph.D., Professor
 Clyde M. Christensen, Ph.D., Assistant Professor
 Louise T. Dossdall, Ph.D., Assistant Professor
 Carl J. Eide, Ph.D., Assistant Professor
 Raymond H. Landon, Ph.D., Instructor

BIOLOGICAL STATION

William A. Riley, Ph.D., D.Sc., Professor
 C. Otto Rosendahl, Ph.D., Professor
 Samuel Eddy, Ph.D., Associate Professor
 Alexander A. Granovsky, Ph.D., Associate Professor
 Thorvald Schantz-Hansen, Ph.D., Associate Professor and Director of Station
 Murray F. Buell, Ph.D., Assistant Professor, University of North Carolina
 Clyde M. Christensen, Ph.D., Assistant Professor
 Gustav A. Swanson, Ph.D., Assistant Professor
 John P. Turner, Ph.D., Assistant Professor
 Donald B. Lawrence, Ph.D., Instructor
 Franklin G. Wallace, Ph.D., Instructor

MEDICAL SCHOOL

Harold S. Diehl, M.A., M.D., D.Sc., Dean of Medical Sciences
 C. Donald Creevy, M.D., Ph.D., Assistant Dean

ANATOMY

Edward A. Boyden, Ph.D., Professor
 Andrew T. Rasmussen, Ph.D., Professor
 Raymond F. Blount, Ph.D., Assistant Professor
 Shirley P. Miller, Ph.D., Assistant Professor
 Dorothy Sundberg, M.A., Instructor

BACTERIOLOGY AND IMMUNOLOGY

Winford P. Larson, M.D., Professor
 Arthur T. Henrici, M.D., Professor
 Robert Hoyt, Ph.D., Teaching Assistant
 Z. John Ordal, B.A., Teaching Assistant

MEDICINE

J. Charnley McKinley, M.D., Ph.D., Professor
 Moses Barron, B.S., M.D., Professor
 Eric K. Clarke, B.S., M.D., Professor
 George E. Fahr, B.S., M.D., Professor
 Henry E. Michelson, B.S., M.D., Professor
 J. Arthur Myers, M.D., Ph.D., Professor
 Samuel E. Sweitzer, M.D., Professor
 Francis W. Lynch, M.D., M.S., Clinical Associate Professor
 Joseph C. Michael, B.S., M.D., Clinical Associate Professor
 Cecil J. Watson, M.D., Ph.D., Associate Professor
 Macnider Wetherby, B.S., M.D., Clinical Associate Professor
 A. B. Baker, M.D., Ph.D., Assistant Professor
 Royal C. Gray, M.D., Ph.D., Clinical Assistant Professor
 Starke R. Hathaway, Ph.D., Assistant Professor and Clinical Psychologist
 Robert G. Hinckley, B.S., M.D., Assistant Professor
 Reynold A. Jensen, B.A., M.D., Assistant Professor
 Gordon R. Kamman, B.S., M.D., Clinical Assistant Professor
 Arthur C. Kerkhof, M.D., Ph.D., Clinical Assistant Professor
 Carl W. Laymon, M.D., Ph.D., Clinical Assistant Professor
 John F. Madden, M.D., M.S., Clinical Assistant Professor
 Ernest S. Mariette, B.S., M.D., Clinical Assistant Professor
 Burtrum C. Schiele, B.A., M.D., Assistant Professor
 Wesley W. Spink, B.A., M.D., Assistant Professor
 Samuel A. Weisman, B.S., M.D., Clinical Assistant Professor
 Louis H. Winer, B.S., M.D., Clinical Assistant Professor
 George H. Freeman, M.D., St. Peter Hospital, Lecturer
 William L. Patterson, M.D., Fergus Falls, Lecturer
 Nathan J. Berkwitz, M.D., Ph.D., Clinical Instructor
 Lillian Cottrell, M.D., M.S., Instructor
 Phillip Hallock, B.S., M.D., Clinical Instructor
 John A. Layne, B.S., M.D., Instructor
 George Levitt, B.S., M.D., Clinical Instructor
 Elmer M. Rusten, B.A., M.D., Clinical Assistant Professor
 John E. Skogland, M.D., Clinical Instructor
 Alphonse E. Walch, M.D., Clinical Instructor

OBSTETRICS AND GYNECOLOGY

John L. McKelvey, B.A., M.D., C.M., Professor
 Jennings C. Litzenberg, B.S., M.D., Professor Emeritus
 Lee W. Barry, M.D., Ph.D., Clinical Assistant Professor
 Leonard A. Lang, B.S., M.D., Clinical Assistant Professor
 Jalmar H. Simons, B.S., M.D., Clinical Assistant Professor
 Samuel B. Solhaug, M.D., Ph.D., Assistant Professor
 Milton Abramson, M.D., Ph.D., Clinical Instructor

Louis Friedman, B.S., M.D., Clinical Instructor
 Everett C. Hartley, B.A., M.D., Clinical Instructor
 Eugene M. Kasper, M.D., Ph.D., Clinical Instructor
 Charles E. McLennan, M.A., M.D., Instructor
 Charles E. Proshek, B.S., M.D., Clinical Instructor
 Albert G. Schulze, M.D., Clinical Instructor
 Charles H. McKenzie, M.D., Clinical Assistant

OPHTHALMOLOGY AND OTOLARYNGOLOGY

Frank E. Burch, M.D., Professor
 Horace Newhart, B.A., M.D., Professor
 Lawrence R. Boies, M.A., M.D., Associate Professor
 John S. Macnie, B.A., M.D., Associate Professor
 Frank L. Bryant, B.S., M.D., Clinical Assistant Professor
 C. Alford Fjeldstad, M.S., M.D., Clinical Assistant Professor
 Erling W. Hansen, B.S., M.D., Clinical Assistant Professor
 Charles Hymes, M.D., M.S., Clinical Assistant Professor
 Kenneth A. Phelps, B.S., M.D., Clinical Assistant Professor
 Fred J. Pratt, Jr., M.D., Clinical Assistant Professor
 Phillip A. Delavan, B.S., M.D., Clinical Instructor
 Jerome A. Hilger, B.S., M.D., Clinical Instructor
 Robert R. Tracht, B.S., M.D., Clinical Instructor
 Karl B. Benkwitz, B.S., M.D., Medical Fellow
 Erich H. Loenholdt, B.S., M.D., Medical Fellow
 Robert E. Priest, B.S., M.D., Medical Fellow
 Francis M. Walsh, B.S., M.D., Medical Fellow

PATHOLOGY

Elexious T. Bell, B.S., M.D., Professor
 Benjamin J. Clawson, M.D., Ph.D., Professor
 James S. McCartney, Jr., B.A., M.D., Associate Professor
 John F. Noble, M.D., Associate Professor
 Robert Hebbel, B.S., M.D., Instructor
 James B. Arey, M.D., Medical Fellow
 Lawrence Berman, M.D., Medical Fellow
 Thomas J. Kenyon, M.D., Medical Fellow

PEDIATRICS

Irvine McQuarrie, Ph.D., M.D., Professor
 Eric K. Clarke, B.S., M.D., Professor
 Edgar J. Huenekens, M.D., M.A., Clinical Professor
 Max Seham, M.D., Clinical Professor
 Chester A. Stewart, M.D., Ph.D., Clinical Professor
 Arild E. Hansen, M.D., Ph.D., Associate Professor
 Hyman S. Lippman, M.D., Ph.D., Clinical Associate Professor
 Erling S. Platou, B.S., M.D., Clinical Associate Professor
 Albert V. Stoesser, M.D., Ph.D., Associate Professor
 Paul F. Dwan, B.S., M.D., Clinical Assistant Professor
 Reynold A. Jensen, B.A., M.D., Assistant Professor
 W. Ray Shannon, M.S., M.D., Clinical Assistant Professor
 Robert L. Wilder, B.S., M.D., Clinical Assistant Professor

Mildred R. Ziegler, Ph.D., Assistant Professor
 John A. Anderson, B.S., M.D., Instructor
 Woodard L. Colby, B.S., M.D., Clinical Instructor
 Frank G. Hedenstrom, B.S., M.D., Clinical Instructor
 Edwin F. Robb, B.A., M.D., Clinical Instructor
 Robert Rosenthal, M.D., Clinical Instructor

PHARMACOLOGY

Arthur D. Hirschfelder, B.S., M.D., Professor
 Harold N. Wright, Ph.D., Associate Professor

PHYSIOLOGY

Maurice B. Visscher, Ph.D., M.D., Professor
 Frederick H. Scott, Ph.D., M.D., D.Sc., Professor
 Charles F. Code, M.D., Assistant Professor
 Allan Hemingway, Ph.D., Assistant Professor
 Joseph T. King, M.D., Ph.D., Assistant Professor
 Leo T. Samuels, Ph.D., Assistant Professor
 L. Earle Arnow, Ph.D., Instructor
 Frederick J. Kottke, B.S., Teaching Assistant
 Walter D. Shelley, Teaching Assistant

PREVENTIVE MEDICINE AND PUBLIC HEALTH

Gaylord W. Anderson, B.A., M.D., Professor
 J. Arthur Myers, Ph.D., M.D., Professor
 Margaret G. Arnstein, R.N., M.A., C.P.H., Associate Professor
 Alan E. Treloar, Ph.D., Associate Professor
 Harold A. Whittaker, B.A., Clinical Associate Professor
 Laura Draper, B.A., B.S., R.N., Clinical Assistant Professor
 Theodore A. Olson, M.A., Assistant Professor
 Mellie F. Palmer, R.N., B.S., C.P.H., Assistant Professor
 Maysil M. Williams, M.D., C.P.H., Lecturer, State Health Officer of North Dakota
 Gertrude Lyons, R.N., Clinical Instructor
 Mary E. Parker, B.A., R.N., Instructor
 George O. Pierce, B.S., Instructor
 Pearl Shalit, M.S.S., R.N., Clinical Instructor

RADIOLOGY

Leo G. Rigler, B.S., M.D., Professor
 Karl W. Stenstrom, Ph.D., Professor
 Walter H. Ude, B.S., M.D., Clinical Assistant Professor
 Milan E. Knapp, M.A., M.D., Clinical Instructor
 Oscar Lipschultz, B.S., M.D., Clinical Instructor
 Harold O. Peterson, M.D., Instructor
 Malcolm B. Hanson, M.D., Clinical Assistant

SURGERY

Owen H. Wangensteen, M.D., Ph.D., Professor
 Wallace H. Cole, M.D., Professor
 Alexander R. Colvin, M.D., Clinical Professor
 Harry P. Ritchie, Ph.B., M.D., Clinical Professor

Arthur A. Zierold, D.D.S., M.D., Ph.D., Professor
 Orwood J. Campbell, M.D., Ph.D., Clinical Associate Professor
 C. Donald Creevy, M.D., Ph.D., Associate Professor
 Walter A. Fansler, M.A., M.D., Clinical Associate Professor
 Frederic E. B. Foley, Ph.B., M.D., Clinical Associate Professor
 James M. Hayes, M.D., M.S., Clinical Associate Professor
 Ralph T. Knight, B.A., M.D., Associate Professor
 William T. Peyton, M.D., Ph.D., Associate Professor
 Arthur F. Bratrud, B.S., M.D., Clinical Assistant Professor
 Edward T. Evans, B.S., M.D., Clinical Assistant Professor
 L. Haynes Fowler, M.S., M.D., Clinical Assistant Professor
 William A. Hanson, B.S., M.D., Clinical Assistant Professor
 E. Mendelssohn Jones, M.D., Clinical Assistant Professor
 N. Logan Leven, M.D., Ph.D., Clinical Assistant Professor
 Stanley R. Maxeiner, M.D., Clinical Assistant Professor
 Frank S. McKinney, B.A., M.D., Clinical Assistant Professor
 John R. Paine, M.D., Ph.D., Assistant Professor
 Charles E. Rea, M.D., Ph.D., Assistant Professor
 Edward A. Regnier, B.S., M.D., Clinical Assistant Professor
 Emil C. Robitshek, M.D., Clinical Assistant Professor
 Anton G. Wethall, M.D., Clinical Assistant Professor
 James K. Anderson, B.A., M.D., Clinical Instructor
 George S. Bergh, M.D., M.S., Instructor
 Joseph C. Giere, B.A., B.S., M.D., Clinical Instructor
 Vernon L. Hart, M.D., Clinical Instructor
 Harold E. Hullsiek, B.S., M.D., Clinical Instructor
 Ernest L. Meland, M.D., M.S., Clinical Instructor
 Wallace P. Ritchie, M.D., M.S., Clinical Instructor
 Louis Sperling, M.D., Ph.D., Clinical Instructor
 William H. von der Weyer, M.D., Clinical Instructor
 George A. Williamson, M.D., Clinical Instructor
 Carl Lind, Jr., M.D., Teaching Assistant and National Cancer Institute Fellow
 Edward G. Olson, B.S., M.D., Clinical Assistant
 Raymond E. Buirge, M.D., M.S., National Cancer Institute Fellow
 Charles B. Craft, M.D., M.S., National Cancer Institute Fellow
 Harry Hall, M.D., Medical Fellow (Orthopedics)
 Leonard A. Titrud, M.D., M.S., National Cancer Institute Fellow

SCHOOL OF NURSING

Katharine J. Densford, R.N., M.A., Professor and Director
 Lucile Petry, R.N., M.A., Associate Professor
 Ruth Harrington, R.N., M.A., Assistant Professor
 Barbara Thompson, R.N., B.S., Guest Instructor

SCHOOL OF DENTISTRY

William F. Lasby, B.S., D.D.S., Dean

Carl O. Flagstad, D.D.S., Professor
 Robert O. Green, D.D.S., Professor
 Charles A. Griffith, D.D.S., Professor

Charles E. Rudolph, D.D.S., Professor
 Carl W. Waldron, M.D., D.D.S., L.D.S., Professor
 Amos S. Wells, D.D.S., Professor

COLLEGE OF EDUCATION

Wesley E. Peik, Ph.D., Dean

GENERAL COURSES

Nelson L. Bossing, Ph.D., Professor
 Leo J. Brueckner, Ph.D., Professor
 Palmer O. Johnson, Ph.D., Professor
 T. Raymond McConnell, Ph.D., Professor
 Wilford S. Miller, Ph.D., Professor
 Mervin G. Neale, Ph.D., Professor
 Dora V. Smith, Ph.D., Professor
 Edgar B. Wesley, Ph.D., Professor
 C. Gilbert Wrenn, Ph.D., Professor
 Guy L. Bond, Ph.D., Associate Professor
 Theodore Brameld, Ph.D., Associate Professor
 William S. Carlson, Ph.D., Associate Professor
 Walter W. Cook, Ph.D., Associate Professor
 Tracy F. Tyler, Ph.D., Associate Professor
 Marvin J. Van Wagenen, Ph.D., Associate Professor
 Francis S. Appel, M.A., Assistant Professor
 Clifford P. Archer, Ph.D., Assistant Professor and Director of the Bureau of Recommendations
 Marcia Edwards, Ph.D., Assistant Professor and Assistant to the Dean
 Howard Gilkinson, Ph.D., Assistant Professor
 Charles C. Barnes, Ph.D., Director of Social Studies, Detroit Public Schools, and Professor of Education, Wayne University, Lecturer
 Elden A. Bond, Ph.D., Instructor, Harvard University, Lecturer
 A. B. Caldwell, Ed.D., Deputy Commissioner, State Department of Education, Minnesota, Lecturer
 Ella C. Clark, M.A., Supervisor of Intermediate Grades, Winona State Teachers College, Lecturer
 Harry P. Cooper, M.A., Principal, Marshall High School, Minneapolis, Lecturer
 Prudence Cutright, M.A., Assistant Superintendent of Schools, Minneapolis, Lecturer
 John G. Darley, Ph.D., Assistant Professor of Psychology and Director of the University Testing Bureau, Lecturer
 Chris A. De Young, Ph.D., Professor of Education, Illinois State Normal University, Lecturer
 William Griffiths, M.A., Social Hygienist, State Board of Health, Minnesota, Lecturer
 Margaret C. Gustin, M.A., Rural Supervisor, State Department of Education, Connecticut, Lecturer
 Winifred Hathaway, M.A., Associate Director, National Society for the Prevention of Blindness, Lecturer

- James Monroe Hughes, Ph.D., Professor of Education and Chairman of Advanced Study, School of Education, Northwestern University, Lecturer
 Malcolm S. MacLean, Ph.D., Director of the General College, Lecturer
 Earl J. McGrath, Ph.D., Specialist in Higher Education, American Council on Education, Lecturer
 Elizabeth E. May, Ed.D., Lecturer in Sociology and Education, Lecturer
 Fred A. Miller, M.A., Director Clear Lake Camp, Kellogg Foundation, Dowling, Michigan, Lecturer
 J. J. Oppenheimer, Ph.D., Dean of the College of Liberal Arts, University of Louisville, Lecturer
 Ward A. Reeder, Ph.D., Professor of Education, Ohio State University, Lecturer
 John G. Rockwell, Ph.D., Commissioner, State Department of Education, State of Minnesota, Lecturer
 David Ryans, Ph.D., Executive Secretary, Cooperative Test Service, American Council on Education, Lecturer
 Dean M. Schweickhard, M.A., Assistant Superintendent of Schools, Minneapolis, Lecturer
 Carl L. Thiele, Ph.D., Director of Exact Sciences, Detroit Public Schools, and Professor of Exact Science Teaching, Wayne University, Lecturer
 Fred von Borgersrode, Ph.D., Director of Research, Minnesota Education Association, Lecturer
 Ralph K. Watkins, Ph.D., Professor of Education, University of Missouri, Lecturer
 Barbara Wright, M.A., Supervisor of Counselors, Minneapolis Public Schools, Lecturer
 William H. Ziegel, Ph.D., Assistant Professor of Education, Illinois State Teachers College, Charleston, Illinois, Lecturer
 Jean H. Alexander, M.A., Instructor
 G. Lester Anderson, M.A., Instructor
 James E. Curtis, M.A., Instructor
 Willis H. Dugan, M.A., Instructor
 Nicholas Fattu, M.S., Instructor
 Milton E. Hahn, M.S., Instructor
 Bertha Handlan, M.A., Instructor
 Agnes J. Kean, M.A., Instructor
 Shailer Peterson, M.A., Instructor
 W. W. Staudenmaier, M.A., Instructor and Principal, Tuttle Elementary School
 Virgil R. Walker, M.A., Instructor
 Hedvig Ylvisaker, Ph.D., Instructor

AGRICULTURAL EDUCATION

- Albert M. Field, Ph.D., Professor
 George F. Ekstrom, Ph.D., Assistant Professor

ART EDUCATION

- Robert S. Hilpert, M.A., Associate Professor
 Florence Smythe, M.A., Instructor, State College, San Diego, California, Lecturer
 Marguerite Birch Clair, M.A., Instructor
 Clifton Gayne, M.A., Instructor
 Ernest Ziegfeld, B.S., Instructor

HOME ECONOMICS EDUCATION

Wylle B. McNeal, M.A., Professor
Harriet Goldstein, Associate Professor
Mary F. Inman, M.S., Instructor
Belle Pollard, M.S., Instructor

INDUSTRIAL EDUCATION

Homer J. Smith, Ph.D., Professor
Harold T. Widdowson, M.A., Assistant Professor
Ralph T. Craigo, B.S., Associate Director, Dunwoody Industrial Institute, Minneapolis, Lecturer
Dean M. Schweickhard, M.A., Assistant Superintendent of Schools, Minneapolis, Lecturer
William J. Micheels, M.A., Instructor

MUSIC EDUCATION

Abe Pepinsky, Ph.D., Associate Professor
Hazel B. Nohavec, M.A., Mus.D., Instructor
Gerald Prescott, B.A., Instructor
J. Clark Rhodes, B.M., B.A., Instructor

UNIVERSITY HIGH SCHOOL

James E. Curtis, M.A., Instructor and Assistant Director of the Training School
Hubert P. Beck, M.A., Instructor
Mason Boudrye, B.Ed., Instructor
Donald Castleberry, M.A., Instructor
Joseph H. W. Daoust, M.A., Instructor
Margaret Day, B.S., Instructor
Willis E. Dugan, M.A., Instructor
Wilton B. Gundlach, M.A., Instructor
Bertha Handlan, M.A., Instructor
Agnes J. Kean, M.A., Instructor
Raymond A. Kehl, M.A., Instructor
Shailer Peterson, M.A., Instructor
Frans V. E. Vaurio, B.S., Instructor
Gerald Voelker, M.A., Instructor
Virgil R. Walker, M.A., Instructor
Mabel Jackman, B.S., Librarian

TUTTLE DEMONSTRATION ELEMENTARY SCHOOL

W. W. Staudenmaier, M.A., Instructor and Principal
Ruby D. Dahlin, B.S., Demonstration Teacher
Ruby A. Johnson, B.S., Demonstration Teacher
Katherine M. Michaelsen, B.S., Demonstration Teacher
Florence Pederson, B.S., Demonstration Teacher
Leonard L. Persinger, Demonstration Teacher
Fay Rogers, M.A., Demonstration Teacher
Adele Solheim, B.S., Demonstration Teacher
Norma Verbeck, B.S., Demonstration Teacher

PHYSICAL EDUCATION

PHYSICAL EDUCATION FOR MEN

Frank McCormick, B.A., LL.B., Professor
 Louis F. Keller, M.A., Associate Professor
 George W. Hauser, B.S., M.D., Associate Professor
 Edwin L. Haislet, Ed.D., Assistant Professor
 Carl L. Nordly, Ph.D., Assistant Professor
 Ralph A. Piper, M.A., Assistant Professor
 W. Ray Smith, B.A., Assistant Professor
 David C. Bartelma, M.A., Instructor
 Sheldon Beise, B.S., Instructor
 Thomas R. Gibson, M.S., Instructor
 Clarence Osell, M.S., Instructor
 Maurice Ostrander, B.S., Instructor
 Lloyd Stein, B.S., Trainer

PHYSICAL EDUCATION FOR WOMEN

Marion Cook, M.A., Assistant Professor
 Catherine Snell, M.A., Assistant Professor
 Helen Starr, M.A., Assistant Professor
 Elizabeth Graybeal, Ph.D., Lecturer
 Miriam Phillips, Instructor
 Esther Schloz, B.S., Instructor
 Jesselene Thomas, M.S., Instructor

SCHOOL OF BUSINESS ADMINISTRATION

Russell A. Stevenson, Ph.D., Dean

Roy G. Blakey, Ph.D., Professor of Economics
 George Filipetti, Ph.D., Professor of Economics and Business Administration
 Ernest A. Heilman, Ph.D., Professor of Accounting
 Arthur W. Marget, Ph.D., Professor of Economics and Finance
 Bruce D. Mudgett, Ph.D., Professor of Economics and Statistics
 John J. Reighard, M.A., C.P.A., Professor of Accounting
 J. Warren Stehman, Ph.D., Professor of Economics and Finance
 Roland S. Vaile, M.A., Professor of Economics and Marketing
 Dale Yoder, Ph.D., Professor of Economics and Industrial Relations
 Arthur R. Upgren, Ph.D., Associate Professor of Economics
 Walter R. Myers, Ph.D., Assistant Professor of Economics and Finance
 George J. Stigler, Ph.D., Assistant Professor of Economics
 Francis M. Boddy, Ph.D., Lecturer in Economics
 Richard A. Graves, M.A., Instructor in Economics and Insurance

INSTITUTE OF CHILD WELFARE

John E. Anderson, Ph.D., Director

Florence L. Goodenough, Ph.D., Professor
 Marion L. Faegre, B.A., Assistant Professor
 Edith A. Davis, Ph.D., Lecturer

Neith E. Headley, M.A., Instructor and Teacher in Kindergarten
Mary C. Greer, B.A., Teacher in Nursery School
Eleanore Schulte, B.S., Teacher in Nursery School
Katherine Maurer, M.A., Psychometrist

LIBRARY INSTRUCTION

Frank K. Walter, M.A., M.L.S., University Librarian and Director, Division of
Library Instruction
Lura C. Hutchinson, B.A., Associate Professor
Edith Brainerd, M.A., Librarian, Southwestern College, Winfield, Kansas, Lecturer
Irene Fraser, B.S., Reference Assistant, Sumner Park Branch, Minneapolis Public
Library, Lecturer
Carrie E. Scott, B.A., Supervisor, Children's Work, Indianapolis Public Library,
Lecturer
John C. Settelmayer, M.S., Late Librarian, Junior College, Virginia, Minnesota,
Lecturer

INDEX

Page	Page
Abbreviations used for buildings	21
Aeronautical Engineering	48, 117
Administration	6
Admission	15, 57, 65, 69, 71, 72, 86, 106, 110, 112
Agricultural Biochemistry	57, 118
Agricultural dormitories	14
Agricultural Economics	58, 119
Agricultural Education	58, 89, 126
Agricultural Engineering	58, 119
Agriculture, Forestry, and Home Economics, College of	57, 118
Agronomy and Plant Genetics	59, 119
Amount of work	17, 69
Analytical Chemistry	54, 118
Anatomy	72, 120
Anesthesia, Division of	83
Animal and Poultry Husbandry	59, 119
Anthropology	24, 113
Architecture and Fine Arts	48, 117
Art Education	89, 126
Astronomy	24, 113
Auditors	17
Bacteriology and Immunology	73, 121
Biological Station Summer Ses- sion	8, 25, 46, 60, 61, 63, 64, 120
Biometry	81
Board of Regents	6
Botany	25, 63, 65, 67, 113
Bureau of Recommendations	11
Business Administration, School of	106, 128
Cafeteria	12, 15
Calendar	4
Car, intercampus	11
Center for Continuation Study	9
Changes in registration	16
Chemical Engineering	55, 118
Chemistry, School of	53, 117
Child Welfare, Institute of	7, 9, 110, 128
Civil Engineering	49, 117
Class hour schedule	20
Classics	26, 113
College of Education	8, 9, 86, 125
Commencement	4, 18
Composition	28, 29
Concerts	19
Convocations	19, 20
Correspondence study courses	12
Courses at Itasca Park	25, 46, 59, 60, 63, 64, 120
Credit, definition of	17
Curriculum and Instruction	90
Curriculum requirements	18
Dairy Husbandry	59, 119
Dates of the Summer Session	10
Degrees	18, 22
Demonstration Elementary School	7, 8, 86, 127
Demonstration High School	7, 86, 127
Dentistry, School of	72, 85, 124
Dermatology, Division of	74
Dormitories	13, 14
Dramatics	19, 43, 44, 45, 46, 116
Drawing and Descriptive Geom- etry	49, 117
Economics	106, 128
Education, College of	8, 9, 86, 125
Educational Administration	93
Educational Psychology	95
Employment, summer	20
Engineering and Architecture, College of	48, 117
Engineers and Custodians Short Course	9
English	26, 113
Entomology and Economic Zo- ology	59, 66, 119
Excursions	19
Explanations	20
Faculty, list of	113
Fees	9, 15, 16, 17, 18, 31, 33, 64, 69, 71, 85, 87, 103, 110
Auditors	17
Biological Station	64
Dentistry, School of	85
General statement	16
Graduate students in Education	87
Graduation	18
Journalism	31
Medical School	69
Music	33
Nursing, School of	71
Refund of	17
Fine Arts	29, 114
Fine Arts, Architecture and	48, 117
Forestry	60, 67, 119
Forging, Heat Treating, and Welding	51
Foundry laboratory	52
French	39, 40
General Courses, Education	87, 125
General information	10
Geography	29, 114
Geology	30, 114
Geometry, Descriptive	49, 117
German	30, 114
Girl Scout leadership course	9

	Page		Page
Golf tickets	19, 103	Minnesota All-State High School	
Grading system	17, 71	Clinic Band	9
Graduate School	22, 57, 71, 87, 113	Minnesota Union	12
Greek	26	Music	33, 115
Health Service	13	Music Education	99, 127
High School Clinic Band	9	Nervous and Mental Diseases,	
High School, Demonstration	7, 86, 127	Division of	75
History	30, 114	Neurosurgery, Division of	83
Home Economics	61, 120	Newsreels	20
Home Economics Education	62, 96, 127	Nursery School and Kinder-	
Horticulture	62, 120	garten	86, 110
Industrial Education	97, 127	Nursing Instruction	71, 84, 124
Information, general	10	Obstetrics and Gynecology	75, 121
Agriculture, College of	57	Office of Summer Session	11
Business Administration, School		Official Daily Bulletin	12
of	106	Ophthalmology and Otolaryn-	
Education, College of	86	gology	76, 122
Medical School	69	Organic Chemistry	54, 118
Science, Literature, and the		Orthopedic Surgery, Division of	83
Arts, College of	24	Painting	29, 48, 89, 114, 117, 126
Inorganic Chemistry	53, 117	Pathology	76, 122
Institute of Child Welfare	9, 110, 128	Pediatrics	77, 122
Institute of Technology	48, 117	Pharmacology	77, 123
Inter-campus car	11	Philosophy	34, 115
Itasca Park Biological		Physical activities	19
Station	25, 46, 60, 61, 63, 64, 120	Physical Chemistry	55, 118
Itasca Park Forestry course	60	Physical Education for Men	100, 128
Journalism	31, 114	Physical Education for Women	103, 128
Kellogg Foundation	8, 92	Physics	35, 115
Key to abbreviations	21	Physiology	78, 123
Kindergarten and Nursery		Pioneer Hall	13
School	86, 110	Plant Genetics	59, 119
Latin	26	Plant Pathology and Botany	63, 67, 120
Lectures	19	Political Science	36, 115
Library	11, 112, 129	Post office	12
Library Instruction	112, 129	Preventive Medicine and Public	
Literature	26, 28	Health	79, 123
Living expenses	13	Psychology	38, 95, 115
Location of University	2, 3, 10	Public Health Nursing	72, 79, 84
Machine shop work	52	Radiology	81, 123
Manual Training	51	Recreation in Summer	
Maps of campuses	2, 3	Session	18, 19, 100, 103
Mathematics	32, 114	Refund of fees	17
Mathematics and Mechanics	50, 117	Regents, Board of	6
Mechanical Engineering	51, 117	Registration	15, 16
Medicine, Department of	73, 121	Registration, changes in	16
Medicine, School of	69, 120	Requests for information	21
Clinical years, programs for	69, 70	Requirements, curriculum	18
Dental School	72, 85	Requirements, residence	18
Laboratory years	70	Residence requirements	18
Practitioners in medicine, op-		Romance Languages	39, 115
portunities for	70	Sanford Hall	14
Technologists	72	Scandinavian	40, 116
Methods and Directed Teaching	98	Schedule of class hours	20
		School of Nursing	71, 84, 124

	Page		Page
Science, Literature, and the Arts,		Summer Session	7
College of	24, 113	Summer Session, dates of	10
Shevlin Hall	12	Summer Session Official Daily	
Short Course for Engineers and		Bulletin	12
Custodians	9	Surgery	82, 123
Sight-saving course	8, 90		
Social evenings	19	Tennis tickets	19
Sociology and Social Work	41, 116	Trade and Industrial Education	97, 127
Spanish	40	Tuition fees	16
Special courses	8	Tuttle Elementary School	8, 86, 127
Special Courses for Teachers	51, 52		
Special features	19	University High School	86, 127
Speech	43, 116	University of Minnesota, location	
Students' Health Service	13	of	2, 3, 10
Summer Demonstration Elemen-		Urology, Division of	83
tary School	8, 86, 127		
Summer Demonstration High		Woodworking courses	51
School	86, 127	Workshop in higher education	8, 88
Summer employment	20	Zoology	46, 59, 66, 68, 116, 119

BULLETIN OF THE
UNIVERSITY OF MINNESOTA

General Announcement
of the

Center for
Continuation Study
1940-41



Center for Continuation Study

Vol. XLIII

No. 19

March 12 1940

Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota. Accepted for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized July 12, 1918.

PURPOSES OF THE CENTER

In order to help those citizens who wish to continue their education beyond the formal limits of their secondary, college, or professional schooling, the University of Minnesota has established the Center for Continuation Study.

The services of the Center are for men and women who wish to spend relatively short periods in serious and intensive study of problems related to their professional, civic, or cultural interests. In general, the studies thus pursued are those which the University is especially qualified to direct.

The purposes of the department are epitomized in its name. It is a *center* in which students live and work together during their period of residence on the campus. It is a *continuation* school in the sense that it is designed to give opportunities for acquiring further education to those who already have received the usual professional, technical, and general instruction in the regular schools and colleges. Emphatically it is a place for definite *study*.

The Center, moreover, does not intend to duplicate the work of other agencies giving instruction to adults. The public schools with their evening classes, the various educational projects financed by the Federal Government, and many privately operated institutions offer opportunities to the citizen who wants to repair deficiencies in his schooling or to extend his education along general cultural and vocational lines. The University itself, through its extension classes, correspondence study instruction, technical conferences, professional institutes, short courses, summer sessions, public lectures, and dramatic and musical series, provides a wide variety of facilities for continuing education. The Center attempts to supplement, not to supplant, these various services.

WORK OF THE CENTER

The center does most of its work by means of schools and institutes, organized and directed by the University, and designed to serve the interests of professional, occupational, civic, and cultural groups. Instructors in the courses aim to present specific information accurately, to discuss issues impartially, and to examine theories critically.

Groups desiring courses of a professional, technological, or cultural nature are invited to confer with the director of the Center concerning their needs. The University on its own initiative also announces courses from time to time. In every instance the University will engage the faculty, prepare the plan, and assume full responsibility for the conduct of the course.

Each school, course, or institute in the Center is unique, with its own name, its own time schedule, its own curriculum, its own faculty, and its own life. An institute of three days or a school of three weeks or more; a one-day conference or a one-week seminar; a student body of professional leaders in medicine, dentistry, pharmacy, engineering, or education; an institute for municipal officers, social workers, or county agents; an institute on banking, insurance, or legislation; programs for civic club members who wish to study economics, international relations, civil service, or some aspect of government—these and many other combinations are possible.

The Center provides a flexible plan by which men and women may learn what they need to learn. The work itself calls for study—serious study—and for class discussion, seminar work, and, in some instances, research and the preparation of papers.

TYPES OF INSTITUTES

Since it opened in November, 1936, the Center has housed and conducted many conferences and institutes. Among the subjects studied and discussed are the following: co-operative management, nursery teacher training, pharmacy, probation and parole problems, social welfare administration and supervision, water works operation, hospital administration, adult education, photography, international relations, architectural concrete, Scandinavian culture, police training, parent-teacher leadership, traffic safety, structural engineering, educational guidance, general collegiate education, religious and ethical philosophy, trade and industrial co-ordination in education, technique of writing, family welfare administration and supervision, library practice and problems, foundry control, traumatic surgery, obstetrics and gynecology, pediatrics, internal medicine, diagnostic radiology, and heart disease.

For the future, a list of subjects similarly diverse is now under consideration: modern business management, economics for engineers, factors underlying economic progress, public school teachers' problems, safety education, visual education, recreation leadership, sewage plant operation, medico-legal practice and problems, refrigeration, club organization and leadership (in communities and in schools), modern architecture, security for the family, racial problems, child health, retail merchandising, milk sanitation, dermatology, traumatic surgery, and laboratory tests and their interpretation.

This list of diverse subjects indicates the scope of the Center's service. Whenever a specific group-need for a particular type of education is shown to exist and other facilities already operating cannot cope with the problem, the Center will try to satisfy the need.

UNIVERSITY PRIVILEGES

Those registered in institutes or courses conducted by the Center are admitted on a student basis to all regular university privileges save those which are restricted to undergraduates as such and those which are restricted to students registering for a full term or quarter. Those registered at the Center may use the university libraries and gymnasium, and may attend all general university lectures and functions.

FACILITIES OF THE CENTER

The Center contains dormitory facilities for seventy-eight persons, dining room, lounge, library, chapel, classrooms, seminar rooms, and offices. A garage in connection is available for use of students of the Center.

The cost of rooms per person for institute members is given below :

	Per Day	Per Week
Double room, without bath, each person	\$1.00	\$ 5.00
Single room, without bath	1.25	6.25
Double room, with bath, each person	1.25	6.25
Single room, with bath (number very limited)	1.75	8.75
Large bay-window double room, with bath, each person	1.50	7.50
Suite for four persons (two bedrooms, living room, and bath) each person	1.50	7.50
Suite for two persons (bedroom, living room, and bath) each person	1.75	8.75
Special suite for two persons (bedroom, living room, and bath) each person	2.00	10.00

Occupants of all rooms have access to showers in the general lavatories.

These rates do not apply to those not registered in institutes. For persons engaged in individual studies, a different scale applies.

Meals may be obtained separately.

Tuition charges vary with the length of the schools and the expense of securing instructors.

PROPOSALS FOR SCHOOLS

The Center will be glad to receive proposals for schools from any interested persons or organizations, and to give more detailed information upon any phases of Center activities and service. Inquiries and suggestions should be addressed to J. M. Nolte, Director, Center for Continuation Study, University of Minnesota, Minneapolis.

The Bulletin of the UNIVERSITY of MINNESOTA

The College of Pharmacy Announcement
for the Years 1940-1942



Volume XLIII, Number 20

March 14, 1940

*Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota.
Accepted for mailing at special rate of postage provided for in Section 1103, Act of
October 3, 1917, authorized July 12, 1918*

ADMINISTRATIVE OFFICERS

Guy Stanton Ford, Ph.D., LL.D., Litt.D., L.H.D., President

Charles H. Rogers, D.Sc., Dean of the College of Pharmacy and Professor
of Pharmaceutical Chemistry

GENERAL INFORMATION

The forty-eighth course of the College of Pharmacy begins and ends as announced in the calendar in the Bulletin of General Information.

ADMISSION BY CERTIFICATE

Diplomas or other evidences of the completion of an accredited four-year high school course, or of its educational equivalent, are required for admission. The high school course must have included:

1. English	4 units
or English	3 units
and a foreign language	2 units
2. Mathematics	
Elementary algebra	1 unit
Plane geometry	1 unit
3. Physics	1 unit

Students who have met the one unit of high school physics requirement are referred to the first year of the curriculum of the four-year course.

Those who have not met the entrance requirement of one unit of high school physics may register in the College of Pharmacy but must complete college physics 1af, 2aw, and 3as (total 12 credits) before they will be permitted to register for sophomore subjects in this college (see Combined Class Schedule). Credits earned in college physics will satisfy the entrance requirement of one unit of high school physics. They may also be applied toward the required 21 credits of academic electives of the first year.

Students entering the College of Pharmacy with advanced standing must meet the physics requirement. Their individual cases will be considered by the Students' Work Committee.

4. Enough additional work to total 15 units, of which not more than 4 may be in Group F.

Group F consists of high school, vocational, and miscellaneous subjects. The subjects are no longer designated by the University. The applicant is free to present in this division such subjects as are not listed in other groups, but which are certified by the superintendent or principal as being of acceptable nature and counted toward graduation.

Prospective students in pharmacy are advised to include in their high school courses higher algebra, solid geometry, Latin, botany, chemistry, and physiology, as some knowledge of these subjects will facilitate their professional study.

ADMISSION BY EXAMINATION

Students who failed to meet the requirements for admission by certificate as outlined above may try for admission on the basis of entrance tests as described in the Bulletin of General Information.

FRESHMAN STUDENTS

All applicants for admission or for advanced standing should request the high schools or colleges they attended to send complete transcripts of their records to the registrar of the University as early as possible, and not later than July 1. Upon receipt of the credentials, the registrar will notify the applicant concerning his admission and will forward directions for registration.

THE COLLEGE OF PHARMACY

SOPHOMORE, JUNIOR, AND SENIOR STUDENTS

About September 1, the registrar will send a fee statement to the student's home address as it appears on the records of his office. Those who fail to receive the statement within a week should write to the registrar and ask for it.

STUDENTS WITH ADVANCED STANDING

Applicants for advanced standing must pass the entrance examinations or present the usual equivalents. They must furnish satisfactory evidence of time spent and subjects covered in previous professional studies at accredited institutions, and must pass the examinations of all departments in which they desire credit, if such examinations are deemed necessary by the professors in charge. Students will not be permitted to substitute private work in any branch for the regular course work.

Students who have completed a minimum total of 45 academic quarter credits, which include a minimum of 9 credits of composition, 10 credits of general inorganic chemistry, 5 credits of qualitative chemistry, and 21 credits of academic electives, e.g., modern foreign language, college physics, zoology, mathematics, political science, etc., acceptable to the Students' Work Committee, will be admitted with advanced standing to the second year of the pharmacy course at the beginning of the fall quarter only. These credits must have been earned in the College of Science, Literature, and the Arts at the University of Minnesota, or at any junior college or academic college of equal standing. Official transcripts will be evaluated by the registrar only when accompanied by a completed Application for Admission form.

UNCLASSED STUDENTS

Persons meeting the entrance requirements and desiring to do less than the work of the regular course may be admitted as unclassified or special students, provided laboratory space is available. Work completed satisfactorily will be credited, should the student subsequently enter the regular course. Registered pharmacists who desire to pursue the work of any one or more of the courses offered in the curriculum may do so with the approval of the dean.

EXAMINATIONS AND STANDING

Examinations are held during the last week of each quarter, and are supplementary to the written and practical tests that are held at frequent intervals during the year, and, with them, form largely the basis of final determination of fitness for promotion or graduation.

The standing of students is indicated by the letters A, B, C, D (A highest, D lowest passing mark), E (condition), I (incomplete), and F (failure). Conditions may be removed as indicated below. An *incomplete* not removed within the thirty days of the first month of the student's next quarter in college becomes a *condition*. The Students' Work Committee may, in special cases, extend this time limit.

In order to become eligible for final examinations, students are required to attend at least seven eighths of the lectures in each course. This does not apply to laboratory courses, which must be taken in full.

Students having conditions in more than two major or in more than three minor subjects of the first year cannot enter upon the second year's work. Candidates for graduation must have removed all conditions before entering upon the third quarter of the graduating year.

Examinations for the removal of conditions will be offered the week preceding the opening of the fall quarter. Similar examinations will also be given during the first thirty days of the winter and spring quarters. Announcement of these examinations will appear in the Bulletin of General Information and the *Official Daily Bulletin*. Conditioned students are required to inform themselves as to these dates as soon as they learn that they are conditioned, as no other notice is given. A fee of one dollar is charged for a condition examination. Failure to pass the condition examination will necessitate a repetition of the subject. Students who carry a condition into a succeeding year may find a conflict of lecture or laboratory hours. In such cases they must give preference to the lower course.

Absences will not be excused unless satisfactory reasons are given. Habitual absence without a satisfactory excuse, continued indifference to study, or persistently poor scholarship may subject the student to probation, or temporary or permanent suspension.

FEEES AND OTHER EXPENSES

The quarterly tuition fee of \$35 for resident students and \$50 for non-resident students is payable before the beginning of each quarter. Certificates entitling the student to admission to classes will not be issued until fees have been paid.

Tuition fee (per quarter)	
Residents of Minnesota	\$35.00
Nonresidents	50.00
Incidental fee (per quarter)	8.50
Deposit fee (first quarter only)	10.00
Special fees:	
Examination for removal of condition	1.00
Examination for credits (after the first 6 weeks in residence)	5.00
Special examination	5.00
Chemistry deposit	5.00
Laboratory fees—for individual courses. The amounts are specified in the course announcements.	
Graduation fee (including small diploma)	7.50

Students registered in Dispensing Pharmacy are required to wear white coats, to be purchased at their own expense.

Students desiring to take special work may pay fees of \$1.50 per clock hour for residents and \$2.25 per clock hour for nonresidents except for academic courses, for which the fee is \$3 per credit hour for residents and \$4.50 per credit hour for nonresidents.

Privilege fees.—The fee for the privilege of late registration or late payment of fees is \$2 through the third day of classes. On the fourth day the fee is \$2.50 and then increases 50 cents per day to a maximum of \$5. The fee for late change of registration is \$2.

GRADUATION REQUIREMENTS

Regular attendance at lectures, recitations, and laboratory exercises is required. Students will not be permitted to present themselves for final examinations unless they have been in attendance upon at least seven eighths of the total work of the course for which they have matriculated.

Every person upon whom any degree is conferred must be of good moral character; must have completed the required lecture and laboratory courses; and must have passed examinations in the subjects required for graduation. In order to become a candidate for a degree, a student must complete the work of the senior year in residence.

PHARMACY LAW REQUIREMENT

The latter part of March, 1929, the Minnesota Legislature passed an act requiring graduation from a college of pharmacy accredited by the American Association of Colleges of Pharmacy as a prerequisite to examination by the Minnesota State Board of Pharmacy for license to practice pharmacy in the state of Minnesota. The act went into effect upon passage. All of the accredited colleges of pharmacy of the country are on a minimum four-year graduation course basis. Graduates from courses of less than four years or from schools or colleges that do not meet the standards of the American Association of Colleges of Pharmacy cannot be accepted for examination for license to practice in this state.

In January, 1940, the Minnesota State Board of Pharmacy issued a regulation to the effect that an official or certified transcript of scholastic work must accompany the application for examination for licensure to practice pharmacy in this state. Transcripts of Minnesota graduates may be obtained from the registrar of the University. Requests for transcripts should be made not later than ten days prior to the date upon which the application is to be filed with the Board of Pharmacy. No person will be charged for the transcript unless three transcripts have been issued previously to him. A fee of fifty cents will then be charged.

MEDICINAL PLANT LABORATORY AND GARDEN

The facilities of the medicinal plant garden, plant laboratory, and conservatory afford opportunity for instruction in the methods of collecting, preparing, drying, and milling many official and nonofficial drugs. The gross anatomical characteristics of many others are studied, in addition to medicinal plants from which drug collections are made.

Approximately six hundred species of plants of medicinal and economic importance grown in the medicinal plant garden provide ample and varied material for the preparation of herbarium collections.

DISPENSARY PRESCRIPTION PRACTICE

Practical experience in dispensing is obtained in the pharmacy of the University of Minnesota Hospitals where, under supervision, the students compound prescriptions written by the physicians in the University of Min-

nesota Hospitals, Outpatient Department, and Students' Health Service. During the past year more than eighty thousand formulated prescriptions were compounded.

SPECIAL LECTURES

From time to time throughout the school year, outstanding men in the fields of pharmacy and related sciences address the students of the College of Pharmacy. Some of the subjects covered by these lectures are allergy, endocrinology, vitamins, and business administration. Students are required to attend these lectures.

PHARMACEUTICAL EDUCATIONAL TRIP

Once during the academic year, usually during the spring vacation, an opportunity is afforded students in the College of Pharmacy to visit the laboratories of at least one reputable pharmaceutical and biological manufacturer. Students are urged to make at least one of these trips at some time during their four years in college.

ELECTIVES IN OTHER UNIVERSITY COLLEGES

Any of the facilities afforded by the University are open to the students of this college. Therefore, students may elect certain subjects in other university colleges, if such election does not interfere with their regular work. Subjects elected must be approved by the dean. Textbooks used in all courses may be obtained after coming to the University.

SUMMER SESSION

The College of Pharmacy offers no courses in purely pharmaceutical subjects during the Summer Session. However, courses, e.g., general chemistry, qualitative chemistry, organic chemistry, general botany, physiology, English composition, bacteriology, physics, modern languages, and zoology, which are part of the pharmacy curriculum, are offered in one or both terms of the Summer Session.

Requests for the Bulletin of the Summer Session should be made directly to the university registrar.

STATE PHARMACEUTICAL ASSOCIATION SCHOLARSHIP AND GRADUATE FELLOWSHIPS

The Minnesota State Pharmaceutical Association awards annually \$105 in cash and a token to that student who is a citizen of the United States and who has earned the highest general average rating at the completion of the first two years of technical pharmaceutical work up to ten days before Cap and Gown Day and who intends to become a candidate for the degree B.S. in pharmacy from this college. If the student receiving this award should fail to return to the college the following year to complete his senior work, the said sum will be awarded to the student next highest in standing who also meets the other requirements.

The Minnesota State Pharmaceutical Association Graduate Fellowships were established in 1931 to foster advanced work and research in the scien-

tific and practical fields of pharmacy and related arts and sciences and to offer opportunities for graduate work toward higher degrees in pharmacy to sufficiently qualified graduates of the College of Pharmacy of the University of Minnesota. Each fellowship carries free tuition and \$250 annually.

The appointment of the fellows is in charge of the faculty of the College of Pharmacy.

KAPPA EPSILON PRIZE

The Alumnae Chapter of Kappa Epsilon, national pharmacy sorority, offers the interest on \$425 as a prize to the Kappa Epsilon student who has earned the highest scholastic average at the end of four years. The sum is to be used to defray the expenses of the State Board Examination and registration.

FAIRCHILD SCHOLARSHIP

Mr. Samuel W. Fairchild offers a scholarship in the sum of \$500 to be awarded to the student in any of the colleges holding membership in the American Association of Colleges of Pharmacy who has graduated from any of the association colleges' four-year courses and who has won the competitive examination provided as a preliminary to graduate work in pharmacy. Full particulars may be had from the dean of the college.

LEHN AND FINK GOLD MEDAL

Lehn and Fink Products Corporation, of New York City, awards annually a gold medal to that student in the College of Pharmacy who graduates with the degree of B.S. in pharmacy and who has earned the highest general average rating during the four years of undergraduate study.

WULLING CLUB KEY

The Wulling Club of the College of Pharmacy awards annually an appropriate gold key to that student in the College of Pharmacy who graduates with the degree B.S. in pharmacy and who has earned the second highest general average rating during the four years of undergraduate study.

STATE BOARD OF PHARMACY

The State Board of Pharmacy meets at the college at least twice each year to examine candidates for registration. For information concerning the State Board examinations, address Secretary of the State Board of Pharmacy, 3965 Minnehaha Avenue South, Minneapolis, Minnesota.

COMMUNICATIONS

Communications relating to registration or advanced standing should be addressed to University Examiner, Registrar's Office, University of Minnesota, Minneapolis, Minnesota. Official transcripts for advanced standing will be evaluated by the registrar only when accompanied by a completed Application for Admission form. All other inquiries should be addressed to Dean Charles H. Rogers, College of Pharmacy, University of Minnesota, Minneapolis, Minnesota.

For further information see the Bulletin of General Information.

COURSES OF STUDY

The College of Pharmacy offers one four-year course in Pharmacy and one optional combined five-year course in Pharmacy and Business Administration.

The Graduate School offers courses in pharmacy, pharmaceutical chemistry, and pharmacognosy.

FOUR-YEAR COURSE

The College of Pharmacy offers one undergraduate course of four years' duration leading to the degree bachelor of science in pharmacy. This course includes one year of work in certain subjects in the College of Science, Literature, and the Arts, or other colleges of equal standing.

CURRICULUM
 FOUR-YEAR COURSE
 FIRST YEAR
 SUMMARY OF CLOCK HOURS AND QUARTER CREDIT HOURS

Course	Didac- tic	Labora- tory	Total	Credit Hours
First Quarter (12 weeks)				
Pharmacy 1f (Orientation)	12	0	12	1
General Inorganic Chemistry 6f	36	72	108	5
English Composition 4f	36	0	36	3
Academic electives*	72	36	108	7
Military or Naval Science and Tactics† .....	.....	.....	.....	.....
Total	156	108	264	16
Second Quarter (11 weeks)				
General Inorganic Chemistry 7f	33	66	99	5
English Composition 5w	33	0	33	3
Academic electives*	66	33	99	7
Military or Naval Science and Tactics† .....	.....	.....	.....	.....
Total	132	99	231	15
Third Quarter (11 weeks)				
Qualitative Chemical Analysis 12s	33	66	99	5
English Composition 6s	33	0	33	3
Academic electives*	66	33	99	7
Military or Naval Science and Tactics† .....	.....	.....	.....	.....
Total	132	99	231	15
Total for first year	420	306	726	46

* With the permission of his adviser, a student may elect at the hours indicated or available, two of the following courses for a required minimum total of 7 credits per quarter (21 for academic year): Physics (4 cred.), Zoology (3 cred.), Chemical or Elementary German (4 or 5 cred.), Political Science (3 cred.), and other courses approved by the Students' Work Committee. (For hours, see Combined Class Schedule.) The courses selected must be continued throughout the year or until completed.

Those students who have not met the entrance requirement of one unit of high school physics must select Physics 1af, 2aw, and 3as (12 cred.) as one of their academic electives. The satisfactory completion of these courses in physics will satisfy the entrance requirement. They may also be applied toward the 21 academic electives.

† Optional—1 and 1½ credits, respectively, per quarter.

SECOND YEAR

SUMMARY OF CLOCK HOURS AND QUARTER CREDIT HOURS

Course	Didac- tic	Labora- tory	Total	Credit Hours
First Quarter (12 weeks)				
Pharmacy 1f*				
Pharmacy 2f	48	36	84	5
Pharmaceutical Chemistry 1f	24	48	72	3
Pharmacognosy 1f	12	36	48	2
Botany 17f	24	48	72	3
Preventive Medicine 3f	24	0	24	2
Total	132	168	300	15
Second Quarter (11 weeks)				
Pharmacy 3w	22	66	88	4
Pharmaceutical Chemistry 2w	22	33	55	3
Pharmacognosy 2w	11	33	44	2
Botany 18w	22	44	66	3
Organic Chemistry 1w	55	44	99	4
Total	132	220	352	16
Third Quarter (11 weeks)				
Pharmacy 4s	22	66	88	4
Pharmaceutical Chemistry 3s	22	33	55	3
Pharmacognosy 3s	11	33	44	2
Botany 19s	22	44	66	3
Organic Chemistry 2s	55	44	99	4
Total	132	220	352	16
Total for second year	396	608	1,004	47

* Students entering with advanced standing must take Pharmacy 1f concurrently with their sophomore work.

THIRD YEAR

SUMMARY OF CLOCK HOURS AND QUARTER CREDIT HOURS

Course	Didactic	Laboratory	Total	Credit Hours
First Quarter (12 weeks)				
Pharmacognosy 54f	36	72	108	5
Pharmacognosy 55f	36	0	36	3
Bacteriology 51f	36	72	108	5
Economics 10f	36	0	36	3
Total	144	144	288	16
Second Quarter (11 weeks)				
Pharmacy 55w	22	66	88	4
Pharmaceutical Chemistry 54w (Quantitative)	22	66	88	4
Pharmacognosy 56w	33	0	33	3
Pharmacognosy 58w (Biological Products)	22	0	22	2
Economics 30w	33	0	33	3
Total	132	132	264	16
Third Quarter (11 weeks)				
Pharmacy 56s	22	66	88	4
Pharmaceutical Chemistry 55s (Quantitative)	11	66	77	3
Pharmacognosy 57s	33	0	33	3
Pharmacognosy 59s .....	.....	.....	.....	.....
Business Administration 67s	33	0	33	3
Physiology 4s	33	33	66	4
Total	132	165	297	17
Total for third year	408	441	849	49

FOURTH YEAR

SUMMARY OF CLOCK HOURS AND QUARTER CREDIT HOURS

Course	Didactic	Laboratory	Total	Credit Hours
First Quarter (12 weeks)				
Pharmacy 57f (Dispensing Pharmacy)	24	72	96	4
Pharmacy 60f* (Dispensary Prescription Practice)	0	8	8	.....
Pharmaceutical Chemistry 56f (Quantitative)	24	72	96	4
Pharmaceutical Chemistry 57f (Cosmetics)	12	36	48	2
Pharmaceutical Chemistry 161f (Organic Medicinal Products)	36	0	36	3
Pharmacology 2f	36	0	36	3
Total	132	188	320	16
Second Quarter (11 weeks)				
Pharmacy 58w (Dispensing Pharmacy)	22	66	88	4
Pharmacy 61w* (Dispensary Prescription Practice)	0	8	8	.....
Pharmacy 63w (Pharmaceutical Jurisprudence)	22	0	22	2
Pharmaceutical Chemistry 58w (Pharmaceutical Biochemistry)	22	33	55	3
Pharmaceutical Chemistry 162w (Organic Medicinal Products)	33	0	33	3
Professional electives†	11	66	77	3
Total	110	173	283	15
Third Quarter (11 weeks)				
Pharmacy 59s (Dispensing Pharmacy)	22	66	88	4
Pharmacy 62s* (Dispensary Prescription Practice)	0	8	8	1
Pharmacy 64s (First Aid to the Injured)	4	4	8	1
Pharmaceutical Chemistry 163s (Organic Medicinal Products)	33	0	33	3
Preventive Medicine and Public Health 51s (Community Hygiene)	33	0	33	3
Professional electives†	11	66	77	3
Total	103	144	247	15
Total for fourth year	345	505	850	46
Grand total	1,569	1,860	3,429	188

* One credit for three quarters' work.

† Professional electives:

Pharm. 65w-66s (Industrial Manufacturing Pharmacy)—6 cred.

Pharm. 67w-68s (Hospital Pharmacy)—6 cred.

Pharm. Chem. 59w-60s (Pharmaceutical Technology)—6 cred.

Pharm. Chem. 164w-165s (Food and Drug Analysis)—6 cred.

Elementary Organic Chemistry 153s—5 cred. (See pages 19 and 22.)

Pharmacog. 60w-61s (Pharmacognosy and Pharmacology-Histology)—6 cred.

Pharmacog. 162w-163s (Biological Assay of Drugs)—6 cred.

OPTIONAL FIVE-YEAR COMBINED COURSE

The College of Pharmacy and the School of Business Administration offer an optional combined five-year course in Pharmacy and Business Administration leading to the degrees of bachelor of science in pharmacy and bachelor of business administration. This optional course is open only to those students who register in the College of Pharmacy either with or without advanced standing and who can present evidence of better than average ability. Students who are permitted to register for this course of study must take the professional and business administration courses in the sequences in which they are offered.

OUTLINE OF COURSES AND THEIR CREDIT VALUES

Course	<i>First Year</i>	Credits
English Composition 4f-5w-6s		9
General Inorganic Chemistry 6f-7w		10
Qualitative Chemical Analysis 12s		5
Economics 8f-9w (General Economics)		6
Economics 28s (Business Law)		3
Academic electives f,w,s		12
Total		45

Second Year

Pharmacy 1f	1
Pharmacy 2f-3w-4s	13
Pharmaceutical Chemistry 1f-2w-3s	9
Organic Chemistry 1w-2s	8
Economics 20f (Elements of Accounting)	3
Economics 25w (Principles of Accounting)	3
Preventive Medicine 3w	2
Psychology 1s,2s (General Psychology)	6
Total	45

Third Year

Pharmacy 55w	4
Pharmaceutical Chemistry 54w-55s (Quantitative)	7
Pharmacognosy 1f,2w,3s	6
Bacteriology 51f	5
Botany 17f-18w-19s	9
B.A. 58f (Elements of Public Finance)	3
B.A. 70f (Statistics Survey)	3
B.A. 77s (Survey in Marketing)	3
Economics 89w (Production Management)	3
Physiology 4s	4
Total	47

Fourth Year

Course	Credits
Pharmacy 56s	4
Pharmacy 63w (Pharmaceutical Jurisprudence)	2
Pharmaceutical Chemistry 56f	4
Pharmacognosy 54f	5
Pharmacognosy 55f-56w-57s	9
Professional electives w,†f	6
B.A. 69f (Retail Store Management)	3
B.A. 88s (Advertising)	3
B.A. 112w (Business Statistics)	3
B.A. 130f (Cost Accounting)	3
B.A. 155s (Corporation Finance)	3
Economics 149w (Business Cycles)	3
Economics 161w (Labor Problems and Trade Unionism)	3
Psychology 56w (Psychology of Advertising)	3
Total	54

Fifth Year

Pharmacy 57f-58w-59s (Dispensing Pharmacy)	12
Pharmacy 60f-61w-62s (Dispensary Prescription Practice)	1
Pharmacy 64s (First Aid)	1
Pharmaceutical Chemistry 57f (Cosmetics)	2
Pharmaceutical Chemistry 58w (Pharmaceutical Biochemistry)	3
Pharmaceutical Chemistry 161f-162w-163s (Organic Medicinal Products)	9
Pharmacognosy 58w (Biological Products)	2
B.A. 101w-102s (Advanced General Economics)	6
B.A. 142f (Money and Banking)	3
B.A. 180Cf-181Cw-182Cs (Senior Topics: Marketing)	9
Pharmacology 2f	3
Preventive Medicine and Public Health 51s	3
Total	54
Grand total	245

† Professional electives:

- Pharm. 65w-66s (Industrial Manufacturing Pharmacy)—6 cred.
- Pharm. 67w-68s (Hospital Pharmacy)—6 cred.
- Pharm. Chem. 59w-60s (Pharmaceutical Technology)—6 cred.
- Pharm. Chem. 164w-165s (Food and Drug Analysis)—6 cred.
- Elementary Organic Chemistry 153s—5 cred. (See pages 19 and 22.)
- Pharmacog. 60w-61s (Pharmacognosy and Pharmaco-Histology)—6 cred.
- Pharmacog. 162w-163s (Biological Assay of Drugs)—6 cred.

DESCRIPTION OF COURSES

COURSES OFFERED IN THE COLLEGE OF PHARMACY

Following each course is a statement, in parentheses, of credits, classes of students eligible, and prerequisites. Thus, (3 cred.; jr.; sr.; grad.; prereq. Pharm. 3) means that the course carries three credits, is open to juniors, seniors, and graduate students, and demands Pharmacy 3 as a prerequisite.

PHARMACY

Professors Gustav Bachman, Phm.D., Charles H. Rogers, D.Sc.; Special Lecturers Richard H. Bachelder, LL.B., Malvin J. Nydahl, B.S., M.D.; Instructors Ragnar Almin, B.S. in Phm., Hallie Bruce, Phm.G., George E. Crossen, M.S.; Teaching Assistants Walter Fredell, M.S., Willard Hadley, B.S. in Phm.; and assistants.

- 1f. Orientation. This course consists of a general survey of the field of pharmacy and related sciences. It includes a cursory description of the courses offered in the pharmacy curriculum. Their application to, and use in, the practice of pharmacy is emphasized. The histories, past accomplishments, and aims of some of the state and national pharmaceutical, medical, and chemical organizations are presented. (1 cred.; fr., soph.; no prereq.) Mr. Rogers.
- 2f. Pharmaceutical Preparations. The didactic portion of this course embraces the history of pharmacy; pharmaceutical Latin; the history, derivation, and manipulation of the various systems of weights and measures; thermometry and calorimetry; specific gravity and the application of the pharmacopoeial specific gravity tables; the calculation of doses; the preparation and use of percentage and stock solutions; and alligation. Laboratory exercises are designed to emphasize practical applications of the basic principles discussed and also to acquaint the student with many fundamental pharmaceutical techniques, e.g., weighing, measuring, triturating, spatulating, filtering, packaging, labeling, etc. (5 cred.; soph.; prereq. Gen. Inorg. Chem. 7 or 10.) Mr. Crossen and assistants.
- 3w. Pharmaceutical Preparations. A study of the principles of the United States Pharmacopoeial and National Formulary processes. This course includes didactic instruction and laboratory work in the manufacture of pharmaceutical preparations, e.g., aromatic waters, infusions, decoctions, syrups, solutions, lotions, magmas, mixtures, etc. (4 cred.; soph.; prereq. Pharm. 1f, 2f.) Mr. Crossen and assistants.
- 4s. Pharmaceutical Preparations. A continuation of Pharmacy 3w. This course includes a study of the U.S.P. and N.F. mucilages, glycerites, spirits, tinctures, fluid extracts, extracts, powders, etc. (4 cred.; soph.; prereq. Pharm. 3w.) Mr. Crossen and assistants.
- 55w. Pharmaceutical Preparations. A continuation of Pharmacy 4s, given in the sophomore year. This course is composed of lectures and labora-

- tory work in the manufacture of resins, oleoresins, elixirs, liniments, nebulae, collodions, soaps, plasters, etc. (4 cred.; jr.; prereq. Pharm. 4s.) Mr. Bachman, Mr. Crossen, and assistants.
- 56s. Pharmaceutical Preparations. A continuation of Pharmacy 55w. This course includes a study of the U.S.P. and N.F. ointments, cerates, effervescent salts, masses, pills, emulsions, dental preparations, etc. (4 cred.; jr.; prereq. Pharm. 55w.) Mr. Bachman, Mr. Crossen, and assistants.
- 57f-58w-59s. Dispensing Pharmacy. This course includes the critical study of the prescription and the practical work involved in the compounding and dispensing of a wide range of prescriptions taken from actual medical practice. Special attention is given to physical, chemical, and therapeutic incompatibilities. A large number of prescriptions are compounded, packaged, labeled, wrapped, and priced as in actual practice. During the winter and spring quarters the student is given practice in taking physicians' prescriptions over the telephone. (12 cred.; sr.; prereq. Pharm. Chem. 3s, Pharmacog. 57s, Pharm. 56s.) Mr. Bachman, Mr. Almin, and assistants.
- 60f-61w-62s. Dispensary Prescription Practice. Practical experience in dispensing is received in the pharmacy of the University of Minnesota Hospitals where the students, under supervision, compound prescriptions written by the physicians in the University of Minnesota Hospitals, Outpatient Department, and Students' Health Service. These courses run concurrently with Pharmacy 57f-58w-59s, respectively. (1 cred.; sr.; prereq. same as for Pharm. 57f.) Miss Bruce and assistants.
- 63w. Pharmaceutical Jurisprudence. Fundamental principles of law and legal procedure, legal duties and public responsibilities of the retail pharmacist, analysis of the federal statutes and Minnesota state laws and regulations affecting the practice of pharmacy, and a discussion of a select group of common legal problems of practical importance to the pharmacist. (2 cred.; sr.; no prereq.) Mr. Bachelder.
- 64s. First Aid to the Injured. A series of lectures and demonstrations designed to qualify the pharmacist to administer upon emergency cases before the arrival of the physician. (1 cred.; sr.; no prereq.) Dr. Nydahl and assistant.
- 65w-66s. Industrial Manufacturing Pharmacy. This course deals with typical problems incident to the production of pharmaceutical preparations on an industrial scale. Laboratory work includes manufacture of compressed tablets, granulating of salts and mixtures of salts preparatory to tablet making, coating and polishing of tablets and pills, milling of ointments and tooth pastes, filling of collapsible tubes, etc. Registration in this course is limited to available instructional facilities. Professional elective. (6 cred.; sr.; prereq. Pharm. 56s.) Mr. Almin and assistants.
- 67w-68s. Hospital Pharmacy. Practical pharmaceutical training for the modern hospital. It includes a study of hospital administration and procedure, also instruction in purchasing supplies (drugs, rubber goods, surgical supplies), stock control, records, manufacturing pharmaceutical

preparations, prescriptions, and the preparation of parenteral solutions and allergens. Registration in this course is limited to available instructional facilities. Professional elective. (6 cred.; sr.; prereq. Pharm. 57f, 60f.) Miss Bruce and assistants.

At the conclusion of the spring quarter, students who have completed the course in Hospital Pharmacy are offered the opportunity to acquire an additional two weeks' full-time training in the Dispensary of the University Hospitals. No fee will be charged for this extra instruction, neither will there be any financial remuneration nor scholastic credit given for it.

PHARMACEUTICAL CHEMISTRY

Professors Glenn L. Jenkins, Ph.D., Charles H. Rogers, D.Sc.; Assistant Professor Ole Gisvold, Ph.D.; Instructor Charles V. Netz, M.S.; Teaching Assistants James H. Boothe, B.S. in Phm., William R. Lloyd, M.S., Taito Soine, M.S., Coy W. Waller, B.S. in Phm.; and assistants.

- 1f-2w-3s. Inorganic Pharmaceutical Chemistry. In this course, the histories, sources, methods of manufacture, common impurities, formation in pharmaceutical preparations, properties, characteristic reactions, and uses of the inorganic chemicals employed in the science and art of pharmacy are studied. The laboratory work includes the preparation, purification, and tests for the identity and purity of typical inorganic compounds of special pharmaceutical interest. (9 cred.; soph.; prereq. Qual. Chem. 12 or 11.) Mr. Netz and assistants.
- 54w-55s-56f. Quantitative Pharmaceutical Chemistry. A general course treating of the fundamental principles, methods, and procedures of quantitative analysis as applied to the analyses of pharmaceutical chemicals, preparations, and drugs. Laboratory work includes gravimetric, volumetric, and gasometric analyses as well as alkaloidal assaying, the assay of volatile oils, etc. (11 cred.; jr., sr.; prereq. Pharm. Chem. 3s.) Mr. Gisvold, Mr. Netz, and assistants.
- 57f. Cosmetics. A study of the ingredients used in compounding and the technological methods of manufacture of cosmetic products. (2 cred.; sr.; prereq. Org. Chem. 2.) Mr. Netz and assistants.
- 58w. Pharmaceutical Biochemistry. A study of the chemistry of metabolism, body fluids and secretions. (3 cred.; sr.; prereq. Org. Chem. 2, Pharm. Chem. 56f.) Mr. Fischer, Mr. Gisvold, and assistants.
- 59w-60s. Pharmaceutical Technology. A study of the technological principles involved in the conversion of raw materials into finished pharmaceutical chemicals on an industrial scale. Registration in this course is limited to available instructional facilities. Professional elective. (6 cred.; sr.; prereq. Pharm. Chem. 3s.) Mr. Rogers and assistants.
- 161f-162w-163s. Organic Medicinal Products. This course treats of the sources, methods of production, classification, properties, reactions, and uses of the natural and synthetic organic compounds used as therapeutic agents. (9 cred.; sr., grad.; prereq. Org. Chem. 2.) Mr. Jenkins.

164w-165s. Food and Drug Analysis. A study of the processes of manufacture and of the composition of food and drug products. This course includes a detailed consideration of the legal requirements of the Food, Drug, and Cosmetic Act and of the official analytical methods of the United States Pharmacopoeia, National Formulary, and the Association of Official Agricultural Chemists. Registration in this course is limited to available instructional facilities. Those senior pharmacy students who have the prerequisites for Organic Chemistry 153s and expect to elect it as their spring quarter professional elective, must register for Pharmaceutical Chemistry 164w. (See page 22.) Professional elective. (6 cred.; sr., grad.; prereq. Pharm. Chem. 3s, 56f, Org. Chem. 2.) Mr. Gislvold, Mr. Netz, and assistants.

PHARMACOGNOSY

Associate Professor Earl B. Fischer, B.S.; Instructor Charles E. Smyithe; Teaching Assistants Grey Kornegay, B.S., Heber W. Youngken, Jr., B.A.; and assistants.

- 1f. Pharmacognosy of the Thallophytes. A classification and study of drugs obtained from the thallophytes. Lecture and laboratory work include a consideration of life histories of the members of this group with particular reference to the development, function, and nature of the plant parts which furnish medicinal products. (2 cred.; soph.; no prereq.) Mr. Fischer, Mr. Youngken, and assistants.
- 2w. Pharmacognosy of the Bryophytes, Pteridophytes, and Spermatophytes. This course deals with the drugs obtained from the bryophytes, pteridophytes, and spermatophytes, and is a continuation of Pharmacognosy 1f. The life histories and microscopic characteristics of the members of these groups and drug products obtained from them are studied. (2 cred.; soph.; prereq. Pharmacog. 1f.) Mr. Fischer, Mr. Youngken, and assistants.
- 3s. Pharmacognosy and Pharmaco-Histology of the Angiosperms. This course in microscopy and micrometry includes a detailed study of the inner structure of vegetable drugs derived from the angiosperms. Special consideration is given cell contents by means of which vegetable drugs may be identified, and adulteration detected. (2 cred.; soph.; prereq. Pharmacog. 2w, Bot. 18w.) Mr. Fischer, Mr. Smyithe, Mr. Youngken, and assistants.
- 54f. Drug Collection and Medicinal Plant Study. The course consists of the study of a large number of plants grown in the University of Minnesota medicinal plant gardens. Attention is given to the methods of preparing crude drugs, the macroscopic characteristics of the living plants from which they are obtained, the preparation of herbarium specimens, the cleaning and milling of drugs, etc. (5 cred.; jr.; prereq. Pharmacog. 3s, Bot. 19s.) Mr. Fischer, Mr. Smyithe, Mr. Youngken, and assistants.

- 55f.‡ Pharmacognosy of Vegetable Drugs. This course treats of the identification, nature, and properties of official and some of the more important nonofficial drugs belonging to plant families from the Algae through the Chenopodiaceae. The order of presentation is based upon the taxonomic classification of plant families. (3 cred.; jr.; prereq. Bot. 19s, Pharmacog. 3s.) Mr. Fischer, Mr. Smythe, and assistants.
- 56w.‡ Pharmacognosy of Vegetable Drugs. A course complementary to Pharmacognosy 55f. It includes the study of the drugs belonging to plant families from the Phytolaccaceae through the Malvaceae. (3 cred.; jr.; prereq. same as for Pharmacog. 55f.) Mr. Smythe and assistants.
- 57s.‡ Pharmacognosy of Vegetable and Animal Drugs. This course further complements 55f and 56w and includes the study of drugs belonging to plant families from the Sterculiaceae through the Compositae. In addition, the U.S.P. and N.F. drugs of animal origin are studied with respect to the identification, nature, and properties of each. (3 cred.; jr.; prereq. same as for Pharmacog. 55f.) Mr. Fischer, Mr. Smythe, and assistants.
- 58w. Biological Products. A study of the preparation and pharmaceutical properties of the important official and nonofficial vaccines, toxins, antitoxins, and serums. (2 cred.; sr.; prereq. Bact. 51.) Mr. Fischer.
- 59s. Field Work. The classes in pharmacognosy are taken on searches for native medicinal plants. Trips are arranged to include different localities such as swampland, upland, wooded tracts, etc. By so doing, the environmental and other characteristics of medicinal plants are brought to the attention of the students. (No cred.; soph., jr.; required of all students taking Pharmacog. 3s and 54f.) Mr. Fischer and Mr. Youngken.
- 60w. Pharmacognosy and Pharmaco-Histology. This course is a continuation of Pharmacognosy 3s for those students wishing to elect further work in this field. It deals with the microscopy of additional cell contents by means of which the purity and identity of vegetable drugs are determined. Registration in this course is limited to available instructional facilities. Professional elective. (3 cred.; sr.; prereq. Pharmacog. 54f.) Mr. Fischer, Mr. Smythe, Mr. Youngken, and assistants.
- 61s. Pharmacognosy and Pharmaco-Histology. The general character of the lecture and laboratory work of this course is the same as that of Pharmacognosy 60w. It deals with the microscopic appearance, structure, and function of vegetable drug cells and tissues. Practical instruction is given in the use of important microscopical accessories such as the micropolariscope, microtome, microphotographic camera, staining reagents, etc. Registration in this course is limited to available instructional facilities. Professional elective. (3 cred.; sr.; prereq. Pharmacog. 60w.) Mr. Fischer, Mr. Smythe, Mr. Youngken, and assistants.
- 162w-163s.‡‡ Biological Assay of Drugs. This course includes didactic and

‡ A fee of \$2 per quarter is charged for this course.

‡‡ A fee of \$5 per quarter is charged for this course.

laboratory considerations of the biological assays of the vegetable and animal drugs of the U.S.P. and N.F. Registration in this course is limited to available instructional facilities. Professional elective. (6 cred.; sr., grad.; prereq. Pharmacog. 57s, Pharm. Chem. 56f.) Mr. Fischer, Mr. Smythe, and assistants.

COURSES INCLUDED IN THE PHARMACY CURRICULUM
AND OFFERED BY
OTHER DEPARTMENTS OF THE UNIVERSITY

BACTERIOLOGY AND IMMUNOLOGY

Professor Winford P. Larson, M.D., Head; and instructors.

51f,w,s,su. General Bacteriology. Lecture and laboratory course. The principles and technique of general bacteriology. Studies in the morphologic and biologic characters of the common bacteria. Preparations of culture media. Disinfectants and disinfection. Bacteriology of water and food products. (5 cred.; sr.; prereq. one yr. biol., one yr. chem.) Instructor arranged.

BOTANY

Professors C. Otto Rosendahl, Ph.D., Chairman, Frederic K. Butters, Ph.D.; and instructors.

17f,18w,19s. General Botany. Study of the external form and internal structure of the various organs of flowering plants; special study of the flower and the outline of the classification of flowering plants, etc. (3 cred. per qtr.; soph.; no prereq.) (Credits earned in Bot. 1, 5, and 7 are accepted in lieu of Bot. 17, 18, 19.) Mr. Butters and assistants.

CHEMISTRY: INORGANIC

Professor M. Cannon Sneed, Ph.D., Chief; Associate Professor Lillian Cohen, Ph.D.; and assistants.

6f-7w.‡ General Inorganic Chemistry. A study of the general laws of chemistry and of the nonmetals and their compounds. (5 cred. per qtr.; fr.; no prereq.) (Credits earned in Gen. Inorg. Chem. 9 and 10 or 14 and 15 are accepted in lieu of Gen. Inorg. Chem. 6 and 7.) Miss Cohen and assistants.

12s.‡ Qualitative Chemical Analysis. Laboratory work in systematic qualitative analysis with lectures on solution, ionization, chemical and physical equilibrium, oxidation and reduction, and other subjects pertinent to qualitative analysis. (5 cred.; fr.; prereq. Chem. 7.) (Credits earned in Qual. Chem. Anal. 11 are accepted in lieu of Qual. Chem. Anal. 12.) Miss Cohen and assistants.

‡ A fee of \$2 per quarter is charged for this course.

CHEMISTRY: ORGANIC

Professors Lee I. Smith, Ph.D., Chief, Walter M. Lauer, Ph.D.; Associate Professor C. Frederick Koelsch, Ph.D.; Instructor Richard T. Arnold, Ph.D.

1w-2s.‡ Elementary Organic Chemistry. Discussion of important classes of organic compounds, both aliphatic and aromatic. Laboratory work includes the preparation of typical substances. (4 cred. per qtr.; pharm., premed., predent.; prereq. Inorg. Chem. 12 or 11.) Mr. Koelsch and assistants.

153s.‡ Elementary Organic Chemistry. Discussion of the important classes of organic compounds, both aliphatic and aromatic, together with some heterocyclic compounds. Laboratory work includes the preparation of typical substances. Course 153 is a prerequisite to all other advanced courses in organic chemistry. (5 cred.; prereq. 2 qtrs. organic chemistry.) Those senior pharmacy students who have shown exceptional ability in Org. Chem. 1 and 2, and who contemplate pursuing graduate work with a major in pharmaceutical chemistry and a minor in organic chemistry, may elect this course as their professional elective of the spring quarter. They will be required to take Pharmaceutical Chemistry 164w (Food and Drug Analysis) as their professional elective for the winter quarter. (See page 19.) Mr. Smith, Mr. Lauer, and Mr. Arnold.

ECONOMICS AND BUSINESS ADMINISTRATION

ECONOMICS

Professors Russell A. Stevenson, Ph.D., Dean, Ernest A. Heilman, Ph.D., Roland S. Vaile, M.A.; Associate Professor Harry J. Ostlund, B.A.; Assistant Professor A. Hamilton Chute, Ph.D.; and instructors.

Econ.10f. An Introduction to Economics. The organization of modern industry; the various forces that influence prices, such as consumer demand, cost, degree of competition or monopoly, the quantity and rate of circulation of money, etc. (3 cred.; open only to College of Pharmacy students; no prereq.) Instructor arranged.

Econ.30w. Elements of Retail Accounting. The principles of accounting applied to retail record keeping, adjustment, and closing of records. The construction and analysis of statements. (3 cred.; open only to College of Pharmacy students; prereq. Econ. 10.) Mr. Ostlund.

BUSINESS ADMINISTRATION

B.A.67s. Retail Store Management. The principles of retail store management, including the planning and control of store operation, the nature of consumer demand, and the analysis of retailing costs. (3 cred.; open only to College of Pharmacy students; prereq. Econ. 10 and 30.) Mr. Chute.

‡ A fee of \$2 per quarter is charged for this course.

ENGLISH

Professor Joseph W. Beach, Ph.D., Chairman; and instructors.

4f-5w-6s. Freshman Composition. All students, who as a result of the placement tests in English are assigned to Composition 4f-5w-6s, are required to register for the sections 6 or 6a of this course with writing laboratory. This course, without writing laboratory, section 3, is open only to students who are eligible for Course A-B-C. (3 cred. per qtr.; fr.; prereq. placement test.) Instructors arranged.

MILITARY SCIENCE AND TACTICS

Professor Charles A. French, B.S., Lieutenant Colonel, Coast Artillery Corps; Assistant Professors Edwin L. Brackney, M.D., Lieutenant Colonel, Medical Corps, Coburn L. Berry, B.S., Major, Coast Artillery Corps, Thomas H Maddocks, M.S., Captain, Signal Corps, Layton A. Zimmer, B.S., Captain, Coast Artillery Corps; and instructors.

The Department of Military Science and Tactics is a federally subsidized and supervised part of the Reserve Officers' Training Corps. Satisfactory completion of the four-year course qualifies for a reserve commission in the Army of the United States. Courses in all units are elective, and credits may be applied in qualifying for a degree.

The Basic Course consists of the first two years of instruction and is a prerequisite to the Advanced Course. Students who have completed the Basic Course may be selected for advanced work by the professor of military science and tactics. Those who pursue the Advanced Course are required to sign an agreement with the government to continue the two-year course to completion. This includes attendance at a training camp for six weeks, normally during the summer following the first year's advanced work. The camp is conducted free of cost to the student, and in addition, while actually in camp the student receives pay. Students pursuing the Advanced Course receive a fixed allowance per day and also are furnished the regulation uniform of an army officer, which they may retain after graduation. The total government compensation for the two-year Advanced Course amounts to approximately two hundred dollars.

1f,2w,3s. First Year Basic Course R.O.T.C. Coast Artillery Corps. Leadership, rifle marksmanship, ammunition, weapons and materiel, hygiene and sanitation, military courtesy and discipline, national defense, map reading, military history and policy, army organization, obligations of citizenship, international situation. (3 cred.; fr.; no prereq.)

4f,5w,6s. Second Year Basic Course R.O.T.C. Coast Artillery Corps. Leadership, fire control, and position finding for seacoast and anti-aircraft artillery, identification of aircraft, characteristics of naval targets, rigging, motor transportation. (3 cred.; soph.; prereq. 1f,2w,3s, higher algebra, and plane trigonometry.)

- 151f-152w,153s. First Year Advanced Course R.O.T.C. Coast Artillery Corps. Map and aerial photograph reading, leadership, position finding, orientation, analysis of drill, conduct of fire, gunnery for heavy artillery, gunnery for anti-aircraft artillery, defense against chemical warfare, signal communications. (9 cred.; jr.; prereq. 4f,5w,6s.)
- 154f-155w,156s. Second Year Advanced Course R.O.T.C. Coast Artillery Corps. Military law, military history, administration and supply, field engineering, leadership, combat orders, artillery tactics, orientation. (9 cred.; sr.; prereq. 151f-152w,153s.)

NAVAL SCIENCE AND TACTICS

Professor Frank H. Kelley, Captain, U. S. Navy; Assistant Professors Harold F. Pullen, B.S., Lieutenant Commander, U. S. Navy, Calvin A. Walker, B.S., Lieutenant, U. S. Navy.

The University of Minnesota is one of nine universities to offer United States naval training. The Naval Reserve Officers' Training Corps of the University of Minnesota provides for selected, physically qualified male students a four-year course which leads to a commission as ensign, United States Naval Reserve, or as second lieutenant, United States Marine Corps Reserve, provided the candidate applies for the commission, obtains a degree from the University, is recommended by the professor of naval science and tactics, and passes a prescribed physical examination.

The courses in Naval Science and Tactics are divided into two groups, Naval Science, and Navigation. Navigation is covered in three quarters at the convenience of the student. Naval Science I and II with Navigation comprise the Basic Course in training. Naval Science III and IV (or IIIa and IVa) plus any incompleting navigation comprise the Advanced Course.

Naval R.O.T.C. practice cruises on board battleships, cruisers, and destroyers in the Atlantic or Pacific, are held annually during the summer. Attendance of one Advanced Course cruise is required, as a prerequisite to a commission, but all Naval R.O.T.C. students are eligible for a cruise each summer.

The Basic Course requires two hours of classroom work and one hour of drill per week for two years for which $1\frac{1}{2}$ credits per quarter are accepted toward graduation. The Advanced Course requires three hours of classroom work and one hour of drill per week for two years for which 3 credits per quarter are allowed. The Navigation Course requires three hours of classroom work per week for three quarters for which 3 credits per quarter are allowed. Credit is given for summer cruises at sea in the amount of $\frac{3}{4}$ credit for each two weeks of cruising. Cruise credits do not reduce the number of credits required for the degree in the student's major, but are in excess of degree requirements. Naval Science credits and Navigation credits, however, are accepted as fulfilling degree requirements.

Uniforms and equipment are furnished to students by the government without charge. All textbooks used are loaned to the student. All Naval R.O.T.C. students attending cruises are furnished transportation and sub-

sistence. Students while enrolled in the Advanced Course are paid monthly commutation of subsistence by the Navy Department, and cruise pay on the Advanced Course cruise. The total pay received from the government amounts to about one hundred ninety dollars (\$190) for the two years in the Advanced Course.

All prospective candidates for the Naval R.O.T.C. must apply in person to the professor of naval science and tactics, University of Minnesota, before registering for the course, as enrolments are limited by law, and prescribed physical examination must be taken before the candidate can be considered.

NAVIGATION

Navigation courses given by the Department of Naval Science and Tactics are open to all university students.

Navigation I. Navigation and Nautical Astronomy. Fundamental principles of astronomy underlying navigation of ships and aircraft, charts, piloting, compasses, compensation of magnetic compass error, sextants, chronometers, dead reckoning. Three hours per week for one quarter. (3 cred.; prereq. plane trigonometry.)

Navigation II. Navigation and Nautical Astronomy. Piloting, time, solar ephemeris, determination of latitude and longitude by the sun, azimuth, astronomical triangles, lines of position, deep sea navigation. Three hours per week for one quarter. (3 cred.; prereq. Nav. I.)

Navigation III. Celestial Navigation. Sidereal time, determination of position by moon, stars, and planets, short methods, tides, chart work, star identification, theory and principle of gyroscopes, gyrocompasses. Three hours per week for one quarter. (3 cred.; prereq. Nav. II.)

MODERN FOREIGN LANGUAGE

FRENCH

Professor Francis B. Barton, Docteur de l'Université de Paris, Chairman of the Department of Romance Languages; and instructors.

1f-2w.†§ Beginning French. (5 cred. per qtr.; all; no prereq.) Instructors arranged.

3f-4w. Intermediate French. (5 cred. per qtr.; all; prereq. 1-2, or two years high school French. Students who have had three years high school French will omit Course 3 and take Course 4.) Instructors arranged.

GERMAN

Professor Oscar C. Burkhard, Ph.D., Chairman; and instructors.

24f-25w-26s.† Chemical German (4 cred. per qtr.; no prereq.) Instructors arranged.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

§ A student may not receive credit for beginning courses (two quarters, 10 credits) in more than one of the foreign languages, exclusive of Greek and Italian, except by special permission of the Students' Work Committee.

27f-28w-29s. Chemical Prose. (3 cred. per qtr.; prereq. two years high school German or one year college German.) Instructors arranged.

For other modern foreign languages, see Combined Class Schedule.

PHARMACOLOGY

Professor Arthur D. Hirschfelder, B.S., M.D., Head; Associate Professors Raymond N. Bieter, M.D., Ph.D., Harold N. G. Wright, Ph.D.

2f. Therapeutics and Toxicology. Drugs are studied in groups as governed by their medicinal and toxic properties. Remedial measures other than those depending upon drugs are fully considered. Poisonous action and doses of drugs also receive consideration. (3 cred.; jr.; prereq. Pharmacog. 54f and 57s.) Dr. Hirschfelder.

PHYSICAL EDUCATION FOR MEN

Professor Frank G. McCormick, B.A., LL.B., Director of Athletics; and instructors.

The Department of Physical Education for Men offers courses available to students in pharmacy who have the time to take them. The courses are elective without credit, not mandatory, except that a special lecture on sex hygiene, attendance upon which is required of all entering pharmacy students, is given some time during the first ten days of the fall quarter.

For full information concerning the courses offered by the department, see the Combined Class Schedule.

PHYSICAL EDUCATION FOR WOMEN

Professor J. Anna Norris, M.D., Director; and instructors.

The Department of Physical Education for Women of the University of Minnesota offers courses available to students in pharmacy who have the time to take them. The courses are elective, not mandatory.

For full information concerning the courses offered by the department, see the Combined Class Schedule.

PHYSICS

Professor J. William Buchta, Ph.D., Chairman; and instructors.

1af-2aw†-3as.‡ Introduction to Physical Science. Laboratory included. Lectures and experimental demonstrations of the principles underlying physical phenomena. (12 cred.; all; prereq. high school algebra and geometry.)

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$2 per quarter is charged for this course.

Summer Courses (First Term)

1a-2a-3asu.‡‡ Introduction to Physical Science, Part I. Laboratory included. (6 cred.; all; prereq. high school algebra and plane geometry.) Mr. Buchta.

Summer Courses (Second Term)

1a-2a-3asu.‡‡ Introduction to Physical Science, Part II. Laboratory included. (6 cred.; all; prereq. 1a-2a-3asu Part I or equiv.) Mr. Bardeen.

PHYSIOLOGY

Professor Maurice B. Visscher, M.D., Ph.D., Head; Assistant Professor Joseph T. King, M.D., Ph.D.; and instructors

4s. Physiology. Lecture, demonstrations, and quiz. (4 cred.; Pharm., S.L.A., H.E., and others; prereq. one qtr. zool., one qtr. chem.) Dr. King and others.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

Professor Gaylord W. Anderson, B.A., M.D., Head; Associate Professor William A. O'Brien, M.D.; Instructor Donald W. Cowan, M.D., M.S.; and assistants.

3f,w,s. Personal Health. Elementary principles of normal body function; predisposing and actual causes of disease; ways in which disease may be avoided. (2 cred. per qtr.; fr., soph.; no prereq.) Dr. O'Brien.

51s. Community Hygiene. Elementary concepts of development, spread, and prevention of preventable diseases; community programs for their control. (3 cred.; jr., sr.; prereq. 2, or Human Biology in the General College; not open to students who have taken 50, 52, or 53.) Dr. Cowan.

ZOOLOGY

Professor Dwight E. Minnich, Ph.D., Chairman; Associate Professor Samuel Eddy, Ph.D.; and assistants.

1f-2w-3s.†‡ General Zoology. (10 cred.; all; no prereq.) (Pharmacy students should register for lecture section 4 and laboratory section 5.) Dr. Eddy and assistants.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$1 per quarter is charged for this course.

‡‡ A fee of \$3 per summer term is charged for this course.

THE BULLETIN OF THE
UNIVERSITY OF MINNESOTA



ANNOUNCEMENT OF COURSES IN THE
Department of Speech
SUMMER SESSION 1940

Speech Bulletin

Located in the Twin Cities, the hub of the Land of 10,000 Lakes, the University of Minnesota offers an ideal opportunity for the summer student who wishes to combine profitable work with play.

The university campus is located within easy access to both cities and their recreational facilities, and to many fine Arrowhead Country resorts. This year the city of Minneapolis will stage a recreation carnival as one of its major summer events, which will include features in all recreational activities, by skilled participants.

The University provides an extra-curricular program at no extra charge for Summer Session students which includes an interesting artist and lecture series as well as a series of varied social and recreational activities in music and drama.

The Department of Speech will have frequent get-acquainted luncheons during the Summer Session, as well as informal discussions.

GRADUATE STUDY: Teachers will discover that a full program of graduate work in all phases of speech is offered during the Summer Session, leading toward the degrees of master of arts or doctor of philosophy.

STAFF will be: Frank M. Rarig, M.A.; C. Lowell Lees, Ph.D.; Howard Gilkinson, Ph.D.; Marie Mason, Ph.D.; Spencer F. Brown, Ph.D.; E. William Ziebarth, Ph.M.; Myfanwy Chapman, B.S.; Reid B. Erekson, B.A.; Henrietta Hull, M.S.; Robert J. Sailstad, M.A.; Kenneth L. Graham, M.A.; Frank M. Whiting, M.A.; William B. Newgord, M.A.

TEACHER TRAINING: The summer term affords the teacher opportunities for self-improvement through general courses in the fundamentals of speech, as well as special courses in radio, drama, interpretation, and speech correction. The problems of teaching speech in its various branches are emphasized at the graduate level, and special course work is offered to orient the teacher to the field of speech education. Current theories and practices in speech training are discussed and analyzed, voice recording, testing, and other special methods of instruction are evaluated, and special meetings are held on the problems of the conduct and management of extra-curricular speech activities.

FIRST SESSION

UNDERGRADUATE COURSES

Speech Clinic	(Time ar. with director)	Mrs. Chapman, Mr. Sailstad
1su	Fundamentals of Speech	Mr. Gilkinson
2su	Fundamentals of Speech	Ar.
31su	Introduction to the Theater	Mr. Whiting
33su	Stagecraft (Painting and Construction)	Mr. Graham
61su	Speech Correction	Mrs. Chapman
65su	Radio Speech	Mr. Ziebarth
67su	Phonetics	Miss Mason
77su	Acting, Theory and Technique	Mr. Ereksen
81su	Interpretative Reading	Mr. Rarig
93su	Stagecraft, Costuming	Mr. Newgord

UNDERGRADUATE AND GRADUATE COURSES

101-102su	Persuasion	Mr. Rarig
105su	Theory of Reading and Acting	Mr. Rarig
109su	Lip Reading	Miss Mason
112su	Stage Direction	Mr. Lees
115su	Playwriting	Mr. Lees
121su	Advanced Speech Problems	Mr. Gilkinson
131su	Community Dramatics (Children's Theater)	Mr. Lees, Mr. Graham
151su	Teaching of Speech	Mr. Gilkinson
163su	Speech Pathology	Mr. Brown
164-165-166su	Clinical Methods and Practice in Speech Pathology	Mr. Brown
172su	History of the Theater	Mr. Lees
181su	Readings in Speech	Staff

GRADUATE COURSES

213su	Seminar in Dramatic Theory	Mr. Lees
221su	Seminar in Oral Interpretation of Literature	Mr. Rarig
261-262-263su	Seminar in Speech Pathology	Mr. Brown
291-292su	Research in Specific Problems	Staff

(There will be held at least four round table discussions on speech problems in the high school. In addition, there will be conferences on the high school debate question for 1940-41.)

SECOND SESSION

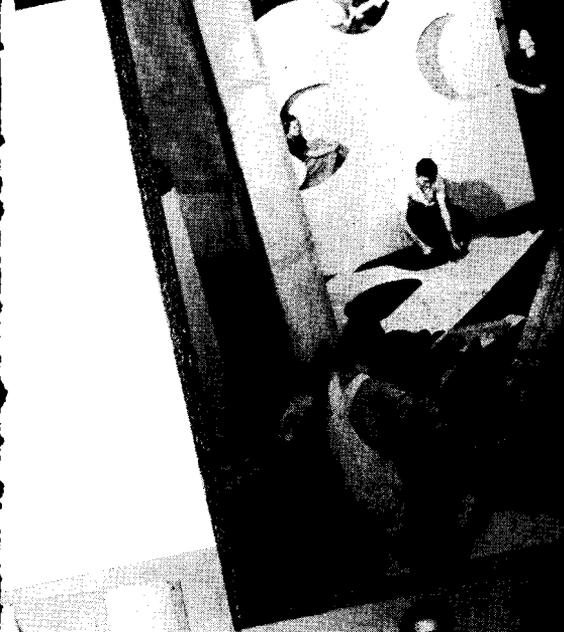
UNDERGRADUATE COURSES

1su	Fundamentals of Speech	Mr. Gilkinson
2-3su	Fundamentals of Speech	Mr. Gilkinson
32su	Introduction to the Theater	Mr. Whiting
92su	Stagecraft	Mr. Whiting
121-122su	Advanced Speech Problems	Mr. Gilkinson
181su	Readings in Speech	Ar.

UNDERGRADUATE AND GRADUATE COURSES

291su	Research in Specific Problems (Open to graduate students)	Ar.
-------	--	-----

For further detailed information address Speech Department, University of Minnesota, or Director of the Summer Session, University of Minnesota, Minneapolis.



1. Voice Recording
2. Listening to Records
3. Stagecraft
4. Clinical Group Work

4.

THE ORAL READING OF LITERATURE: This course is for teachers of English and speech who wish to improve their knowledge and skill as oral interpreters of imaginative literature. It is of particular interest to teachers who are charged with the responsibility of preparing readers and speakers for speech festivals and contests. It includes practical problems in the esthetic criticism of poetry, prose fiction, and drama, and in the techniques and conventions of oral reading as an art. Students are introduced to carefully selected readings in esthetic criticisms. Exercises in voice improvement are given and analyses of individual voice problems are made. Each student makes two recordings of his own reading, one of verse, the other of prose.

SPEECH CLINIC: During the first eight weeks of the Summer Session the clinic will be available for students registered in regular academic courses. A laboratory fee of three dollars is charged for this service. Types of speech disorders treated are stuttering, lisping, oral inaccuracy, cleft palate, dialect, voice defects, such as nasal, too low or too high in pitch, husky, raucous, strident quality. Students with personality problems affecting their social and classroom adjustments may also have clinical aid.

The Speech Clinic also conducts an eight weeks' out-patient clinic for stutterers fifteen years of age and over. Patients are admitted on a full-time basis at a tuition cost of \$65. This fee includes health service. Concentrated clinical work for six hours a day, five days a week, for eight weeks proves valuable for the pre-college stutterer who desires speech improvement before engaging in academic training at a college or university. Applications for the out-patient clinic should be made to the director immediately.

Students registered in speech pathology or in clinical methods will have an opportunity to observe the work of the clinic.

RADIO SPEECH: For some time past there has been a natural, growing interest in the field of radio broadcasting within the college curriculum and even in the instruction of high schools and grade schools. An increasing number of integrated programs are now available for classroom reception in keeping with newer educational policies. In addition to regular classes in Radio Speech which cover the entire field of radio broadcasting, many opportunities are provided for actual participation in broadcasts through the ever widening facilities of WLB, the University of Minnesota radio station.

PANEL DISCUSSIONS: A series of panel discussions on problems of Interpretation of Theater and of Debate, particularly of the question selected by the Minnesota High School Debating League for 1940-41,

will be held. The best available experts will analyze the problems. Debate coaches and other interested students are invited to participate.

THE UNIVERSITY THEATRE: The Theatre offers work in many phases of theatrical training, both at a graduate and an undergraduate level. During the Summer Session, particular attention is paid to the special dramatic needs of the high school and elementary school student. Special work is offered this summer in Children's Theater. In addition to the curricular work, the University Theatre presents three series of plays: a popular season comprising modern and classic masterpieces; an experimental season comprising original and unusual scripts; and a studio season, comprising one-act plays and scenes. These series are organized to give practical experience to a great number of students. Any student registered in the University is eligible to participate in these extra-curricular programs. The University Theatre maintains two physical plants equipped with excellent facilities for those who wish to gain proficiency in theatrical arts and for those who wish to do specialized research.

CHILDREN'S THEATER (Community Dramatics): The growing demand in this special phase of the theater has led the University to set up a course in community theater for both children and adults. During the course of the Summer Session, there will be presented a children's play.

ANNOUNCEMENT OF SUMMER PLAY SEASON: During the Summer Session the University Theatre will present four plays to be selected from the following:

A Shakespearean play
Holiday
Machine Wreckers

The Second Man
Rosmersholm
It Pays To Advertise

Emperor New Clothes
Seven Little Rebels
An original script



The Bulletin of the
UNIVERSITY of MINNESOTA

School of Dentistry and Course
for Dental Hygienists
Announcement for the Years 1940-1942



Volume XLIII, Number 23

March 20, 1940

*Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota.
Accepted for mailing at special rate of postage provided for in Section 1103, Act of
October 3, 1917, authorized July 12, 1918*

SCHOOL OF DENTISTRY
and
COURSE FOR DENTAL HYGIENISTS

FACULTY

ADMINISTRATION

Guy Stanton Ford, Ph.D., Litt.D., LL.D., L.H.D., President
William F. Lasby, B.S., D.D.S., Dean of the School of Dentistry and the
Course for Dental Hygienists
Rodney M. West, B.A., Registrar

ANATOMY

Clarence M. Jackson, M.S., M.D., LL.D., Professor of Anatomy and Head
of the Department
Andrew T. Rasmussen, Ph.D., Professor of Neurology
Raymond F. Blount, Ph.D., Assistant Professor of Anatomy
Shirley P. Miller, Ph.D., Assistant Professor of Anatomy

BACTERIOLOGY AND IMMUNOLOGY

Winford P. Larson, M.D., Professor of Bacteriology and Immunology and
Head of the Department
Robert G. Green, M.A., M.D., Professor of Bacteriology and Immunology
Arthur T. Henrici, M.D., Professor of Bacteriology and Immunology
H. Orin Halvorson, Ch.E., Ph.D., Associate Professor of Bacteriology and
Immunology
Charles E. Skinner, Ph.D., Assistant Professor of Bacteriology and Im-
munology

DENTISTRY

William F. Lasby, B.S., D.D.S., Dean of the School of Dentistry and the
Course for Dental Hygienists and Professor of Denture Prosthesis
Peter J. Brekhus, B.A., D.D.S., Professor of Oral Diagnosis and Chairman
of the Division
George M. Damon, D.D.S., Professor of Denture Prosthesis and Oral
Anatomy and Chairman of the Division of Oral Anatomy
Max E. Ernst, D.D.S., LL.B., Professor of Orthodontia
Carl O. Flagstad, D.D.S., Professor of Denture Prosthesis and Chairman
of the Division
Robert O. Green, D.D.S., Professor of Operative Dentistry and Chairman
of the Division
Charles A. Griffith, D.D.S., Professor of Oral Surgery and Chairman of the
Division
Ray R. Knight, B.A., M.D., Professor of Oral Roentgenology and Physical
Diagnosis

- Alfred A. Pagenkopf, D.D.S., Professor of Crown and Bridge Work
George W. Reynolds, D.D.S., Professor of Crown and Bridge Work
Charles E. Rudolph, D.D.S., Professor of Orthodontia and Chairman of the Division
- Joseph F. Shellman, D.D.S., Professor of Operative Dentistry
William D. Vehe, D.D.S., Professor of Crown and Bridge Work and Operative Dentistry
- Carl W. Waldron, M.D., D.D.S., L.D.S., Professor of Oral Pathology and Oral Surgery and Chairman of the Division of Oral Pathology
Amos S. Wells, B.A., D.D.S., Professor of Crown and Bridge Work and Chairman of the Division
- Charles A. Wiethoff, D.D.S., Professor of Oral Surgery
Archibald B. Butter, D.D.S., Clinical Associate Professor of Operative Dentistry
- Oscar Cooperman, D.D.S., Associate Professor of Denture Prosthesis and Oral Anatomy
Norman J. Cox, B.A., D.M.D., Associate Professor of Operative Dentistry
Ambert B. Hall, D.D.S., Associate Professor of Crown and Bridge Work and Oral Anatomy
- Raymond E. Johnson, D.D.S., Clinical Associate Professor of Oral Hygiene and Pathology and Chairman of the Division of Periodontia
Harry Lawton, D.D.S., Associate Professor of Denture Prosthesis, Oral Anatomy, and Orthodontia
- Joseph M. Little, D.D.S., Associate Professor of Operative Dentistry
Everett E. MacGibbon, D.D.S., Associate Professor of Oral Surgery
Herbert C. Nelson, D.D.S., Associate Professor of Crown and Bridge Work
Carl F. Otto, D.D.S., Associate Professor of Crown and Bridge Work
Mark O. Pattridge, D.D.S., Associate Professor of Operative Dentistry
Harold F. Wahlquist, B.S., D.D.S., M.D., Associate Professor of Oral Diagnosis and Oral Hygiene and Pathology
- Wallace D. Armstrong, M.D., Ph.D., Assistant Professor of Physiological Chemistry
Claude R. Baker, D.D.S., M.S., Assistant Professor of Crown and Bridge Work
- Joseph O. Baker, D.D.S., Clinical Assistant Professor of Orthodontia
Rudolph W. Delton, D.D.S., Clinical Assistant Professor of Denture Prosthesis
- George D. Estes, D.D.S., Clinical Assistant Professor of Operative Dentistry
Jay M. Freeburg, D.D.S., Clinical Assistant Professor of Operative Dentistry
Lee A. Harker, D.D.S., Clinical Assistant Professor of Denture Prosthesis and Oral Anatomy
- Fred H. Hayes, D.D.S., Clinical Assistant Professor of Oral Surgery
Raymond R. Henry, D.D.S., Clinical Assistant Professor of Operative Dentistry
- Clare E. Hermann, D.D.S., Clinical Assistant Professor of Oral Surgery
Harold C. Hillmann, D.D.S., Clinical Assistant Professor of Denture Prosthesis

- Ione M. Jackson, G.D.H., Assistant Professor, Course for Dental Hygienists
 Roy M. Jernall, D.D.S., Clinical Assistant Professor of Denture Prosthesis
 George W. Lundberg, D.D.S., Clinical Assistant Professor of Operative
 Dentistry
 Lester C. McCarthy, D.D.S., Clinical Assistant Professor of Crown and
 Bridge Work
 Earl A. Nelson, D.D.S., Clinical Assistant Professor of Crown and Bridge
 Work
 Earle W. Nelson, D.D.S., Clinical Assistant Professor of Oral Surgery
 Charles Peterka, D.D.S., Clinical Assistant Professor of Crown and Bridge
 Work
 Dorothea F. Radusch, D.D.S., M.S., Clinical Assistant Professor of Oral
 Hygiene and Pathology
 Fred C. Thiers, D.D.S., Clinical Assistant Professor of Operative Dentistry
 Lewis W. Thom, D.D.S., Clinical Assistant Professor of Operative Dentistry
 Paul E. Weston, Ph.D., D.D.S., Clinical Assistant Professor of Operative
 Dentistry
 Harold C. Wittich, D.D.S., Clinical Assistant Professor of Operative
 Dentistry
 Harold G. Worman, D.D.S., Assistant Professor of Oral Histology and
 Pathology
 Edward T. Tinker, D.D.S., Professorial Lecturer on Crown and Bridge
 Work
 F. Denton White, D.D.S., Professorial Lecturer on Dental Hygiene
 Henry E. Colby, D.D.S., Clinical Instructor in Orthodontia
 Donald W. Dostal, D.D.S., Clinical Instructor in Oral Surgery
 William J. Simon, B.A., D.D.S., Instructor in Operative Dentistry

METALLOGRAPHY

- Ralph L. Dowdell, Met.E., Ph.D., Professor of Metallography
 Henry S. Jerabek, Ph.D., Assistant Professor of Metallography
 Arthur C. Forsyth, Met.E., Ph.D., Instructor in Metallography

PATHOLOGY

- Elexious T. Bell, B.S., M.D., Professor of Pathology and Head of the
 Department
 Benjamin J. Clawson, M.D., Ph.D., Professor of Pathology
 James S. McCartney, Jr., B.A., M.D., Associate Professor of Pathology

PHARMACOLOGY

- Arthur D. Hirschfelder, B.S., M.D., Professor of Pharmacology and Head
 of the Department
 Raymond N. Bieter, M.D., Ph.D., Associate Professor of Pharmacology
 Harold N. Wright, Ph.D., Associate Professor of Pharmacology
 Louis D. Fink, M.S., Teaching Assistant in Pharmacology
 William E. Morris, B.S., Teaching Assistant in Pharmacology

PHYSIOLOGY

- Maurice B. Visscher, M.D., Ph.D., Professor of Physiology and Head of the Department
George O. Burr, Ph.D., Professor of Physiology
Frederick H. Scott, M.B., Ph.D., D.Sc., Professor of Physiology
Allan Hemingway, Ph.D., Assistant Professor of Physiology
Joseph T. King, M.D., Ph.D., Assistant Professor of Physiology
Leo T. Samuels, Ph.D., Assistant Professor of Physiological Chemistry

SURGERY

- Owen H. Wangensteen, M.D., Ph.D., Professor of Surgery and Head of the Department

HEADS OF UNIVERSITY DEPARTMENTS GIVING COURSES FOR
DENTAL HYGIENISTS

- Gaylord W. Anderson, B.A., M.D., Professor of Preventive Medicine and Public Health and Head of the Department
F. Stuart Chapin, Ph.D., Professor of Sociology and Chairman of the Department
Richard M. Elliott, Ph.D., Professor of Psychology and Chairman of the Department
Dwight E. Minnich, Ph.D., Professor of Zoology and Chairman of the Department
Joseph W. Beach, Ph.D., Professor of English and Chairman of the Department
J. Anna Norris, M.D., Professor of Physical Education for Women and Director of Health and Physical Education for Women
Frank M. Rarig, M.A., Professor of Public Speaking and Chairman of the Speech Department
Russell A. Stevenson, Ph.D., Dean of the School of Business Administration

SCHOOL OF DENTISTRY

GENERAL INFORMATION

The School of Dentistry is located in the Medical Sciences Building at Washington Avenue and Union Street Southeast, on the Main campus of the University of Minnesota. Its students are privileged to enjoy all the advantages which come from participation in the activities of a university composed of academic, scientific, and professional schools and colleges.

The Medical Sciences Building was completed in 1932 and is unsurpassed in its arrangement and facilities for the teaching of dentistry. The lecture rooms, laboratories, and infirmary are furnished completely in all details with the most modern equipment that has been developed for the teaching of the science and practice of dentistry.

These facilities, together with a highly specialized teaching staff both in the medical science subjects and in dentistry, enable the student to enter upon the study of dentistry under very favorable conditions. Instruction is given by lectures, laboratory courses, demonstrations, and by clinical practice in the infirmary.

The four-year course in dentistry leading to the degree of doctor of dental surgery is open to both men and women. A general course of two years of college work in arts and sciences lays the foundation for the required professional education. The importance of dentistry as a branch of the healing art and the rapid advances made in recent years have produced marked changes in the length and content of the courses of study contained in the present curriculum. Throughout the entire four years the teaching is closely integrated with the medical sciences laboratories and the clinical and hospital facilities of the Medical School.

Students are admitted only at the opening of the fall quarter. For 1940, classes will begin September 30 and close with Commencement, June 14, 1941.

APPLICATION PROCEDURE

Application forms may be secured from the Board of Admissions, registrar's office, University of Minnesota, Minneapolis, and applications from nonresidents of Minnesota must be accompanied by a \$5 credential examination fee. This fee is not refundable, but if the applicant enrolls within one year following the date of application, the \$5 will be credited to his tuition for the first quarter. Remittance should be in the form of check, bank draft, or money order, payable to the University of Minnesota. *Do not send cash.*

Applicants must present evidence not only that they have completed the courses necessary to fulfill the entrance requirements but also that their college work and general fitness for dentistry is of such character as to give promise that they have the ability to do work of high quality in the dental course.

REQUIREMENTS FOR ADMISSION

Applicants for admission must present two years of collegiate work (ninety quarter, or sixty semester, credits) in science, literature, and the arts, completed at this or some other recognized college or university.

The minimum requirements for admission include nine quarter (six semester) credits in English (rhetoric); ten quarter (six and one-third

semester) credits in zoology; twenty quarter (thirteen and one-third semester) credits in chemistry (including general inorganic, qualitative analysis, organic); nine quarter (six semester) or twelve quarter (eight semester) credits in physics. Latin or a modern language (high school or college), drawing, economics, history, political science, psychology, and sociology are recommended as electives to make up a total of 90 quarter (60 semester) credits.

At the University of Minnesota the predental requirements are met by the following two-year course of study, provided high school chemistry and high school algebra and plane geometry are presented for admission (if these are not presented, Chemistry 1-2-3 is required instead of Chemistry 4-5):

1. Zoology 1-2-3, ten quarter credits.
2. Chemistry 4-5, 11, Organic 1-2, twenty quarter credits.
3. Physics 1-2-3, nine quarter credits; or Physics 1a-2a-3a, twelve quarter credits.
4. Freshman English A-B-C, fifteen quarter credits; or Freshman Composition 4-5-6, nine quarter credits.
6. Latin or a modern language (high school or college), drawing, economics, history, political science, psychology, and sociology are recommended as electives to make up a total of 90 quarter credits.

For each five honor points in excess of one honor point per credit, the number 90 is diminished by one. (This applies only to students transferring from the College of Science, Literature, and the Arts, University of Minnesota.)

Those applicants whose predental work has been taken at institutions other than the University of Minnesota must present to the Board of Admissions certified credentials of both preparatory and college work showing the subjects completed, credits, and grades.

COMBINED DEGREES

A broad cultural education is of such great value to a professional man that the University of Minnesota offers the opportunity for a student to secure both the bachelor of arts and the doctor of dental surgery degrees in seven years. To accomplish this the student completes three years' work with a satisfactory record in the College of Science, Literature, and the Arts and then enters the School of Dentistry. Upon the completion of the accredited medical science subjects in the first two years of the dental curriculum, the student becomes eligible for the bachelor of arts degree from the College of Science, Literature, and the Arts. Upon the completion of the required course in dentistry the student is recommended by the faculty in dentistry for the degree, doctor of dental surgery.

ADMISSION TO ADVANCED STANDING

Students from other dental colleges whose standards are fully equivalent to those of this institution may be received into advanced classes. Such students must make formal application on the blank provided, and must submit credentials covering predental and dental studies. Such credentials must show that the student has completed the required predental subjects

and has maintained the standard of scholarship required of students of this school.

Notebooks and other evidences of laboratory work must be presented. The amount of credit to be granted a student from another school is decided by the heads of the respective departments in conference with the Students' Work Committee. Subject credit (but not legal time credit) may be given for studies pursued other than in dental schools.

Students desiring advanced standing in the University of Minnesota should have an official transcript of their record sent to the Board of Admissions by the registrar of the college previously attended.

Graduates of foreign dental schools (except Canadian schools that are members of the American Association of Dental Schools) who wish to complete the requirements for the degree of doctor of dental surgery must present credentials showing the completion of the pre-dental subjects for admission and then plan to spend two academic years in the School of Dentistry.

FEES

Tuition fee (per quarter)	
Residents of Minnesota	\$60.00
Nonresidents	80.00
Clock hour tuition fee (unclassified students, auditors, and others carrying less than full work):	
Residents of Minnesota	2.50
Nonresidents	3.50
Matriculation deposit* (first quarter only)	10.00
Incidental fee‡ (per quarter)	8.50
Graduation fee	7.50
Special fees:	
Credential examination fee (applicable to nonresidents)	5.00
Condition examination	1.00
Special examination for removal of conditions, at other than set time§	5.00
Examination on subjects taken out of class§	5.00
(No fee for such examination on first entering the University, if taken within the first six weeks.)	
Laboratory fees for individual courses. The amounts are specified in the course announcements.	

Privilege fees.—The fee for the privilege of late registration or late payment of fees is \$2 through the third day of classes. On the fourth day the fee is \$2.50 and then increases 50 cents per day to a maximum of \$5. The fee for late change of registration is \$2.

STUDENTS' HEALTH SERVICE

Through the Students' Health Service the University makes available to any student physical examinations, health consultations, and medical attention. The offices of the Health Service and the students' hospital and dis-

* Such charges as may be incurred for lockers, library penalties, laboratory breakage, etc., will be deducted from the amount of this deposit and the balance will be refunded by mail upon graduation or after the beginning of the first quarter the student fails to return to the University.

‡ An incidental fee of \$8.50 a quarter is charged each student for which the student receives the privilege of the Coffman Memorial Union, the Health Service, the Testing Bureau, the *Minnesota Daily* including the Official Daily Bulletin, the university post-office service, and the *University Address Book*.

§ Such an examination may be taken only upon approval of the appropriate committee.

pensary are located in the Health Service wing of the University of Minnesota Hospitals. Hospital and dispensary services are available at all hours of the day and night.

The purpose of the Health Service is to help each student acquire and maintain a healthy, vigorous physical condition and establish habits of living which will reduce to a minimum the time and economic losses due to illness.

Every dental student is required to have a complete physical examination each year under the direction of the Health Service. Students deemed physically unfit for the practice of dentistry will be so advised.

DENTAL EQUIPMENT AND BOOKS

Students are required to provide themselves with the instruments and textbooks specified in the *Official List* which is sent from the dean's office to all students who have been admitted, or it may be secured upon request.

Dental instruments and equipment are not offered for sale by the University but may be purchased from regular dealers in dental supplies located near the campus. Books may be obtained from the Professional Colleges Bookstore in the Main Engineering Building or from nearby dealers.

The approximate costs of dental instruments and books are as follows:

	Instruments	Books
Freshman year, estimate	\$160.00	\$50.00
Sophomore year, estimate	350.00	68.00
Junior year, estimate	25.00	25.00
Senior year, estimate	25.00	25.00

UNIVERSITY SUMMER SESSION

The University Summer Session is organized for two terms, one of six weeks and one of five weeks, from June to September, under the authority of the Board of Regents, as a regular part of the University. Fully accredited courses are offered by the Departments of Anatomy, Bacteriology and Immunology, Dentistry, Pathology, Pharmacology, and Physiology. These courses are, in the main, regular courses, the same as are offered during the academic year, but wherever necessary, are adapted to meet the needs of students in the Summer Session. For detailed statements, see the Summer Session Bulletin.

REQUIREMENTS FOR GRADUATION

A candidate for the degree of doctor of dental surgery must be twenty-one years of age, of good moral character, and, after satisfying all the requirements for admission to the school, must have complied with all the rules and regulations of the school and obtained regular credit for all subjects of the entire course.

INTERNSHIPS

In recent years an increasing number of internships have become available to graduates of the School of Dentistry. Included in the list of positions which are open to graduates are appointments in the School of Dentistry and at the University of Minnesota Hospitals; the Forsyth Dental Infirmary for Children, Boston; the Rochester Dispensary for Children, Rochester, New York; internships in the United States Army Dental Corps, the

United States Public Health Service, and a number of other hospitals and health institutions.

Applications for these positions should be made at the dean's office and recommendations are passed upon by a faculty committee as to scholarship and general fitness for the position.

LIBRARY

The University of Minnesota Library is one of the finest college libraries in existence today. It includes over 1,100,000 volumes and many periodicals and pamphlets and in scope takes in every subject in the university curriculum. Its large, airy reading rooms provide an excellent place to study.

The Biological-Medical Room occupies the north end of the second floor of the library and will accommodate 216 readers. It includes the former college and departmental libraries in Animal Biology (Zoology), Botany, Dentistry, Medicine, Pediatrics, and much of Pharmacy. Reference books, texts, and treatises of various kinds are kept on open shelves in this room. This section includes all available literature on dentistry in book and periodical form and additional volumes are purchased as soon as they have been recommended by the Library Committee of the faculty in dentistry. These library facilities offer the student an excellent opportunity to secure a knowledge of the science and practice of dentistry.

Also, in the Medical Sciences Building in connection with the offices of the various divisions adjacent to lecture rooms, laboratories, and the clinic of the School of Dentistry are located reference reading books and periodicals for the use of students.

COFFMAN MEMORIAL UNION

The Coffman Memorial Union Building, located close to the Medical Sciences Building, will be ready for occupancy with the opening of the fall quarter, 1940. This structure ranks Minnesota in the forefront of American universities in the social and recreational facilities which it offers to students. Cafeterias, committee dining rooms, lounges for men and women, game rooms, bowling alleys, pool and billiard rooms, offices for student organizations, barber shop, beauty parlor, library, art room, and spacious ballroom are among the features that will make the building the popular center of campus life.

LOAN FUNDS

The university loan funds are available to students after two quarters in residence to assist them in continuing their course. Scholarship and character are the basis on which these loans are made to students. The general policy is to grant loans for tuition only. Information may be obtained from the dean of the school.

SELF-SUPPORT

The University Employment Service efficiently assists students who find it necessary to earn part or all of their expenses. However, no guarantee of employment can be given to prospective students. The regular course

in dentistry is rather a full program and students find it difficult to devote many hours a week to outside employment.

HONOR FRATERNITY

Omicron Kappa Upsilon, the national honor dental fraternity, is represented at Minnesota by the Beta Beta Chapter. Students are elected to membership in the senior year by the faculty on the basis of scholarship, character, and conduct during their course. Not more than 12 per cent of the class is eligible.

GRADUATE WORK IN DENTISTRY

Graduate work for a limited number of properly prepared students is offered in certain fields of dental research and dental specialties. The work is under the direction of a joint committee in dentistry and medicine in the Graduate School. Candidates for admission must be graduates of an acceptable dental school with at least two years of preliminary general college work. They must also present or acquire sufficient training in the basic sciences, such as bacteriology, anatomy, pathology, physiology, and physiological chemistry, to enable them to apply these disciplines to research on some of the problems facing dentistry as one of the health sciences. The minimum training to meet this requirement at the University of Minnesota is in general the equivalent of that required of graduate students in the fields of clinical medicine. The basic science courses necessary as a foundation for advanced study are outlined under the departmental offerings in the Graduate School Bulletin. Altho a reading knowledge of German is recommended as highly desirable, candidates for the Master's degree in dentistry are exempt from the foreign language requirement. Qualified students who give full time to their studies and absolve the requirements, including a satisfactory thesis, will normally require three years for the degree of master of science in dentistry.

The fields of research and specialization in which work will be directed are: oral pathology, oral surgery, orthodontia, periodontia, and restorative dentistry.

PRACTITIONERS' COURSES

In order to enlarge its educational field and to fill a need that has found expression among practitioners, the School of Dentistry offers, from time to time, a series of courses in crown and bridge work, denture prosthesis, operative dentistry, oral diagnosis, oral hygiene, oral surgery, orthodontia, periodontia, and similar subjects. Announcements regarding these refresher courses are published in the dental journals and in some cases notices are mailed directly to practitioners.

The School of Dentistry also offers an opportunity for dentists to register for clinical courses in restorative dentistry during the school year. These courses extend over a period of from one or two weeks to an entire term and include crown and bridge work, denture prosthesis, operative dentistry, oral diagnosis, and periodontia.

For further details call or write the dean's office, School of Dentistry.

FOUR-YEAR COURSE OF STUDY IN THE
SCHOOL OF DENTISTRY

	Fall Quarter		Winter Quarter		Spring Quarter		Total	
	Crs.	Hrs.	Crs.	Hrs.	Crs.	Hrs.	Crs.	Hrs.
Freshman Year								
Anatomy, Gross	6	121	.....	.....	6	132	12	253
Anatomy, Histology, and Embryology .....	.....	.....	6	132	.....	.....	6	132
Anatomy, Oral	3	77	2	44	3	77	8	198
Bacteriology	4½	99	.....	.....	.....	.....	4½	99
Chemistry, Physiological .....	.....	.....	4	55	3	66	7	121
Denture Prosthesis	3	77	4	110	4	110	11	297
	16½	374	16	341	16	385	48½	1100
Sophomore Year								
Crown and Bridge	3	77	3	77	3	77	9	231
Denture Prosthesis	1	33	1	33	2	44	4	110
Operative Dentistry	4	110	5	143	4	110	13	363
Oral Surgery and Diagnosis .....	.....	.....	1	11	1	22	2	33
Oral Histology and Pathology .....	.....	.....	.....	.....	1	11	1	11
Personal Health and Oral Hygiene	1	11	.....	.....	.....	.....	1	11
General and Special Pathology	6	132	.....	.....	.....	.....	6	132
Physiology .....	.....	.....	5	66	4	77	9	143
Orthodontia Technic .....	.....	.....	1	33	.....	.....	1	33
	15	363	16	363	15	341	46	1067
Junior Year								
Crown and Bridge	2	44	2	66	3	77	7	187
Denture Prosthesis	3	66	2	44	2	44	7	154
Operative Dentistry	4	110	4	110	4	110	12	330
Oral Surgery and Diagnosis	1	11	1	11	2	44	4	66
Orthodontia	2	44	1	33	1	33	4	110
Periodontia	2	44	1	33	.....	.....	3	77
Pharmacology	1	11	4	55	.....	.....	5	66
Radiology	1	33	.....	.....	.....	.....	1	33
Oral Hygiene .....	.....	.....	.....	.....	1	11	1	11
Oral Histology and Pathology .....	.....	.....	1	11	1	11	2	22
Metallography .....	.....	.....	.....	.....	2	33	2	33
	16	363	16	363	16	363	48	1089
Senior Year								
Crown and Bridge	2	66	3	99	3	99	8	264
Denture Prosthesis	2	66	1	33	1	33	4	132
Operative Dentistry, includ- ing Children's Dentistry	4	110	4	110	4	110	12	330
Oral Surgery	2	33	2	33	2	33	6	99
Orthodontia	1	33	2	44	2	44	5	121
Periodontia	1	11	1	22	.....	.....	2	33
Principles of Surgery	1	11	.....	.....	.....	.....	1	11
Seminars	1	11	1	11	1	11	3	33
Electives	2	22	2	22	3	44	7	88
	16	363	16	374	16	374	48	1111

DESCRIPTION OF COURSES*

A *dagger* (†) indicates that all quarters of the course must be completed before credit is received for any quarter.

ANATOMY

- 59f,su. Systematic Anatomy. Lectures and recitations on the gross morphology of the various systems of the body. Laboratory work upon human and mammalian material. Special emphasis laid upon human osteology. 121 hours. 6 credits. Offered to freshmen. Prerequisite: Zoology 1-2-3. Enrolment limited to 90 students in the fall quarter. Dr. Miller and assistants.
- 60s,su. Anatomy of the Head and Neck. Dissection of the human head and neck, with lectures and recitations. 132 hours. 6 credits. Offered to freshmen. Prerequisites: Zoology 1-2-3, Anatomy 59. Enrolment limited to 90 students in the spring quarter, and 16 in the summer. Dr. Miller and assistants.
- 61w,su,‡ Histology and Embryology. Minute structure and development of the tissues and organs of the body, with special emphasis upon the teeth and digestive tract. Lectures, recitations, and laboratory work. 132 hours. 6 credits. Offered to freshmen. Prerequisites: Zoology 1-2-3, Anatomy 59. Enrolment limited to 90 students in the winter quarter. Dr. Rasmussen and assistants.

BACTERIOLOGY AND IMMUNOLOGY

- 52f. Dental Bacteriology. Morphology; methods of staining; culture media; methods of identification; principles of sterilization and disinfection; concept of infection; pathogenic bacteria; the oral flora; bacteriology of the stomatitides, dental caries, alveolar abscess, and pyorrhea; systemic infections secondary to bacterial diseases of the mouth and teeth. 99 hours. 4½ credits. Offered to freshmen. Dr. Green and staff.

DENTISTRY

Courses numbered from 50 through 59 are freshman courses; those from 60 through 69 are sophomore courses; those from 80 through 89 are junior courses; and those from 90 through 99 are senior courses.

DIVISION OF CROWN AND BRIDGE WORK

- 60f-61w-62s. Crown and Bridge Work. A technic course. Lectures, demonstrations, and laboratory work including the construction of typical cases such as: a lower hygienic bridge, an upper posterior bridge, an

* The letters f,w,s, and su indicate that the corresponding courses are offered in the fall, winter, spring, and summer quarters, respectively. Numbers joined by hyphens indicate that the course is continued through more than one quarter. Letters separated by commas indicate the repetition of the course in corresponding quarters.

‡ Microscope required. Students (except medical) may obtain use of microscope by purchasing \$1.50 microscope card from bursar.

- upper anterior bridge, a Richmond and a Davis crown. A lecture immediately precedes each new laboratory technic and an illustrated syllabus aids the student in carrying out each piece of work. 33 lecture hours, 198 laboratory hours. 9 credits. Prerequisite: Oral Anatomy 50-51-52. Drs. Wells, Hall, C. R. Baker, E. A. Nelson, Peterka.
- 80f-81w-82s. Crown and Bridge Work. An advanced technic course combined with clinical practice and the simpler forms of restorations. The laboratory work includes the important forms of the lower anterior bridge, porcelain jacket crown, removable bridge, and three preparations on natural teeth. 22 lecture hours. 165 laboratory and clinical hours. 7 credits. Prerequisite: Crown and Bridge Work 60-61-62. Drs. Wells, Hall, C. R. Baker, E. A. Nelson, Peterka.
- 90f-91w-92s.† Crown and Bridge Work. A clinical course. Lectures, demonstrations, and clinical practice. Lectures on types of bridge attachments, full mouth restorations, opening the bite, balanced occlusion, and diagnosis, featuring the various adaptations of familiar technics to complex cases of fixed and removable bridge work. Lectures, demonstrations, and clinical practice in ceramics, including porcelain inlays and porcelain jacket crowns. 11 lecture hours, 253 clinical hours. 8 credits. Prerequisite: Crown and Bridge Work 80-81-82. Drs. Wells, Pagenkopf, Vehe, Hall, H. C. Nelson, Otto, C. R. Baker, McCarthy.

DIVISION OF DENTURE PROSTHESIS

- 50f-51w-52s. Denture Prosthesis. A course of lectures, recitations, demonstrations, and laboratory technic covering the various phases of complete and partial denture prosthesis, materials used, their properties and manipulation; fundamental principles of denture retention, anatomical occlusion and articulations, and esthetics. 33 lecture and recitation hours, 264 laboratory hours. 11 credits. Drs. Damon, Cooperman, Hall, Lawton, Harker, Simon.
- 60f-61w.† Denture Prosthesis. A continuation of the course in Denture Prosthesis as outlined in the freshman year. 66 lecture and laboratory hours. 2 credits. Prerequisite: Denture Prosthesis 50-51-52. Drs. Damon, Cooperman, Hall, Lawton, Harker, Simon.
- 62s. Denture Prosthesis. A course of lectures and clinical work dealing with the subject of full dentures preparatory to clinical practice. 11 lecture hours, 33 clinical hours. 2 credits. Prerequisite: Denture Prosthesis 60-61. Drs. Flagstad, Delton, Hillmann, Jernall.
- 80f-81w-82s.† Denture Prosthesis. A course of lectures and clinical practice in the various types of denture service, including full dentures and partial dentures. 22 lecture hours, 132 clinical hours. 7 credits. Prerequisite: Denture Prosthesis 60-61, 62. Drs. Flagstad, Delton, Hillmann, Jernall.
- 90f-91w-92s.† Denture Prosthesis. A course of lectures and clinical practice continuing the work of the junior year and in addition presenting material on restorations for abnormal conditions. 11 lecture hours, 121 clinical hours. 4 credits. Prerequisite: Denture Prosthesis 80-81-82. Drs. Flagstad, Delton, Hillmann, Jernall.

DIVISION OF OPERATIVE DENTISTRY

- 60f-61w-62s.† Operative Dentistry. A technic course in the principles of cavity preparation, characteristics and manipulation of filling materials both of the plastic and nonplastic types and adjuncts used therewith. Special stress is devoted to familiarizing students with instruments and their care and accessories and equipment pertaining to clinical procedures. Lectures, restorations, and special individual demonstrations to students. Upon the satisfactory completion of the technic work, the student progresses into work in the clinic. 33 lecture hours, 330 laboratory and clinical hours. 13 credits. Prerequisite: Oral Anatomy 50-51-52.
- 80f-81w-82s.† Operative Dentistry. Introductory course in clinical operative dentistry. The care of patients, diagnosis, prophylaxis, use of rubber dam, separating devices, and other accessories. This course includes clinical work for both children and adults. Pulp pathology and root canal therapy and a study of the medicines used in the clinic. 33 lecture hours, 297 hours conferences and clinical work. 12 credits. Prerequisites: Operative Dentistry 60-61-62 and Histology and Embryology 61w.
- 90f-91w-92s.† Operative Dentistry. A clinical course including the more comprehensive principles and advanced technics of operative procedure. A study of full mouth restoration for present and anticipated needs. An appreciation of hereditary influences, abnormal developments, physiological functions and pathogenic disturbances, caries, erosion, and tooth dyscrasias. Extended experience in the technical use of materials and medicines, and a study of their values in protecting and maintaining the health of oral structures. Theses, group demonstrations, and supervised clinical practice. Pulp pathology and root canal therapy comprise an important branch of study. An advanced course in children's dentistry is stressed through special lectures and clinical experience. 33 lecture hours, 297 hours conferences and clinical work. 12 credits. Prerequisite: Operative Dentistry 80-81-82.

DIVISION OF ORAL ANATOMY

- 50f-51w-52s. Oral Anatomy. A course of lectures, recitations, demonstrations, and laboratory technic. Nomenclature, pronunciation, definition, spelling, derivation, method of combining terms, abbreviations, and differentiation. Application of terms to the various divisions of dentistry. Study of the deciduous and permanent teeth, individually and as working units. A study is made of tissues of the teeth, surrounding tissues, pulp cavities, and surface anatomy. The subject of occlusion is introduced and studied in minute detail. The physiological function of tooth form and its practical application is stressed throughout the entire course. The laboratory phase includes projects in drawing, modeling, carving, and sectioning of natural teeth. 33 lecture and recitation hours, 165 laboratory hours. 8 credits. Drs. Damon, Cooperman, Hall, Lawton, Harker, Simon.

DIVISION OF ORAL DIAGNOSIS

- 62s. Oral Diagnosis. A consideration of the methods in oral diagnosis with special emphasis on the application of the Roentgen rays, electrophysics apparatus, photographic principles, technic, conditions revealed by the films, and points in interpretation. 11 lecture hours, 11 clinical hours. 1 credit. Drs. Brekhus, Knight.
- 80f. Radiology. A course of lectures, clinics, and demonstrations dealing with the subject of radiology. 33 hours. 1 credit. Drs. Brekhus, Knight.
- 81w-82s.† Oral Diagnosis. (1) A study of patients entering the clinic to determine the conditions of the teeth and surrounding tissues and to advise remedial measures. (2) A study of selected cases from a medical point of view, aiming to correlate the condition of the teeth with the patient's state of health. (3) Lectures covering the general principles of physical diagnosis of systems, methods of examination, laboratory aids. The objective of the instruction is to ground the student in the fundamental principles and procedures in making a diagnosis and prognosis of oral and related diseases. 11 lecture hours, 11 clinical hours. 2 credits. Drs. Brekhus, Wahlquist.

DIVISION OF ORAL HYGIENE AND PATHOLOGY

- 63f. Personal Health and Oral Hygiene. A course of lectures, including the use of the dental libraries and writing of dental papers. Personal and oral hygiene, including general care of the mouth, use of dentifrices, mouth washes, dental floss, toothpicks, and other devices. 11 lecture hours. 1 credit. Drs. Johnson, Radosch.
- 65s-84w-85s.† Oral Histology and Pathology. A course of lectures covering the subject of the histology of the teeth and other oral tissues. Adequate embryologic considerations are included. Also lectures dealing with the special pathology of the oral region. Emphasis is placed on the relation of local pathologic findings to systemic conditions and to general pathology. The course is supplemented by outside reading and thesis, by laboratory studies and drawings, and by clinical demonstrations. 33 lecture hours. 3 credits. Prerequisites: bacteriology and pathology. Drs. Waldron, Worman.
- 80f-81w.† Periodontia. A lecture, demonstration, and clinical course in the causes, treatment, and prevention of gingivitis, dental periclasia, and other diseases of the investing tissues. Special attention is paid to diagnosis and its systematic complications. 11 lecture hours, 66 hours demonstrations and clinical work. 3 credits. Prerequisite: Operative Dentistry 60-61-62. Drs. Johnson, Radosch, Worman.
- 86s. Oral Hygiene. Lectures and quizzes dealing with the causes and prevention of dental diseases, especially as related to general physiology and hygiene. Subject-matter: personal hygiene, nutrition, calcium metabolism and its relation to dental disease, endocrine disturbances, salivary factors, the role of bacteria, vitamins, mechanical action of foods and dentifrices. 11 lecture hours. 1 credit. Prerequisite: bacteriology. Dr. Wahlquist.

90f-91w.† Periodontia. A continuation of the study of the causes, treatment, and prevention of periodontal lesions. 33 hours. 2 credits. Drs. Johnson, Radusch, Worman.

DIVISION OF ORAL SURGERY

- 61w. Oral Surgery. A course of lectures and clinical work dealing with the principles underlying general surgical procedure; a review of the detailed anatomy of the parts; development and application of anesthesia chiefly as applied to face, mouth, and jaws. General considerations in the extraction of teeth, and the removal of foci of infection; an introduction to clinical practice. 11 lecture and recitation hours. 1 credit. Drs. Griffith, Wiethoff, MacGibbon, Hayes, Hermann, E. W. Nelson.
- 80f. Oral Surgery. Diagnosis and treatment of surgical diseases of the face, mouth, and jaws. Practice in local and general anesthesia. Consideration of types of patients and complications; preparation of mouth for reception of restorations; general anesthesia with special emphasis on nitrous-oxide. 11 lecture and recitation hours, 33 clinical hours. 2 credits. Dr. Griffith and assistants.
- 90f. Oral Surgery. An advanced course in oral surgery. 11 lecture hours, 22 clinical hours. 2 credits. Dr. Griffith and assistants.
- 91w-92s.† Oral Surgery. A course of lectures, recitations, and demonstrations covering the diagnosis, treatment, and dental relationship of diseases and conditions of the mouth, jaws, throat, eyes, ears, nose, and face. 66 lecture and clinical hours. 4 credits. Prerequisite: Oral Surgery 61 and 80. Dr. Waldron.

DIVISION OF ORTHODONTIA

- 61w. Orthodontia. A technic course of lectures, demonstrations, and laboratory work including soldering, band forming, and the drawing and making of regulating and retaining appliances. 33 lecture and laboratory hours. 1 credit. Prerequisite: Oral Anatomy 50-51-52. Dr. Lawton.
- 80f-81w-82s.† Orthodontia. A course of lectures, recitations, demonstrations, and clinical work in which students are required to treat one or more of the simpler cases of irregularities of the teeth. 11 lecture and recitation hours, 99 clinical hours. 4 credits. Prerequisite: Orthodontia 61. Drs. Ernst, Rudolph, J. O. Baker, Colby.
- 90f-91w-92s.† Orthodontia. An advanced course continuing the work offered in the junior year and which deals with the causes and treatment of irregularities of the teeth and the methods of treatment. Lectures, seminars, and clinical practice. 121 hours. 5 credits. Drs. Ernst, Rudolph, J. O. Baker, Colby.

SEMINAR

- 100f-101w-102s.† A seminar and lecture course in the theory and practice of dentistry including the choice of location, equipment, maintenance of a dental practice, ethics, applied economics and jurisprudence. Each student is required to write an original thesis upon some subject closely

related to the science or practice of dentistry. 33 lecture hours. 3 credits. Dr. Lasby and assistants.

ELECTIVES

Students will elect advanced courses open to them at the University amounting to 7 credits in the senior year. These may be taken in the field of medical science lecture or laboratory courses or in the field of preventive medicine and public health.

METALLOGRAPHY

159s. Dental Metallography. Lectures, recitations, and demonstrations, taking up the most important metals with special reference to those used in dentistry and the study of dental alloys from the standpoint of metallography. 33 hours. Tuesday I, II, III. 2 credits. Offered to juniors. Drs. Dowdell, Jerabek, Forsyth.

PATHOLOGY

4f.‡ General and Special Pathology. Circulatory disturbances, metabolic changes in cells and tissues, pigment deposits, inflammations and tumors. Pathology of selected diseases, tumors, and lesions affecting the mouth and dental structures. Exercises in gross and microscopic diagnosis. 132 hours. 6 credits. Offered to sophomores. Prerequisites: Anatomy 59-60, Histology and Embryology 61w. Dr. Clawson and assistants.

PHARMACOLOGY

53f. Introduction to Dental Pharmacology. 11 lecture hours. 1 credit. Offered to junior dental students. Prerequisites: Physiological Chemistry 56-57 and Human Physiology 58-59. Drs. Hirschfelder, Bieter, Wright, and assistants.

54w,115xsu. Dental Pharmacology. The history, origin, nature, pharmacal preparations, and use of drugs, including the discussion of their physiologic, pharmacologic, and therapeutic actions. Also laboratory exercises upon the chemical composition and mode of action of typical drugs upon man and animals, primarily for students in dentistry. 33 lecture hours, 22 laboratory hours. 4 credits. Offered to juniors. Prerequisites: Physiological Chemistry 56-57, Human Physiology 58-59. Drs. Hirschfelder, Bieter, Wright, and assistants.

PHYSIOLOGY

56w-57s. Physiological Chemistry. Principles of physical chemistry. Chemistry of fats, carbohydrates, proteins, and minerals. Metabolism and excretion. Special emphasis on biochemistry of calcified tissues. 121

‡ Microscope required. Students (except medical) may obtain use of microscope by purchasing \$1.50 microscope card from bursar.

- hours. 7 credits. Offered to freshmen. Prerequisites: Zoology 1-2-3 and organic chemistry. Dr. Armstrong and others.
- 58w-59s,su. Human Physiology. Course in the principles of physiology for dental students and others. Physiology of cells, muscle, nerve, central nervous system, senses, blood, circulation, respiration, digestion, metabolism, endocrines, excretion. 143 hours. 9 credits. Prerequisites: Zoology 1-2-3 and organic chemistry. Dr. King and others.

SURGERY

- 90f. Principles of Surgery. A study of the various surgical inflammations and processes, pathology and treatment. Principles underlying general surgical procedure as applied in dental practice. 11 hours. 1 credit. Offered to seniors. Dr. Wangenstein and staff.

GRADUATE COURSES

- 204f,205w,206s. Oral Pathology. Problems in dental caries. The facilities of the School of Dentistry, in co-operation with the various departments of the Medical School, are available for investigation of the fundamental problems relating to the teeth and their investing tissues. The work will form a basis for the study of dental diseases in general and of dental caries in particular. 9 credits (or more). Dr. Brekhus and staff.
- 207f,208w,209s. Oral Surgery. The work will consist of laboratory and clinical training in the fundamentals of surgical oral pathology, surgical diagnosis and treatment of injuries, infections, tumors, and abnormalities of the jaws and associated parts. The clinical work will be given at the School of Dentistry, the University of Minnesota Hospitals, and other hospitals. The major assignment will include a specific problem in oral surgery, for which the facilities of the research laboratories of the School of Dentistry, as well as those of the Medical School, will be available. 9 credits (or more). Dr. Waldron and staff.
- 210f,211w,212s. Orthodontia. A course of lectures, seminars, demonstrations, and clinical work in the diagnosis and treatment of malocclusion of the teeth. Its aim is to prepare graduate students for the specialty of orthodontia. 9 credits (or more). Dr. Rudolph and staff.
- 213f,214w,215s. Periodontia. Lectures, demonstrations, and clinical study of mouth infections, especially periodontoclasia. Methods of prevention as well as treatment, and the relationship of dietary deficiencies will be included. 9 credits (or more). Dr. Johnson and staff.
- 216f,217w,218s. Restorative Dentistry. The restoration of teeth to normal function and occlusion, and the replacement of missing teeth by fixed or removable bridge work and dentures. A study of the various materials and their manipulation as used in restorations. 9 credits (or more). Dr. Flagstad and staff.

COURSE FOR DENTAL HYGIENISTS

GENERAL INFORMATION

PURPOSE

The Course for Dental Hygienists has been established primarily to fill the need for workers in the public schools, hospitals, mercantile and industrial institutions, and dental offices to do dental prophylaxis work and to teach the hygiene of the mouth—in other words, to do preventive dental work which has not been possible in the organization of dentistry up to the present and which is recognized as being one of the great physical needs of the times. As thoro a background of scientific and cultural subjects as is possible in the time of the course is included to give students that professional education and point of view without which they would be mere technicians and quite unsafe to turn loose on the public in the semi-independent capacity which the nature of their work demands. The course includes training in all branches of dental office assisting and should make graduates easily adaptable to the general and special needs of the private dental offices should that be the field of work selected.

The course requires two years of thirty-three weeks each and leads to the degree of graduate dental hygienist (G.D.H.). The incorporation of this work in the University makes it possible to give all the subjects of the curriculum in the appropriate departments of the University, thus assuring a university contact to the student and instruction under the best auspices.

The first year's work deals mostly with preliminary science courses and dental technic and corresponds to some extent with the year course given at other schools. The second year is designed to prepare the student particularly for work in the public schools and clinics where the worker must be largely on her own responsibility and must be able to take an active part in oral hygiene work with the public.

REQUIREMENTS FOR ADMISSION

The Course for Dental Hygienists requires for admission, graduation from an approved high school or other preparatory school on the accredited list, and applicant must present the minimum requirements of a major and two minors. (See the Bulletin of General Information for a complete statement of admission requirements.)

Preference will be given to women of superior preliminary training. Applicants must be not less than eighteen nor more than thirty-five years of age. They must be able to pass a satisfactory general physical examination by the school physician.

Because of the specialized work of dental hygiene all applicants are urgently requested to consult the dean of the School of Dentistry before registration. Appointments may be made during the summer and should be completed before Freshman Week.

ADMISSION TO ADVANCED STANDING

Students who enter the Course for Dental Hygienists with academic credits entitling them to advanced standing should consult the dean of the School of Dentistry when planning their programs.

REGISTRATION

Applicants for admission may obtain credential blanks from the office of the registrar, University of Minnesota. These should be filled out and sent by the principal or superintendent of the high school or preparatory school to the Board of Admissions, registrar's office.

All applications should be filed before August 15.

Notification of acceptance or rejection will not be sent before August 15. However, after that date applicants will be informed as to whether or not their credentials are satisfactory as soon as they have been passed upon by the Board of Admissions.

For further information in regard to registration and to the general requirements for admission to the University, applications may be made for the Bulletin of General Information.

FEES

Tuition fee (per quarter)	
Residents of Minnesota	\$25.00
Nonresidents	40.00
Matriculation deposit* (first quarter only)	10.00
Incidental fee‡ (per quarter)	8.50
Graduation fee	7.50
Special fees:	
Examination for removal of condition	1.00
Examination for credit (after first six weeks in residence)	5.00
Special examination§	5.00

Course fees as indicated in course description.

Privilege fees.—The fee for the privilege of late registration or late payment of fees is \$2 through the third day of classes. On the fourth day the fee is \$2.50 and then increases 50 cents per day to a maximum of \$5. The fee for late change of registration is \$2.

Part-time fees.—Students not registered for the full course will be charged tuition at the rate of \$2 per credit for residents, \$3.25 per credit for nonresidents.

* Such charges as may be incurred for lockers, library penalties, laboratory breakage, etc., will be deducted from the amount of this deposit and the balance will be refunded by mail upon graduation or after the beginning of the first quarter the student fails to return to the University.

‡ An incidental fee of \$8.50 a quarter is charged each student for which the student receives the privileges of the Coffman Memorial Union, the Health Service, the Testing Bureau, the *Minnesota Daily*, including the Official Daily Bulletin, the university post-office service, and the *University Address Book*.

§ Such an examination may be taken only upon approval of the appropriate committee.

INSTRUMENTS

The University will furnish the larger pieces of equipment needed for the work in the clinic and laboratories, but the students must furnish their own uniforms, caps, operating instruments, and supplies. These instruments and supplies will be needed at the beginning of the freshman year. They will cost approximately fifty dollars. Some textbooks will be required.

PRIZES

Alpha Kappa Gamma prize.—The active chapter of Alpha Kappa Gamma Sorority presents a gold key to the student graduating from the Course for Dental Hygienists who has maintained a scholastic average of B or higher, completed her entire course at the University of Minnesota, and is approved by the faculty.

Louise C. Ball prize.—Annually, Louise C. Ball, D.D.S., Ph.D., founder of the courses in oral hygiene at Columbia University, New York City, July 10, 1916, offers a gold and ebony engraved plaque to the graduating student writing the best "practical talk" on "Public Dental Health Education." The essays are judged by a faculty committee.

THESIS

Each graduating student is required to submit a 2,000-word thesis upon some approved subject. This thesis is due June 1 before graduation and may be used in the Louise C. Ball contest.

COURSES OF STUDY FOR DENTAL HYGIENISTS, 1940-41

	Fall Quarter		Winter Quarter		Spring Quarter		Total	
	Crs.	Hrs.	Crs.	Hrs.	Crs.	Hrs.	Crs.	Hrs.
First Year								
Anatomy, Oral	2	44	2	44	1	33	5	121
Anatomy, Elementary .....	.....	.....	3	55	.....	.....	3	55
Bacteriology, Elementary ..	4	66	.....	.....	.....	.....	4	66
Composition	3	44	3	44	3	33	9	121
Economics	1	55	1	55	.....	.....	2	110
General Courses in								
Physical Education	0	22	0	22	0	22	0	66
Lectures in Physical Edu- cation and Health	0	11	.....	.....	.....	.....	0	11
Office Practice .....	.....	.....	.....	.....	3	33	3	33
Physiological Chemistry and								
Human Physiology .....	.....	.....	.....	.....	8	110	8	110
Prophylaxis, Dental	2	44	2	66	.....	.....	4	110
Zoology, General	3	66	3	66	3	66	10	198
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	15	352	14	352	18	297	48	1001
Second Year								
Anesthesia	1	33	.....	.....	.....	.....	1	33
Assisting in Dentistry	2	66	2	66	2	66	6	198
Dental Laboratory and								
Prosthetic Dentistry	3	66	3	44	3	44	9	154
Educational School Work ..	2	44	2	44	2	44	6	132
Oral Hygiene and Nutrition ..	.....	.....	.....	.....	1	11	1	11
Oral Histology and								
Pathology .....	.....	.....	2	22	.....	.....	2	22
Pathology, General	1	11	.....	.....	.....	.....	1	11
Preventive Medicine and								
Public Health .....	.....	.....	.....	.....	3	33	3	33
Prophylaxis, Dental	2	66	2	66	1	33	5	165
Psychology, General	3	33	3	33	.....	.....	6	66
Sociology, Introduction to ..	.....	.....	.....	.....	5	55	5	55
Speech	3	33	3	33	.....	.....	6	66
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	17	352	17	308	17	286	51	946

DESCRIPTION OF COURSES

A *dagger* (†) indicates that all quarters of the course must be completed before credit is received for any quarter.

FIRST YEAR

ANATOMY

- 4w. Elementary Anatomy. A brief survey of human gross anatomy including a brief introduction to histology, followed by a more detailed study of the oral region. Lectures, laboratory studies, and demonstrations. Five hours a week for one quarter. 3 credits. Dr. Blount.

BACTERIOLOGY AND IMMUNOLOGY

- 1f,s,‡ Elementary Bacteriology. Principles of bacteriology, general survey of pathogenic bacteria, molds, Protozoa, and viruses. Elements of immunity. Sanitary analysis of water and milk. Germicides. Bacterial food poisoning. Six hours a week for one quarter. 4 credits. Dr. Skinner.

DENTISTRY

- 7f-8w-9s.† Oral Anatomy. A course of lectures, recitations, demonstrations, and laboratory work. Lectures and recitations: oral anatomy nomenclature; special attention to definition, spelling, combining, and application of terms used in the various divisions of dentistry. Study in detail of permanent and deciduous teeth (calcification, eruption, decalcification, and shedding). A study is made of tissues of the teeth, surrounding tissues, pulp cavities, and surface anatomy. Occlusion, physiological function, and practical application is stressed in the course. Laboratory technic: each student is required to make a series of three drawings of each permanent tooth; nine plastine carvings of natural teeth; six wax carvings of natural teeth; a didactic final and a technical final of an assigned tooth. Four hours a week for three quarters. 5 credits. Drs. Hall, Harker.
- 21f-22w,s. Dental Prophylaxis. Theory and practice in the scaling and polishing of the teeth, and the teaching of oral hygiene and home care of the mouth to patients. The work is introduced by practice on manikins followed by practice on patients in the dental infirmary. Four hours a week each quarter. 4 credits. Miss Jackson.

ECONOMICS

- 32f,w,‡‡ Secretarial Training. Typewriting for students who have had less than one year of training. Exemption by passing test. Five hours a week for one quarter. 1 credit. Miss Lohren.

‡ Microscope required. Students (except medical) may obtain use of microscope by purchasing \$1.50 microscope card from bursar.

‡‡ A fee of \$2.50 per quarter is charged for this course.

- 33w,s.‡‡ Secretarial Training. Typewriting for students who have had one year of training. Exemption by passing speed test. Five hours a week for one quarter. 1 credit. Miss Lohren.
- 35s.‡‡ Office Practice for Dental Hygienists. A study of the most approved practices relative to the conduct of an office; appliances, accounts, banking, correspondence, filing systems, and records. Three hours a week for one quarter. 3 credits. Miss Kean.

ENGLISH

- 4f-5w-6s.† Freshman Composition. The study of the fundamental principles of composition and training in the art of writing. Four hours a week for three quarters. 9 credits. Arranged by Mr. Thomas.

PHYSICAL EDUCATION FOR WOMEN

- 1f-2w-3s.‡ Elementary Physical Training. Lighter forms of gymnastics, apparatus work, orthopedic exercises, folk dancing, indoor and outdoor games. Individual health consultations. Two hours a week for three quarters. No credit. Arranged by Dr. Norris and staff.
- 7f,w,s. Lectures in Physical Education and Health. The most essential aspects of personal health. One lecture hour a week. Dr. Norris.

PHYSIOLOGY AND PHYSIOLOGICAL CHEMISTRY

- 1f,s. Elements of Physiological Chemistry. (a) A brief study of physical and chemical laws; of the composition of matter, chemical compounds, chemical and energy changes; of the ionic theory; of gases and solutions. (b) The physiological chemistry of gases, water, salts, carbohydrates, fats, and proteins; of the nutritive media, of digestive fluids and digestion, of the metabolism, of excretion and excretory products. Five hours a week for one quarter. 4 credits. Dr. Arnow.
- 2f,s. Human Physiology. Functional properties of tissue cells; the material bases of the body; the nutritive media; the physiology of nerve and muscle, of the nervous system; the vascular mechanism; respiration, digestion, excretion, and metabolism. Five hours a week for one quarter. 4 credits. Dr. Kabat.

ZOOLOGY

- 1f-2w-3s.†††† General Zoology. This course is designed to acquaint the student with the fundamental principles of general zoology. It deals especially with the structure, physiology, embryology, classification, reproduction, and evolution of animals. Textbook, lectures, quizzes, and laboratory. Students should arrange their programs so as to remain in the same lecture and laboratory sections throughout the entire year. Six hours a week for three quarters. 10 credits. Dr. Minnich.

† A physical education fee of \$1.75 per quarter is charged for this course.

‡‡ A fee of \$2.50 per quarter is charged for this course.

††† A fee of \$1 per quarter is charged for this course.

SECOND YEAR

DENTISTRY

- 40f-41w-42s. Educational School Work. A lecture and recitation course in the preparation and delivery of talks on oral hygiene for various groups and occasions, followed by demonstrations and practical work in teaching oral hygiene in the public schools. Four hours a week for three quarters. 6 credits. Dr. White.
- 43f. Anesthesia. Lectures and demonstrations in anesthesia as applied to dentistry. This course includes history of anesthesia, discussion of various apparatus, classification of patients, indication and contra-indication of anesthesia, both local and general, symptoms and precautions of anesthesia, emergency treatment, preparation of the patient and the actual administration of the anesthetic under instructor's guidance. Three hours a week for one quarter. 1 credit. Dr. Griffith.
- 45f-46w-47s. Assisting in Dentistry. Lectures, demonstrations, and practical experience in surgical assisting, dental assisting, dental roentgenology, general anesthesia, operative dentistry, materia medica, and orthodontia. Six hours a week for three quarters. 5 credits. Arranged by Miss Jackson.
- 53f-54w-55s. Dental Prophylaxis. A continuation of Dental Prophylaxis 21-22. The teaching of oral hygiene is emphasized. Approximately sixty cases must be completed. Six hours a week for three quarters. 6 credits. Miss Jackson.
- 57f-58w-59s. Prosthetic Dentistry and Dental Laboratory.
- Prosthetic Dentistry. A course of lectures, demonstrations, and laboratory work. Lectures and demonstrations: impression materials and their manipulation; pouring of impressions and making casts; art base construction and study models; various types of denture construction including partial and complete dentures; packing, vulcanizing, curing, and finishing of cases; occlusion and articulation as applied to prosthetic dentistry. Laboratory technic; the laboratory work consists of pouring plaster impressions; the making of casts, art bases, and models of one another's mouths. Edentulous casts are made, trial plates constructed, and the setting up of a complete upper and lower case to the point of vulcanization. One lecture hour and six laboratory hours per week for one quarter.
- Dental Laboratory. A course of lectures, demonstrations, and laboratory work. Lectures and demonstrations: a study in the manipulation of waxes, investments, metals, porcelain, and cements; assistant's duties in various branches of dentistry such as operative, crown and bridge, and prosthesis; a study of the instruments and materials used in dentistry. Laboratory work; each student makes a series of wax models and castings for cavities of teeth; the making of indirect dies; the manipulation of porcelain; pontic construction; soldering; and the mixing and manip-

- ulation of synthetic porcelains and cements. One lecture hour and three laboratory hours per week for two quarters. 9 credits. Prerequisites: Oral Anatomy 7f-8w-9s and Prosthetic Dentistry 57f. Dr. Hall and assistants.
- 59f. General Pathology. An elementary discussion of general pathology including circulatory disturbances, inflammation, and tumors. A special consideration of selected diseases with reference to those affecting the oral cavity. One hour a week for one quarter. 1 credit. Dr. Wahlquist.
- 60w. Oral Histology and Pathology. The course includes a résumé of the histology of the teeth and oral tissues, thereby preparing a background for the more detailed discussion of the special pathology of these tissues. It includes systemic manifestations of oral diseases, pathology of the mandibular joint and tongue, and a review of the present status of knowledge concerning dietary influences. Two hours a week for one quarter. 2 credits. Prerequisite: General Pathology. Dr. Radusch.
- 71s. Oral Hygiene and Nutrition for Dental Students and Dental Hygienists. Lectures and quizzes dealing with the causes and prevention of dental diseases, especially as related to general physiology and hygiene. Subject-matter: personal hygiene, nutrition, calcium metabolism and its relation to dental diseases, endocrine disturbances, salivary factors, the role of bacteria, vitamins, mechanical action of foods and dentifrices. One hour a week for one quarter. 1 credit. Dr. Wahlquist.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

- 50f,s. Public and Personal Health. Causes of diseases and of physical defects; fundamental principles and working methods of health conservation and disease prevention. Lectures, discussions, and directed readings. Open to those who have not taken Course 3, 4, 52, or Human Biology in the General College. 3 credits. Dr. Hinckley.
- 51f,s. Community Hygiene. Elementary concepts of development, spread, and prevention of preventable diseases; community programs for their control. Not open to students who have taken 50, 52, or 53. 3 credits. Prerequisite: 3, or Human Biology in the General College. Dr. Cowan.

PSYCHOLOGY

- 1f-2w.† General Psychology. An introductory survey of psychology; its material, fundamental laws, applications, and relations to other sciences. Two lectures, one recitation a week for two quarters. 6 credits. Arranged by Mr. Elliott and staff.

SOCIOLOGY

- 1f,w,s. Introduction to Sociology. A study of the origin and development of human societies; various agencies which have determined the type of

social life; social organizations, institutions, and progress; bearing of sociology upon other social sciences and arts. Five hours a week for one quarter. 5 credits. Arranged by Mr. Chapin and staff.

SPEECH

1f-2w.†† Public Speaking. Fundamentals of effective speaking; breathing, voice production, enunciation, and action; delivery of extracts from the works of well-known writers and speakers; principles underlying speech-making to both oral and written compositions. Three hours a week for two quarters. 6 credits. Mr. Rarig and staff.

† A fee of \$1 per quarter is charged for this course

Bulletin of the University of Minnesota

Annual Congress

High School Students of Vocational Agriculture

including

State Convention of Minnesota Association of Future
Farmers of America



May 10 and 11, 1940

University Farm, St. Paul

Department of Agriculture Committee—N. N. Allen, J. O. Christianson, C. Christopherson, R. M. Douglass, L. H. Harden, A. L. Harvey, H. K. Wilson, G. F. Ekstrom, Chairman.

Vol. XLIII

No. 24

March 27 1940

Entered at the post office in Minneapolis as second-class matter Minneapolis, Minnesota. Accepted for mailing at special rate of postage provided for in section 1103, of October 3, 1917, authorized July 12, 1918.

Schedule of Activities

FRIDAY, MAY 10

10:00 a.m.

Judging and Identification Contests

Crops judging and identification	Poultry Building, Fair Grounds
Dairy cattle judging	Dairy Barn
Entomology identification	Room 307, Administration Building
Horticulture identification	Room 8, Horticulture Building
General livestock judging	Livestock Pavilion
Meat identification	Meat Shop
Poultry judging	Poultry Building, Fair Grounds
Farm Mechanics Contest	Room 48, Agricultural Engineering Building

Achievement Contests

Crops	Room 102, Administration Building
Dairy	Room 9, Haecker Hall
General livestock	Room 3, Livestock Pavilion
Farm management	Room 217, Agricultural Engineering Building
Poultry	Room 102, Veterinary Building

Recreational Program (see page 19)
FFA Delegate Session Auditorium, Administration Building
FFA Band Rehearsal Gymnasium

1:15 p.m.

Dairy Cattle Judging (continued)	
General Livestock Judging (continued)	
FFA Public Speaking Contest	Auditorium, Administration Building
FFA Band Rehearsal	Gymnasium

3:00 p.m. FFA Chapter Conducting Contest Auditorium, Administration Building

6:30 p.m. FFA Banquet St. Anthony Park ME Church Dining Hall, Fair Grounds

SATURDAY, MAY 11

8:00 a.m.

Short Course Program (see page 20)	
FFA Delegate Session	Auditorium, Administration Building
FFA Band Rehearsal	Gymnasium

10:00 a.m. Short Course Program (continued) Auditorium, Administration Building

11:00 a.m. Ag Royal Parade

1:00 p.m. Announcement of Awards Auditorium, Administration Building

2:00 p.m. Ag Royal Program Athletic Field

A CORDIAL WELCOME

March 28, 1940

At one time the man equipped only with strong back and hands could make out fairly well as a farmer, but the door has closed on that epoch. We are in a period which calls for an understanding of the science, economics, and the social problems of agriculture and rural life. High school training or its equivalent represents the minimum preparation the young man expecting to farm should have. Realizing this, we of University Farm are much interested in the agricultural high school program, and we hope that it can be profitably supplemented by Smith-Hughes' teachers and students associating with us on our campus for two or three days. To one and all I extend a most cordial welcome.

W. C. COFFEY

Dean and Director

GENERAL ARRANGEMENTS

For the second year the Annual Congress for Students of Vocational Agriculture in Minnesota is being sponsored at the University of Minnesota by the Department of Agriculture. In addition to the teachers of vocational agriculture and the Minnesota Association of FFA, the Ag Club Commission of the College of Agriculture is cooperating with the Department of Agriculture Committee in scheduling the 1940 program. As a matter of convenience to schools, the program will be restricted to two days, Friday and Saturday, instead of beginning on Thursday, as heretofore. This year the Ag Club Commission, which comprises the student organizations in the College of Agriculture, is scheduling the annual Ag Royal for Saturday, May 11, in order that persons registered for the high school congress may observe the various activities of this program.

The program for the Congress and the FFA Convention is designed to provide purposeful activities for all students of vocational agriculture during the two-day period. Students not occupied by the various contests on Friday should attend the FFA

Convention. On Saturday morning there will be the choice of the short course program or the convention session. Thus, teachers are requested to see that the boys representing their departments plan definite schedules for the two days.

Lodging will be available for about 600 boys in the School of Agriculture dormitories. Additional accommodations may be had in the gymnasium at University Farm or in the Poultry Building at the Fair Grounds. To help solve the food service problems, an arrangement has been made whereby meal tickets may be purchased in advance. Further announcements regarding accommodations will be found elsewhere in this bulletin.



JUDGING AND IDENTIFICATION CONTESTS

10:00 a.m. Friday, May 10

General Rules

1. Each participant must have been enrolled as a high school student of vocational agriculture during the current school year of 1939-40.
2. No student is eligible to compete if he has previously participated in a national contest or has been a member of a winning team in a state or interstate contest of similar character.
3. All entries will consist of teams made up of three members.
4. Entries in all judging contests will be limited to five teams for each of the seven supervisory districts in the state. No restrictions are placed on the number of teams which may enter the entomology, meat, and horticulture identification contests and the farm mechanics contest.
5. Entries in all contests must be mailed on or before May 1, 1940.

Awards

High teams and high individuals will be designated in the different contests. Other team awards will be made at the discretion of the judges on the basis of group rankings to be designated as *superior, excellent, and good.*

Crops Judging and Identification

10:00 a.m. Friday, May 10

Poultry Building, Fair Grounds

H. K. Wilson, Superintendent

1. The contest shall consist of placings and identification with a total possible score of 1200 points divided as follows:

Placing seven classes	700 points
Identification of five groups	500 points
2. Fifteen minutes will be allowed for the placing or identification of each class.
3. Scientific names will not be required for the identification of samples, but will be accepted when correctly applied. Incorrect spelling of either common or scientific names will constitute an error. In cases of incorrect spelling the judges may deduct one point for the error. The names for identification must be written exactly as they appear in the lists given below. For example: pigeon grass will be wrong for foxtail; blue grass wrong for Kentucky blue grass; and New Yorker wrong for Rural New Yorker.
4. Each contestant will work individually and will be scored individually. The scores will be added to give the team score.
5. Reasons will not be required.
6. All judging classes will be made up so that the placings are definite and unmistakable. Basic samples will be used. Adulterants not in the list will not be used.
7. Judging: The contest shall include seven classes of five samples each for placing. The seven classes, totaling 700 points, will be taken from the following:

1. Shelled corn	5. Potatoes
2. Bread wheat	6. Flax
3. Oats	7. One class of either alfalfa, sweet clover,
4. Barley	alsike clover or medium red clover

IDENTIFICATION

The identification contest will consist of five groups with the number of samples as designated being chosen from each group. Samples not found in the following lists will not be used. Complete names, correctly spelled as given, are required. Any of the material listed may be used in the contest.

- A. **SMALL GRAINS**—Ten samples, totaling 100 points, will be selected from the following for identification:

Thatcher spring wheat	Hull-less barley
Red Durum wheat	Rye
Mindum Amber Durum wheat	Emmer
Minturki winter wheat	Spelt
Gopher oats	Einkorn
Anthony oats	Flax
Hull-less oats	Silverhull buckwheat
Two-row barley	Japanese buckwheat
Velvet barley	

CORN

Northwestern Dent	Double cross
Pearl flint	Gehu flint
Minnesota 13	Golden Bantam sweet corn
Rustler	Japanese hull-less pop corn
Murdock	

- B. **GRASSES AND POTATOES**—Ten samples, totaling 100 points, will be selected from the following head samples and tubers for identification:

Cobbler	Burbank
Triumph	Rural New Yorker
Green Mountain	Warba

GRASSES AND LEGUMES

Kentucky blue grass	Proso millet	Sweet clover
Timothy	Common millet	Canada bluegrass
Red top	Sorghum	Soy beans
Brome grass	Alfalfa	Field beans
Orchard grass	Red clover	Field peas
Sudan grass	Alsike clover	Vetch
Reed canary grass		

- C. **GRASS AND LEGUME GROUP**—Ten samples, totaling 100 points, will be selected from the following seeds for identification:

Kentucky blue grass	Alfalfa
Red top	Red clover
Timothy	White clover
Brome grass	Yellow blossom sweet clover
Orchard grass	White blossom sweet clover
Sudan grass	Soy beans
Reed canary grass	Field peas
Proso millet	Vetch
Common millet	Field beans
Sorghum	

- D. **WEEDS**—Ten samples, totaling 100 points, will be selected from the following weed seeds and plant diseases for identification:

Lamb's quarters	Quack grass (noxious)
Russian thistle	Dodder (noxious)
Canadian thistle (noxious)	Green foxtail

Perennial sow thistle (noxious)	Yellow foxtail
Kinghead (noxious in wheat)	Buckhorn plantain (noxious)
Wild oats (noxious)	Ox-eye daisy (noxious)
French weed (noxious)	Curled dock
Field or lesser bindweed (noxious)	Corn cockle
Wild buckwheat	White cockle (noxious)
Leafy spurge (noxious)	Wild mustard
	Small seeded false flax (noxious)
	Pig weed

PLANT DISEASES SPECIMENS

Bunt	Rhizoctonia of potato
Loose smut of wheat	Scab of potato
Ergot	Black stem rust

E. WEEDS—Ten samples, totaling 100 points, will be selected from the following list of weeds for weed identification:

Lamb's quarters	Quack grass (noxious)
Russian thistle	Dodder (noxious)
Canadian thistle (noxious)	Green foxtail
Perennial sow thistle (noxious)	Yellow foxtail
Kinghead (noxious in wheat)	Buckhorn plantain (noxious)
Wild oats (noxious)	Ox-eye daisy (noxious)
French weed (noxious)	Curled dock
Field or lesser bindweed (noxious)	Corn cockle
Leafy spurge (noxious)	White cockle (noxious)
Pig weed	Wild mustard
	Small seeded false flax (noxious)
	Wild buckwheat

Dairy Cattle Judging

10:00 a.m. Friday, May 10—Dairy Barn

N. N. Allen, Superintendent

1. The superintendent and judges will select the classes and the judges will decide upon the order in which they shall be placed and the cuts to be made for incorrect placings and will listen to and grade the reasons.
2. There will be two rings of animals in each of the Holstein, Jersey, and Guernsey breeds.
3. One ring of each breed shall consist of four milking cows. Oral reasons will be required on these classes, to be given after all six classes have been placed.
4. The remaining three rings may be either heifers or cows and may include four or more animals. All of the animals are to be placed in relative order (first, second, third, fourth, fifth, etc.). No reasons will be required on these classes.

5. The animals used in this contest will be identified by number (1, 2, 3, 4, 5, etc.).
6. All classes are to be placed entirely on the basis of type or conformation according to the standards set by the latest official score card for the breed.
7. Fifteen minutes will be allowed for placing each class. Two minutes will be allowed each contestant for giving reasons on each of the milking cow classes. Notes may be taken for reference in preparing reasons, but may not be referred to while actually giving reasons.

Entomology and Economic Zoology Identification Contest

10:00 a.m. Friday, May 10—Room 307, Administration Building

R. H. Daggy, Superintendent

1. Any school may enter a team of three members.
2. The contest will consist of identification of ten specimens in each of three groups of 25—(1) insect pests, (2) game and predacious birds, and (3) mammals. All specimens will be selected from the following lists of Minnesota insects, birds and mammals:

Insect Pests	Game and Predacious Birds*	Mammals
Carolina grasshopper	Pheasant	Muskrat
Snowy tree cricket	Prairie chicken	Beaver
Field cricket	Hungarian partridge	Mink
German cockroach	Quail	Weasel
Oriental cockroach	Ruffed grouse	Badger
Silverfish	Snow goose	Spotted skunk
Chinch bug	Whistling swan	Striped skunk
Squash bug	Canada goose	Eastern chipmunk
Box-elder bug	Mallard	Red squirrel
June beetle	Wood duck	Fox squirrel
White grub (larva)	Shoveler	13-lined ground squirrel
Cucumber beetle	Ruddy duck	Pocket gopher
Colorado potato beetle	Pin-tail	Raccoon
Termites	Canvas-back	Red fox
Aphids or plant lice	Redhead	Gray fox
Leafhoppers	Bluebill or scaup	Cotton-tail
Cabbage butterfly	Great horned owl	Jack rabbit
Tomato hornworm (larva)	Screech owl	Snow-shoe hare
Bedbug	Red-tail hawk	Porcupine
Carpenter ant	Marsh hawk	Woodchuck
	Sparrow hawk	

Cecropia moth	Sharp-shinned hawk	Flying squirrel
Luna moth	Barn owl	Meadow mouse
House fly	Pelican	Mole
Horse fly	Great blue heron	Shrew
Corn earworm (larva)		Gray squirrel

* All specimens will be represented by study specimens. The ducks will be represented by males in breeding plumage.

3. Specimens must not be handled by contestants unless protected in tubes or boxes. If very small insects are used, these may be mounted under a binocular microscope.
4. Scientific names will not be required, but the correct common name as used in the above lists must be given.
5. Scoring: Ten points will be given for each correct answer—a possible maximum of 300 points for the contest. One point will be deducted in cases of incorrect spelling. Each contestant will work individually and will be scored individually. The individual scores will be added to give the team score.
6. Time: Twenty minutes will be allowed for identifying the specimens in each group.

It will be impossible to send out illustrative material in advance for this contest. A few general references for each group are recommended below for students' use.

Insects—Metcalf and Flint, *Destructive and Useful Insects*; Lutz, *Field Book of Insects*; and various Government and Experiment Station Bulletins.

Birds—T. S. Roberts, *Birds of Minnesota* 2 vols. (excellent illustrations) and R. T. Peterson, *Field Guide to the Birds*.

Mammals—H. E. Anthony, *Field Book of North American Mammals*.

Recent articles in the *National Geographic Magazine* may also prove helpful.

Horticulture Identification Contest

10:00 a.m. Friday, May 10—Room 8, Horticulture Building

L. E. Longley and T. S. Weir in charge

1. Any school may enter a team of three members.
2. The contest will consist of identifying forty trees and shrubs from the following list of 60:

Silver maple	Bolleana poplar
Box elder	Northern cottonwood
Sugar maple	Lombardy poplar
Ohio buckeye	American plum

Juneberry (Service berry)	Flowering plum
(Shadbush)	White oak
Virginia Creeper (woodbine)	Burr (Mossycup) oak
Japanese barberry	Red oak
Canoe birch (paper birch)	Common buckthorn
Siberian pea tree	Smooth sumac
Catalpa	Staghorn sumac
Hackberry	Alpine currant
Red-osier dogwood	Black locust
Peking cotoneaster	Golden willow
Russian olive	American elder
Green ash	Scarlet elder
Honey locust	False (Ural) spirea
Hills of Snow hydrangea	Mountain ash
(Snowball hydrangea)	Anthony Waterer spirea
Butternut	Vanhoutte (Bridal wreath)
Black walnut	spirea
Red Cedar	Snowberry
Tartarian honeysuckle	Common lilac
Hop hornbean Ironwood	Arbor vitae (White cedar)
Sweet mock orange	Basswood (American linden)
Ninebark	White (American) elm
White spruce	Chinese elm
Blue spruce	American cranberry bush (high
Jack pine	bush cranberry)
Mugho pine	Nannyberry
White pine	Norway maple
Scotch pine	Prostrate juniper

3. Actual growing specimens will be used whenever possible.
4. Complete common names, correctly spelled, will be required. Scientific names may be used and will be accepted when correctly used.
5. Scoring: Two and one-half points will be given for each specimen correctly identified—Total 100. Each contestant will work individually and will be scored individually. The individual scores will be added to give the team score.

References: Anderson, P. O., *Trees and Tree Planting*.

Rosendahl, C. O. and Butters, F. K., *Trees and Shrubs of Minnesota*

General Livestock Judging

10:00 a.m. Friday, May 10—Livestock Pavilion

A. L. Harvey, Superintendent

1. The superintendent and judges will select the classes of livestock to be judged and decide upon the order in which they shall be placed.

2. All contestants will judge two rings of swine, sheep, beef cattle, and horses. If possible, one ring of each class of livestock will be a breeding class and one a market class. The horses judged will be sound or considered as sound.
3. Four animals will constitute a ring and they will be numbered 1, 2, 3, and 4.
4. Fifteen minutes will be allowed for judging each ring and recording placings.
5. After all classes are judged, oral reasons on four classes are to be given by each contestant to the official judges. No more than two minutes will be allowed for giving reasons on any one ring.
6. Reasons will be given on four rings; i.e., on one ring of swine, one ring of sheep, one ring of beef cattle, and one ring of horses. Reasons classes will be designated at the time of judging.

Meat Identification Contest

10:00 a.m. Friday, May 10—Meat Shop

P. A. Anderson, Superintendent

1. Any school may enter a team. This contest is not limited to five teams from each district.
2. There will be 25 cuts of meat to identify.
3. Judging of meat will not be required in the contest.
4. Entrants will be requested not to handle the meats during the contest.
5. Scoring:
 - a. One point will be given for each wholesale cut and three points for each retail cut correctly named.
 - b. Corrections will be made for incomplete terms.
 - c. In case of ties, the winner will be decided by correctness of spelling and exactness of names.
6. Contestants will be divided into two groups; 15 minutes being allowed for each group.
7. The cut to be identified will be chosen from the following list of wholesale and retail cuts. The first cut mentioned in each case is the wholesale cut; the ones following are the retail cuts.

BEEF

Beef round (wholesale)—round steak, top round steak, bottom round steak, eye round steak, sirloin tip steak, heel of round, and hind shank (all retail).

Beef rump (wholesale)—rump roast (first cut), rump roast (second cut), rolled rump roast (all retail).

Beef loin end (wholesale)—sirloin steaks including butt end, wedge bone, round bone, double bone, pin bone, sirloin butt (all retail).

Beef short loin (wholesale)—porterhouse steak, T-bone steak, club steak (all retail).

Beef flank (wholesale)—flank stew, flank steak (all retail).

Beef rib (wholesale)—folded rib roast, Spencer roll, regular roll, standing blade rib roast (sixth and seventh ribs), standing rib roast (eighth to twelfth ribs), rolled rib roast, rib steak (all retail).

Beef plate (wholesale)—plate boiling beef, rolled plate, short ribs (all retail).

Beef brisket (wholesale)—brisket, boneless brisket (all retail).

Beef fore shank (wholesale)—cross cut shank (soup bone) (retail).

Beef chuck (wholesale)—arm beefsteak, arm pot roast or cross rib roast, blade beefsteak or shoulder steak, blade pot roast, neck boiling beef (all retail).

Beef kidney knob (wholesale)—beef kidney suet, beef kidney (all retail).

Corned beef brisket, corned beef plate, corned beef rump (all wholesale)—corned brisket, corned plate, corned rump (all retail).

Dried beef, usually the round (wholesale)—chipped beef (retail).

PORK

Fresh ham (wholesale)—regular fresh ham, skinned fresh ham, fresh ham roll, center cut ham roast, fresh ham hock, fresh ham steak, fresh ham butt, fresh boneless ham (all retail).

Fresh pork loin (wholesale)—loin pork roast (end ham), loin pork roast (shoulder end), loin pork roast (center cut), loin pork chop, rib pork chop, backbones, pork tenderloin, fresh fat back, crown pork roast (all retail).

Fresh side pork (wholesale)—fresh side pork, spareribs, leaf fat (all retail).

Fresh pork shoulder (wholesale)—square cut shoulder, cushion style roast, New York shoulder, skinned New York shoulder, pork trimmings, fresh picnic shoulder, Boston butt, arm

pork steak, blade pork steak, fresh pork shoulder hock, neck bones (all retail).

Fresh pork jowl (wholesale)—fresh trimmed jowl (retail).

CURED AND SMOKED PORK

Smoked ham (wholesale)—regular smoked ham, skinned smoked ham, smoked ham shank, smoked ham slice, smoked ham butt, center cut roast (all retail).

Smoked pork shoulder (wholesale)—smoked cottage roll, smoked picnic shoulder, smoked shankless picnic, smoked shoulder rolls or rollettes (all retail).

Smoked pork side (wholesale)—strip bacon, brisket bacon, breakfast bacon, sliced breakfast bacon (all retail).

Smoked pork jowl (wholesale)—bacon square (retail).

Salt side pork (wholesale)—salt side pork (retail).

Salt fat back (wholesale)—salt fat back (retail).

Pickled pigs feet (wholesale)—pickled pigs feet (retail).

VEAL

Veal leg (wholesale)—veal cutlets, boned veal roast, veal rump roast, veal round steak, hind shank of veal, heel of veal round, center cut leg of veal roast (all retail).

Veal loin (wholesale)—loin veal roast, boned veal loin roll, sirloin veal steak, loin veal chop, kidney veal chop (all retail).

Veal rib (wholesale)—rib veal chop, rib veal roast, boned veal rib roll roast (all retail).

Veal shoulder (wholesale)—arm veal roast, arm veal steak, blade veal roast, blade veal steak, rolled veal shoulder, veal neck (all retail).

Veal breast and shank (wholesale)—veal breast, veal fore shank, pocket of veal roast, veal stew (all retail).

LAMB

Lamb leg (wholesale)—lamb leg, sirloin lamb chop, American style, French style, rolled leg of lamb (all retail).

Lamb loin (wholesale)—English lamb chop, lamb birdie, lamb loin roast, loin lamb chop (all retail).

Lamb rack (wholesale)—lamb birdie, rib lamb chop, Frenched lamb chop, rib lamb roast, crown roast (all retail).

Lamb shoulder and breast (wholesale)—cushion style roast, lamb stew, square cut lamb shoulder, rolled lamb shoulder, arm

lamb chop, blade lamb chop, lamb breast, lamb shank, neck slice (all retail).

FANCY MEATS

- Beef liver (wholesale and retail).
- Veal liver (wholesale and retail).
- Beef tongue (wholesale), beef tongue, fresh or smoked (retail).
- Veal tongue (wholesale and retail).
- Beef heart (wholesale and retail).
- Pork tongue (wholesale and retail).
- Beef kidney (wholesale and retail).
- Ox tail (wholesale), ox tail or ox joints (retail).
- Lamb liver (wholesale and retail).
- Lamb heart (wholesale and retail).
- Lamb tongue (wholesale and retail).
- Pork liver (wholesale and retail).
- Pork heart (wholesale and retail).
- Pork kidney (wholesale and retail).

MEAT IDENTIFICATION CARD

No. Cut	Wholesale Cut	Retail Cut	Judges Score
1			
2			
.....			
.....			
.....			
23			
24			
25			

Total score _____

Poultry Judging Contest

10:00 a.m. Friday, May 10—Poultry Building, Fair Grounds

T. H. Canfield, Superintendent

A. Exhibition Judging

1. Ten minutes will be allowed for placing each class.
2. There will be three classes, four birds to a class, either yearling males or females to be selected from the following varieties: S. C. Rhode Island Red, Light Barred Plymouth Rock, White Plymouth Rock, and Buff Orpington.

3. The 1939 edition of the American Standard of Perfection will be the judging guide. The birds will not be handled. Sample feathers of colored varieties will be displayed over the coop containing the bird.
4. Birds will be free from standard disqualifications.
5. Oral reasons not more than two minutes long will be given on one of these classes, announcement of which will precede the judging.

B. Production Judging

1. Ten minutes will be allowed for placing each class.
2. There will be three classes, four birds to a class, of yearling hens to place for egg production. One class will be Rhode Island Reds, one White Leghorn, and one Barred Rocks.
3. Birds will not be handled. Every effort will be made to select specimens so that external appearance will be a sufficient guide for placing.

C. Marketing Judging

1. Twenty live market fowls (heavy breeds) will be placed in their proper grades. The grades to be used will be those set up by the Bureau of Agricultural Economics, USDA, which are reproduced herewith.
2. Birds may be handled in this class. Thirty minutes will be allowed for placing the birds in their proper classes.

Tentative United States Standards for Grades for Live Poultry (Revised April 1, 1937)

UNITED STATES GRADE A: Vigorous birds, well-fleshed, plump and full-feathered with bright red comb and soft glossy skin. Must be soft-meated for birds of that class and free from tears, bruises and deformities. Excess abdominal fat and broken bones not permitted. Must be free from external evidence of disease.

UNITED STATES GRADE B: Fairly well-fleshed birds, fairly well-feathered, free from tears, bruises or deformities. Broken bones not permitted. Must be free from external evidence of disease.

UNITED STATES GRADE C: May be poorly feathered birds, poorly fleshed, but not emaciated. Carcass may show few scratches, tears or bruises. Deformed birds permitted if fairly well-fleshed. Not more than one broken bone permitted. Must be free from highly infectious diseases.

All cull birds must be graded as "Rejects." "Rejects" include all birds that show evidence of a sick condition, severe injury, extreme emaciation, or other conditions that render them unfit for food. Birds afflicted with the following diseases are classed as "Rejects": (1) Roup (catarrhal and diphtheritic), (2) infectious bronchitis, (3) fowl cholera, (4) fowl typhoid, (5) limberneck, (6) tuberculosis, (7) crop bound, (8) cripples and weak birds, and (9) water belly (Ascites).



FARM MECHANICS CONTEST

10:00 a.m. Friday, May 10—Room 48, Agricultural Engineering Building

C. H. Christopherson, Superintendent

1. Any school may enter a team of three members. (This contest is *not* limited to five teams from each district).
2. All contestants will take part in four units of work in farm mechanics. The four units will include the following activities: rafter framing, farm machinery, farm concrete, reading plans, and estimating.
3. Each contestant will work individually and will be scored individually. The individual scores will be added to give the team score. The team scores in each of the four units will be added for the total score in the farm mechanics contest.
4. All tools and materials will be furnished to the contestants except pencils.

UNIT I. RAFTER FRAMING

This unit will consist of two parts. The first part will be a performance job. The contestant will be given a steel square and some rafter stock on which he will lay out a common rafter for a farm building. The second part will be informational. The contestants will write in the answers to a number of problems involved in framing a gable roof with common rafters.

Suggested references: Your farm mechanics textbook; *Stanley Rafter and Framing Squares*, Stanley Rule and Level Plant, New Britain, Connecticut.

UNIT II. FARM MACHINERY

Implements to be used in the contest will be the plow, mower and grain binder. Contestants should be prepared to identify various parts and assembled mechanisms, and give the function of each where required. The contestant will also be asked to judge certain important adjustments on any or all of the machines mentioned.

Suggested references: Your farm mechanics textbook; Farmers' Bulletin 1690, *Plowing with Moldboard Plows*; Farmers' Bulletin 1754, *Care and Repair of Mowers and Binders*; and *Operation and Care and Repair of Farm Machinery*, John Deere Co. Moline, Ill.

UNIT III. READING PLANS AND ESTIMATING

This unit will include the identification of a group of drafting tools and instruments, reading a blueprint, making out a lumber list for a piece of homemade equipment, computing board feet, calculating wall and roof areas and volume of farm structures.

Suggested references: Your farm mechanics textbook; any textbook on mechanical drawing; and *A Primer of Blueprint Reading*, Diamond, Thomas, The Bruce Publishing Company, Milwaukee, Wisconsin.

UNIT IV. FARM CONCRETE

This unit will consist of two parts. The first part will consist of judging the quality of materials used in making concrete and rating specimens of concrete. Broken samples of concrete will be used. The second part will be informational. The contestants will write in the answers to a number of problems on selection of aggregates, proportions, amounts of water used, and methods of finishing and curing. A problem will be included on figuring the quantities of materials required for a given job in concrete. Tables will be provided for estimating quantities.

Suggested references: Your farm mechanics textbook; Farmers' Bulletin 1752, *Use of Concrete on the Farm*; and numerous bulletins on concrete by the Portland Cement Association, Northwestern Bank Building, Minneapolis, Minn.



ACHIEVEMENT CONTESTS

10:00 a.m. Friday, May 10

General Rules

1. Each participant must have been enrolled as a high school student of vocational agriculture during the current school year of 1939-40.
2. No student is eligible to compete if he has been a member of a winning team in a similar state contest.
3. Any school may make application to enter a team of three members in one or more events. Lack of room facilities requires restriction of entries to ten teams in each of the achievement events. Entries will be accepted in order of filing. All entries must be mailed on or before May 1, 1940.
4. Each team shall work as a unit in the solution of the problems to be assigned.

Awards

High teams and high individuals will be designated in the different contests.

Other team awards will be made at the discretion of the judges on the basis of group rankings to be designated as *superior*, *excellent*, and *good*.

Farm Management Contest

10:00 a.m. Friday, May 10, Room 217, Agricultural Engineering Building

T. R. Nodland, Superintendent

A problem will be selected which will deal with cropping systems. All the major types of farming in Minnesota will be represented.

General Livestock Achievement Contest

10:00 a.m. Friday, May 10, Room 3, Livestock Pavilion

E. F. Ferrin, Superintendent

Subject: The feeding of a beef calf from a weight of 400 pounds to 900 pounds: (a) Rations, (b) care and management, and (c) approximate cost of 100 pounds' gain.

Crops Achievement Contest

10:00 a.m. Friday, May 10, Room 102, Administration Building

H. K. Wilson, Superintendent

The assignment will deal with some phase of the weed problem, i.e., identification, chemical or cultural means of control, methods to prevent dissemination of weed seeds, methods of removing weed seeds from grain and feed, ways of setting up township and county control committees or any other phase of the weed problem. A definite limit will be made as to the number of words allowed in the report, depending on the phase of the problem selected.

Dairy Achievement Contest

10:00 a.m. Friday, May 10, Room 9, Haecker Hall

T. W. Gullickson, Superintendent

A problem will be developed from the area of dairy production. It may involve a knowledge of principles of breeding, feeding, or practical dairy herd management.

Poultry Achievement Contest

10:00 a.m. Friday, May 10, Room 102, Veterinary Building

H. J. Sloan, Superintendent

Emphasis will be on the general problems of farming practice affecting the production of eggs of high market quality.



RECREATIONAL PROGRAM

10:00-12:00 a.m. Friday, May 10

M. M. Ryman, Superintendent

Anyone not otherwise engaged may use the swimming pool or enter one of the athletic contests during this period. Unless otherwise designated, all materials will be furnished, but all boys—for their own convenience—should provide themselves with gym shoes. Boys playing tennis must wear gym shoes.

1. Volley ball—courts outside gymnasium (furnish own gym shoes)
2. Diamond ball—south end athletic field
3. Horseshoes—courts outside gymnasium
4. Tennis—new courts outside gymnasium (furnish own gym shoes)
5. Archery—outside gymnasium
6. Shuffleboard—gymnasium
7. Table tennis—gymnasium
8. Swimming—pool in gymnasium (towel 5 cents)



HIGH SCHOOL STUDENTS' SHORT COURSE

Saturday, May 11

This section of the program provides an unusual opportunity to get first-hand information on new developments in agriculture from specialists in the divisions of the College. The program consists of 18 groups of interesting and worthwhile exhibits, demonstrations, and tours. Each student should select one group of events. However, it is suggested that class members elect as many different groups as possible, as more ideas will be gathered in this way. This should provide for some excellent discussions of the congress by the class members after participants return home. The first two periods will be devoted to practical demonstrations and programs in the divisions. At the third period (10-10:50), all students will assemble in the Auditorium for a general program, at which time the group will meet Dean Coffey and other members of the Department of Agriculture staff. Immediately following the Auditorium program at 10:50 the group will assemble in front of the Administration Building to witness the Ag Royal Livestock Parade, led by the FFA Band. It is suggested that a study of the entire congress be made as a class exercise. The conclusion of the study could be the selection of the program that each student attending the congress will follow. It is very important that each student follow his program schedule and be at the places designated on time and ready for business. The Department of Agriculture feels that the congress

should be a definite phase of the training program of the vocational agriculture student. The program for the short course feature should be placed on the individual enrolment blank and mailed with the school entry form.

DESCRIPTION OF EVENTS

Saturday a.m.

Agricultural Engineering

1. A display and discussion of farm building plans, an exhibit and explanation of recent farm machines and tractors and a demonstration of practical irrigation.
2. An exhibition and explanation of rural electrification helps, mechanical training, and woodworking.

Agronomy

A presentation of the techniques and methods used in the increase and distribution of seed of pure lines of hybrid corn and other crops. This will include exhibit material and inspection of equipment used in the work.

Animal Husbandry

A discussion and demonstration of the judging and the fitting and showing of livestock. Rings of animals fitted and shown for the Ag Royal will be used and an opportunity afforded to witness the actual Ag Royal judging. This program is joined with that of poultry and provides the only animal husbandry group.

Dairy

1. A demonstration and explanation of the physiology of milk secretion. Exhibits of udders in cross section, showing ducts, circulatory system, etc.
2. An exhibit of dairy products to emphasize the need for sanitary production and greater development. Microscopic slides will be available for inspection.
3. A tour of the dairy plant, showing the experimental work being done by the department, such as methods of feed preparation, handling calves, other experimental devices.

Economic Zoology and Entomology

1. A description by lantern slides and moving pictures of destructive insects and the damage they do. A brief survey of the prepared material available.
2. Slides and moving pictures on the habits and value of bees, their life history, mode of living, etc.

Economic Zoology

A description of the field of wildlife conservation. What can vocational agriculture students contribute to it? How should nature's resources be used?

Farm Chemurgy

A display and discussion of the utilization of agricultural products in industry.

Farm Forestry

Moving pictures showing the importance of forests in the general welfare of the nation; trip through the forestry museum showing important derived products obtained from forest trees.

Horticulture

A demonstration and discussion of the best methods of propagating various horticultural plants, including house plants, perennial flowers, shrubs, shade trees and various kinds of fruit.

Plant Pathology

An explained tour of the laboratories showing the experimental work on seed treatment; the greenhouse showing the work being done on rust strains; and the temperature control tanks where experiments are under way on soil temperature and disease factors, etc.

Plant Physiology

Weed exhibits and discussion—Mr. A. H. Larson.

X-ray inspection for hollow heart of potato, hair sprout of potatoes, ethylene ripening of fruits (tomatoes and bananas), waxing of vegetables—R. B. Harvey.

Poultry Husbandry

Discussion of experimental work on cafeteria feeding, house remodeling and discussion of plans for a new poultry house. This program is joined with that listed under Animal Husbandry and is the only poultry program given. Consequently arrangements have been made to accommodate a double size group.

Soils

A discussion of the effect of lime and fertilizers on Minnesota soils, illustrated by slides.

Veterinary Medicine

An exhibit and demonstration of animal diseases of poultry, swine, cattle, and sheep and a brief treatment of their diagnosis. Animals will be posted to show the various points of disease.

Vocational Opportunities

A discussion of the vocational opportunities for farm boys; a picture of what an agricultural college or school is like; opportunities for working one's way; what it costs to attend college; opportunities for trained men in agriculture.

ACTIVITIES BY GROUPS AND DIVISIONS

Group	8:00-8:50	9:00-9:50	10:00-10:50
I	Wild Life Conservation	Habits and Control of Insects	Auditorium Program
II	Habits and Uses of Bees	Horticulture	Auditorium Program
III	Habits and Control of Insects	Wild Life Conservation	Auditorium Program
IV	Horticulture	Habits and Uses of Bees	Auditorium Program
V	Plant Physiology	Plant Pathology	Auditorium Program
VI	Soils	Agronomy	Auditorium Program
VII	Agricultural Engineering "B"	Agricultural Engineering "A"	Auditorium Program
VIII	Agricultural Engineering "A"	Agricultural Engineering "B"	Auditorium Program
IX	Poultry	Animal Husbandry	Auditorium Program
X	Veterinary Medicine	Dairy "A"	Auditorium Program
XI	Vocational Opportunities	Vocational Opportunities	Auditorium Program
XII	Dairy "B"	Dairy "C"	Auditorium Program
XIII	Dairy "A"	Veterinary Medicine	Auditorium Program
XIV	Agronomy	Soils	Auditorium Program
XV	Dairy "C"	Dairy "B"	Auditorium Program
XVI	Plant Pathology	Plant Physiology	Auditorium Program
XVII	Forestry	Farm Chemurgy	Auditorium Program
XVIII	Farm Chemurgy	Forestry	Auditorium Program

The following groups will meet in the places designated promptly at 8:00 a.m. Saturday:

Group	Leader	Meeting Place
I	John Freeman	Room 102, Administration Building
II	William Matalamaki	Room 307, Administration Building
III	Stanley Sahlstrom	Room 302, Administration Building
IV	Edward Fier	Room 102, Horticulture
V	Joe Kemen	Room 206, Ag Union
VI	Wesley Pierson	Room 204, Soils Building

VII	Alton Bergee	Carpentry Shop, Room 48, Engineering Building
VIII	Alton Carlson	Farm Machinery, Room 49, Engineering Building
IX	Vernon Bruhn	Room 103, Veterinary Building
X	Harold Dineson	Room 102, Veterinary Building
XI	Walter Erickson	Room 217, Engineering Building
XII	Ralph Erkel	Main Door, Haecker Hall
XIII	Joseph Sanders	Room 109, Haecker Hall
XIV	Lloyd Peterson	Main Door, Seed House
XV	La Verne Wegener	Arena, Dairy Barn
XVI	Vincent Stolke	Room 107, Plant Pathology Building
XVII	Lambert Schilling	Auditorium, Forestry Building
XVIII	Palmer Goulson	Main Door, Biochemistry Building



Program

Eleventh Annual Convention Minnesota Association of Future Farmers of America

May 10 and 11

The eleventh annual meeting of the Minnesota Association of Future Farmers of America will be held at the University Farm, St. Paul, in conjunction with the High School Students' Congress on May 10 and 11, 1940. State President Edward Slettom of Little Falls will call the first delegate session to order in the auditorium of the Administration Building at 10:00 a.m. Friday, May 10.

SEATING OF DELEGATES

Each FFA Chapter is entitled to two official delegates. It is recommended that both delegates be free of other duties in connection with the Congress so they may attend all the delegate sessions. The delegates representing any chapter must hold at least the degree of Future Farmer and be active members in good standing. All delegates should present their credentials to the credentials committee previous to the time of the first delegate session. Presentation of the membership card bearing the chapter name and signed by the secretary or a letter signed by the chapter secretary certifying the delegate as a member in good standing will constitute the satisfactory credentials.

All FFA members and vocational agriculture students are invited to attend the convention sessions whenever they are free of other duties in connection with the Congress.

FFA CONTESTS

Public Speaking

Each of the seven FFA districts will be represented by one speaker in the state public speaking contest. The contest will be held in the auditorium of the Administration Building at University Farm. The speakers should present themselves to the committee in charge of the contest on the convention floor at 1:00 p.m. Friday. Drawing for order of speaking will be made at this time. Rules and regulations of the contest will be found in the January 1940 issue of the State News Letter.

Chapter Conducting

Each of the seven FFA districts will be represented by one of their chapters in the state chapter conducting contest. The contest will be held in the auditorium of the Administration Building. Representatives of the chapters participating in this contest should present themselves to the committee in charge of the contest on the convention floor at 1:00 p.m. Friday. Drawing for order of participation will take place at this time and further instruction regarding the contest to take place at 3:00 p.m. will be issued by the contest committee. Paraphernalia for conducting chapter demonstrations will be supplied. Rules and regulations of the contest will be found in the January 1940 issue of the State News Letter.

Ear of Corn

A special prize award will be made to the chapter exhibiting the best ear of corn. The best ear selected by the judges will be sent to the national convention at Kansas City in 1940 to represent Minnesota in the national contests. The Gold Key Club will present a gavel to the chapter exhibiting the best ear of corn. Further information concerning the place of entry may be secured at the registration desk.

CHAPTER BOOTHS

Each FFA chapter is invited to prepare an exhibit for the state convention. Space for setting up the booths will be provided in the Administration Building.

It is suggested that chapter exhibits emphasize the various phases of the FFA dealing with special accomplishments of the chapter. Pictures and charts attractively arranged telling the story of the FFA Program and vocational agriculture would be most appropriate materials.

STATE FFA BAND

The State band will have band rehearsals both Friday and Saturday. Gerald McKay, FFA band director, has requested that FFA members selected to play in the band *have no other duties assigned to them in connection with the High School Students' Congress*. Rehearsals and activities for the band have been scheduled as follows:

10:00 a.m. Friday, May 10	Rehearsal, gymnasium
1:15 p.m. Friday, May 10	Rehearsal, gymnasium
6:00 p.m. Friday, May 10	Play for banquet
8:00 a.m. Saturday, May 11	Rehearsal, gymnasium
11:00 a.m. Saturday, May 11	Play for Ag Royal Parade

Further instructions regarding rehearsals will be announced by Mr. McKay previous to or at the time of the Congress.

FOURTH ANNUAL FFA BANQUET

The Fourth Annual FFA banquet will be held at 6:30 p.m. Friday, May 10, 1940. Reservations for the banquet must be made on or before May 1 at the time entries are submitted. This procedure is necessary so that we may know in advance the number who will attend the banquet. The banquet will be held in the St. Anthony Park M.E. Church dining hall at the fair grounds and will be 60 cents per plate.

ROOM AND MEAL ACCOMMODATIONS

Rooms

School of Agriculture Dormitories

Rates: 50 cents per person per night. Includes bedding but not soap and towels.

University Farm Gymnasium

Rates: 25 cents per person per night. Includes mattress and bedding.

Poultry Building, State Fair Grounds

Rates: 15 cents per person per night. Payable to attendant at Poultry Building. Includes cots and mattresses only.

Note: Instructors are requested to room with their groups. Students will not be admitted to the dormitories after 10:30 p.m. unless accompanied by their instructors.

Meals

Arrangements have been made whereby tickets may be purchased for meals served at the University Farm Cafeteria. The price of the tickets will be 80 cents for the following four meals:

Breakfasts—

7:00-8:00 a.m.	Friday and Saturday Fruit, cereal, toast, and beverage
----------------	---

Noon luncheons—

12:00-1:00 p.m.	Friday and Saturday Inexpensive order of meat, potatoes, bread and butter, vegetable or salad, dessert, and beverage
-----------------	---

The tickets will not be good at meals other than the foregoing. The purchase of tickets will greatly facilitate the service to the high school group at the University Farm Cafeteria during the two days.

Remittances for meal tickets must be made on or before May 1 at the time entries are submitted.

Instructors' Luncheon

A meeting of the instructors will be held Friday noon, May 10. Teachers are requested to go through the cafeteria line and take trays to the party dining room down stairs.

REGISTRATION PROCEDURES

1. Mail registration blanks to G. F. Ekstrom, University Farm, on or before May 1, 1940.
2. Include *separate* checks for (1) lodging, and (2) meal tickets payable to the University of Minnesota. In case of room cancellations requests for refunds must be made before Thursday, May 9.
3. Plan to arrive at the University Farm before 10:00 p.m. if you come on Thursday night.
4. Call at room 102, Administration Building for envelope containing room assignments and other materials.
5. Have students report promptly at 10:00 a.m. Friday to event for which they are enrolled.

HIGH SCHOOL CONGRESS AND FFA CONVENTION

ENTRY AND REGISTRATION FORM

Mail to G. F. Ekstrom, University Farm, St. Paul. All entries *must* be postmarked on or before May 1, 1940.

School _____ Date _____

List on a separate sheet the names of the three boys to be entered in each or any of the following events:

Crops Judging and Identification	Farm Mechanics Contest
Dairy Cattle Judging	Crops Achievement
Entomology Identification	Dairy Achievement
Horticulture Identification	General Livestock Achievement
General Livestock Judging	Farm Management Achievement
Meat Identification	Poultry Achievement
Poultry Judging	

In the FFA events each district is allowed only one representative. List names on a separate sheet.

FFA Public Speaking Contest (District representative)

FFA Chapter Conducting Contest (District representative)

Will your Chapter be represented by a booth in the FFA Exhibit? _____

ACCOMMODATIONS

Attached is a check for _____ payable to the University of Minnesota for accommodations as follows:

Rooms for _____ persons Thursday night @ 50 cents in dormitories

Rooms for _____ persons Thursday night @ 25 cents in gymnasium

Rooms for _____ persons Friday night @ 50 cents in dormitories

Rooms for _____ persons Friday night @ 25 cents in gymnasium

Rooms for _____ persons Saturday night @ 50 cents in dormitories

Rooms for _____ persons Saturday night @ 25 cents in gymnasium

Attached is a separate check payable to the University of Minnesota for Meal Tickets for _____ persons at 80 cents each.

(For meals Friday morning and noon, Saturday morning and noon)

Attached is a separate check payable to the Minnesota Association of FFA for _____ banquet tickets at 60 cents each. (Friday evening)

(Signed) Instructor _____

Superintendent or Principal _____

Cut here

The Bulletin of the
University of Minnesota

RADIO STATION WLB

760 kilocycles—5000 watts

Program Schedule



April, May, June
1940

VOL. XLIII

NO. 25

MARCH 29, 1940

Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minn. Accepted for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized July 12, 1918.

WLB

University of Minnesota Radio Station

Studios in Minneapolis and St. Paul
760 kilocycles—5000 watts

April, May, June, 1940

CONVOCATIONS AND LECTURES

University of Minnesota Convocations
Thursday, 11:30 a.m.-12:15 p.m.

The University of Minnesota convocations present famous and talented people in all fields of human endeavor, many of whom are of world renown. On those weeks when convocations are not scheduled, lectures will be broadcast from the WLB studios by university faculty members.

April 4 Louis Fischer—"The Real Issues in Europe's War"

Mr. Fischer is special European correspondent for *The Nation*, and was formerly Berlin correspondent for the *New York Post*. He is the author of *The Soviets in World Affairs*, *Oil Imperialism*, *Why Recognize Russia*, and *The War in Spain*. Mr. Fischer returns to the United States with an uncensored story of war-torn Europe.

April 11 John Jacob Niles—"Songs of the Southern Mountains"

Mr. Niles is a native-born Kentuckian who has lived, worked, and carried on research during most of his life in those communities where traditional American ballads are sung. He has a large and authentic collection of American folk music brought over by those early settlers who chose the mountains for their homes.

April 18 Samuel Guy Inman—Subject to be announced

Mr. Inman, who holds degrees from Columbia and Texas Christian universities, is an authority on Latin American relations. He has taught international law at Columbia and at the University of Hawaii, and has lectured on related subjects in various South American countries. He is a member of the American Academy of Political and Social Science, and is secretary of the Board of Christian Work in Santo Domingo. Among his publications are *Building an International Neighborhood* and *Latin America—Its Place in World Life*.

April 25 Oswald Garrison Villard—"What I Saw and Heard in Germany"

Mr. Villard's newspaper experience extends over many years. Until 1918 he was president and editorial writer of the *New York Evening Post*, after which he devoted himself to *The Nation*. In August, 1939, Mr. Villard sailed for Europe, going first to England, and then to Germany. He was one of the few American lecturers inside Germany after the declaration of war.

May 2 Olin Downes, Pianist—"The MacDowell Concerto No. 1 in A Minor (with the University Student Symphony Orchestra)"

Olin Downes is on the staff of *The New York Times* as music critic.

May 9 Sydney R. Montague—"Under Northern Lights"

As a member of the Canadian "Mounties," Mr. Montague has lived in the eastern Arctic in close association with the Eskimos. He has studied their language, mode of living, customs, and folklore.

May 16* Cap and Gown Day

May 23† John Warren Beach—"The Literary Art of John Steinbeck"

A graduate of the University of Minnesota and Harvard University, Mr. Beach has been on the faculty of the University of Minnesota since 1907, becoming chairman of the Department of English in 1938. His publications include such studies as *The Method of Henry James*, *Meek Americans*, and *The Twentieth Century Novel*, as well as the novel, *Glass Mountain*.

May 30† Thomas Mann—"The Problem of Freedom"

Thomas Mann's talk on "The Problem of Freedom" was presented at a special evening convocation on February 15, 1940, and was broadcast from a transcription on February 22. In response to many requests for a repeat broadcast, the talk will be heard again on May 30.

* 11:15 a.m.

† No convocation on this date; talk given in WLB studios for radio audience only.

June 6† Walter C. Coffey—"Earth and Security"

As dean of the Department of Agriculture, Walter C. Coffey heads a vast program of agricultural education and research vital to the welfare and advancement of Minnesota's agriculture. Dean Coffey, who has occupied his present position since 1921, enjoys national recognition in the field of agriculture. Since 1930 he has been a director of the International Livestock Exposition; in 1939 he was elected vice-president of the Association of Land Grant Colleges and Universities; and, on January 1, 1940, he was appointed chairman of the board, and federal reserve agent of the Federal Reserve Bank of Minneapolis.

June 9‡ Baccalaureate Address—The Reverend John Walker Powell

June 13† Alburey Castell—"You Can't Argue That Way"

Alburey Castell, now assistant professor in the Department of Philosophy at the University of Minnesota, has been with this institution for nine years. He is a graduate of the University of Toronto, Canada, and of the University of Chicago. Mr. Castell teaches courses in logic, and is the author of *College Logic*. The subject for this broadcast is especially pertinent in view of the propaganda to which we are exposed in this day of international conflict and national stress.

Interviews of Convocation Speakers

A series of interviews to supplement the convocation program is being arranged for 3:15 Thursday afternoons. Whenever possible, speakers will be interviewed over WLB the afternoon of the day they appear at convocation.

Afternoon Lectures

In addition to the Thursday morning convocations, the University also presents, at irregular intervals, afternoon lectures, which are usually scheduled at 3:30. Whenever possible WLB broadcasts these talks. Outstanding among these will be a series of six lectures by James Westfall Thompson, professor of history at the University of California. Professor Thompson is one of the most distinguished American historians. Among his publications are the following: *The Wars of Religion in France*, *The Economic and Social History of the Middle Ages*, and *The Living Past*. His six lectures are scheduled for 3:30 on the dates listed below:

April 5—Charlemagne and Italian Culture

April 8—The Cultural Relations between Italy and Germany

April 10—The Cultural Relations between Italy and France

April 12—The Cultural Relations between France and Germany

April 15—The Cultural Relations between France and England

April 17—The Cultural Relations of England with Germany and Italy

Macalester College Convocations

April—Wednesday, 1:30-2:00 p.m.

May—Friday, 7:00-7:30 p.m.

WLB's listeners are now offered an opportunity to hear some of the speakers and performers appearing at the convocations held at Macalester College, in St. Paul. Schedule conflicts make it impossible to broadcast these events as they occur, so that they will either be repeated for the radio audience or presented through transcription.

April 3 Raymond Jameson—"The Borderland of Literature"

Raymond Jameson is consultant in comparative literature at the Library of Congress in Washington, D.C. Under the auspices of the Association of American Colleges, he is spending a week as visiting lecturer at Macalester College.

April 10 B. Lamar Johnson—"The Use of Books"

Mr. Johnson, who holds three degrees from the University of Minnesota, is now dean and librarian at Stephens College at Columbia, Missouri. His publications include *Vitalizing a College Library*.

April 17 Clarence E. Ficken—"When Is Education Liberal?"

Clarence E. Ficken received his graduate degrees from Northwestern University and the University of Wisconsin. He has been the head of the French Department at Macalester College since 1924, and college dean since 1937. He has contributed articles to *School and Society* and *Modern Language Journal*.

April 24 Oswald Garrison Villard—"Our Endangered Liberties"

Mr. Villard will give a convocation talk at Macalester College, as well as at the University of Minnesota. These appearances bring to the radio audience the opinions of this outstanding liberal on two vital problems.

† No convocation on this date; talk given in WLB studios for radio audience only.

‡ Sunday, 11:00 a.m.

May 3 Charles J. Turck—"The Unending Quest"

Charles J. Turck's experiences range from the practice of law to membership on the Board of Christian Education of the Presbyterian Church. Since completing his law course at Columbia University, he taught law at Tulane and Vanderbilt universities, was dean of the University of Kentucky Law School for three years, and president of Centre College at Danville, Kentucky, for nine years. Before coming to Macalester College he was director of the Department of Social Education and Action of the Board of Christian Education of the Presbyterian Church.

May 10 Subject to be announced

May 17 Gabriel Fenyves—Piano Recital

Gabriel Fenyves is well established in the Twin Cities as a pianist, conductor, and teacher. A native of Hungary, Mr. Fenyves toured extensively with Eugene Ormandy—when Ormandy was a promising young violinist—and also with Gregor Piatigorsky, world famous Russian cellist.

May 24 Kirby Page—"Youth in an Age of Social Convulsion"

Kirby Page is a graduate of Drake University and the University of Chicago. He has been active in YMCA work, and is the author of many books and articles.

May 31 Clementine Gifford—Song Recital

Clementine Gifford, during the three or four years she has been in the Twin Cities, has made many church appearances in both Minneapolis and St. Paul, and has appeared with the St. Paul Civic Opera.

Great American Books. LeRoy Arnold, Conductor

Monday, 5:45-6:00 p.m.

LeRoy Arnold, professor of English literature at Hamline University in St. Paul, Minnesota, who is well known for his book talks, will present a series of programs during which he will discuss some outstanding works by six famous American writers.

- | | | | |
|----------|---|----------|--|
| April 8 | <i>Journal</i> , by John Woolman | April 29 | <i>The Cream of the Jest</i> ,
by James Branch Cabell |
| April 15 | <i>Leaves of Grass</i> , by Walt
Whitman | May 6 | The Poems of Emerson |
| April 22 | <i>Walden</i> , by Henry Thoreau | May 13 | <i>The Education of Henry Adams</i> |

BROADCASTS FROM THE CLASSROOM

Principles of Economics. Arthur W. Marget, Lecturer

Tuesday, 11:30 a.m.-12:15 p.m.

During April, May, and June, WLB will continue to broadcast from the classroom of Arthur W. Marget. These lectures are a continuation of those heard during the first three months of the year.

- | | | | |
|----------|--|----------|--------------------------------------|
| April 2 | The Historical Background of
the Federal Reserve System | April 30 | Midquarter examination—no
lecture |
| April 9 | The Monetary Situation in the
United States, I | May 7 | The Single Tax |
| April 16 | The Monetary Situation in the
United States, II | May 14 | The Economics of Communism, I |
| April 23 | Some Thoughts on Collectivism | May 21 | The Economics of Communism, II |
| | | May 28 | The Economics of Fascism, I |
| | | June 4 | The Economics of Fascism, II |

Professor Marget studied at the Universities of Harvard, London, Cambridge, and Berlin. He has been a visiting lecturer at the University of London, at Bocconi University, and at the University of California. He has been a member of the University of Minnesota faculty since 1927.

Europe in the Twentieth Century. Harold C. Deutsch, Lecturer

Monday, Wednesday, and Friday, 8:30-9:15 a.m.

These broadcasts supply authentic information about events in Europe today. The lectures in April, May, and June will take up the final campaigns of the World War, the much discussed Versailles Treaty, the new governments in Europe, the rise of communism and fascism, and the international aspects of the economic breakdown of 1929. The course concludes with an analysis of the origins of the present war.

Harold C. Deutsch, the lecturer, has been associate professor of history at the University of Minnesota since 1929. He studied at the Universities of Wisconsin, Harvard, Paris, Vienna, and Berlin. In the last decade he spent two and a half years in Europe, studying and observing events in France, Austria, and Germany, and interviewing many of the surviving leaders of the World War and peace conference periods.

Mr. Deutsch is the author of *The Genesis of Napoleonic Imperialism*, and he contributed the chapters on Nazi Germany to *Dictatorship in the Modern World*, edited by President Guy Stanton Ford of the University of Minnesota.

American Government and Politics. Asher N. Christensen, Lecturer Monday, Wednesday, and Friday, 11:30 a.m.-12:15 p.m.

The first sections of this course were an analysis of American government—national, state, and local. During April, May, and June, Mr. Christensen will discuss government finance, national defense, foreign relations, education, and public health. Welfare functions will also be examined, with emphasis on such current problems as relief and social security legislation. Finally, the relationships of government to business, labor, and agriculture will be discussed.

Asher N. Christensen, assistant professor of political science at the University of Minnesota, is a graduate of this institution. He has also studied at the University of Chicago, and the University of Madrid in Spain. He attended the latter university while holding a Carnegie Traveling Fellowship in International Law. He was assistant registrar at the University of Minnesota from 1925 to 1930 and a member of the Political Science Department at the University of Chicago in 1933 and 1934. Mr. Christensen has been in the Department of Political Science at the University of Minnesota since 1934. He has been heard over WLB regularly since May, 1938.

WLB RADIO FORUM Monday, 7:00-7:30 p.m.

Beginning May 6, WLB will present on successive Monday evenings a radio forum devoted to the discussion of important problems confronting Minnesota and the Northwest. Two speakers, of divergent opinions, and a faculty expert will appear on each program. These broadcasts are under the direction of Charles T. Harrell, program director in charge of production at WLB.

MINNESOTA STATE MEDICAL AND DENTAL ASSOCIATIONS PROGRAM

Health Talks. Dr. William A. O'Brien, Speaker Saturday, 11:00-11:15 a.m.

Dr. O'Brien, associate professor of pathology and preventive medicine in the University of Minnesota, has chosen the following topics for the next three months.

April 6	Tumors of the Stomach	May 25	Diseases of the Teeth
April 13	Tumors of the Bowels	June 1	What Is Diabetes?
April 20	Early Diagnosis of Tuberculosis	June 8	Management of Diabetes in Children
April 27	Tumors of the Mouth	June 15	Management of Diabetes in Adults
May 4	Functional Disorders of the Feet	June 22	The Outlook in Diabetes
May 11	Common Disease of the Feet	June 29	Stomatitis
May 18	Care of the Feet		

NEWS BROADCASTS

A news program based on the latest United Press dispatches is presented each day over WLB at 12:15 p.m., and on Monday, Wednesday, and Friday, at 4:45 p.m. This Newscast provides an authoritative and unbiased account of the swiftly moving panorama of world events. These broadcasts are made possible through the co-operation of the university student newspaper, the *Minnesota Daily*.

In addition to the Newcasts, WLB presents the Background of the News, at 3:15 p.m. Monday through Friday. This feature is designed to furnish a background of information to supplement other news broadcasts. Use is made of the extensive facilities of the University of Minnesota Library, particularly of the periodical division, in selecting articles written by prominent statesmen, historians, economists, and journalists.

PLAYS AND NOVELS

WLB Playhouse

April—Tuesday, 2:30-3:15 p.m.
May and June—Wednesday, 7:00-7:30 p.m.

The WLB Playhouse brings to the air significant dramatic material of many types. The programs during April, May, and June will range from radio adaptations of the classics to experimental dramas written expressly for broadcasting. The programs are

given by university students under the direction of Reid Erekson, program director in charge of dramatics, at WLB.

April 2	Elizabeth Inchbald	<i>Every One Has His Fault</i>
April 9	William Shakespeare	<i>Romeo and Juliet</i>
April 16	Ludvig Holberg	<i>Eramus Montanus</i>
April 23	Bulwer-Lytton	<i>Darnley</i>
May 8	Archibald MacLeish	<i>Air Raid</i>
May 15	To be announced	
May 22	John Salisbury	<i>Aaron Burr</i>
May 29	To be announced	
June 5	Edmond Rostand	<i>L'Aiglon</i>
June 12	Friedrich Schiller	<i>William Tell</i>
June 19	Henrik Ibsen	<i>Peer Gynt—Part I</i>
June 26	Henrik Ibsen	<i>Peer Gynt—Part II</i>

The Afternoon Novel

Monday, Wednesday, Friday, 4:00-4:30 p.m.

This program presents readings from contemporary literature. During April, Charles T. Harrell of the WLB staff will read *Zuleika Dobson*, by Max Beerbohm, and in May and June, *Rebecca*, by Daphné du Maurier.

PROGRAMS FOR THE HOMEMAKER

A Lady's Leisure

Tuesday, 10:45-11:00 a.m.

A Lady's Leisure is devoted to a critical discussion of contemporary fiction, and reviews of motion pictures and theater entertainment.

Institute of Child Welfare

Wednesday, 10:45-11:00 a.m.

The adventures of the Lively Family are presented by the Institute of Child Welfare at the University of Minnesota. Mrs. Marion L. Faegre and Mrs. Pearl T. Cummings, of the Child Welfare Institute staff, will alternate as speakers.

April 3	Toilet Training Troubles	Marion L. Faegre
April 10	Overhelpful Betty Jane	Pearl T. Cummings
April 17	A Birthday	Marion L. Faegre
April 24	Holly Is Frightened by a Dog	Pearl T. Cummings
May 1	Rose Isn't Grown Up	Marion L. Faegre
May 8	Spring Cleaning	Pearl T. Cummings
May 15	Too Much Competition	Marion L. Faegre
May 22	Should Mickey Help Dress Himself?	Pearl T. Cummings
May 29	Back to the Nap Habit	Marion L. Faegre
June 5	Vacationing at Home	Pearl T. Cummings
June 12	Mickey Can Carry a Tune	Marion L. Faegre

Neighbors' Broadcast

Friday, 10:45-11:00 a.m.

The informal and friendly "lady next door" stops in each Friday with hints on home-making and suggestions for better family living. During April, May, and June the programs will take up the problems of homemakers during the spring and early summer.

Story Book Time

Monday, Wednesday, Friday, 5:30-5:45 p.m.

The attention of mothers is called to Story Book Time, which presents stories and dramatizations for children. The stories, heard on Mondays and Fridays, are selected by the narrator, Marion Latta, with the assistance of experts from the Child Welfare Institute of the University. The dramatizations, broadcast on Wednesdays, are directed by Nan Scallon of the WLB staff.

PROGRAMS FROM THE UNIVERSITY FARM CAMPUS

University Farm Hour

Monday, Wednesday, Friday, 12:30-1:00 p.m.

The Agricultural Extension Service of the University of Minnesota offers this broadcast as an educational and service feature for Minnesota farms and homes. In addition to weather information, state and national agricultural news, and farm high-

lights, the program brings practical talks on the newest and the best practices in farm and homemaking. Music for these programs is provided by the thirty-piece Minnesota Symphonic Band and the fifty-piece Minnesota Symphony Orchestra. These broadcasts are produced by Richard Hull, farm radio editor.

Up with the Sun Monday and Friday, 7:15-7:30 a.m.

This quarter hour of fellowship and song is arranged by J. O. Christianson, supervisor of the School of Agriculture. Those taking part include students of the school faculty members, and occasional guests. During the spring and summer, timely news topics reported by school field men will be featured.

Mid-Morning Markets Monday through Friday, 10:30-10:45 a.m.

The mid-morning turn of the markets! The radio section of the Agricultural Extension Service brings northwest listeners a daily review of market trends affecting buyers and sellers. Complete with a northwest weather résumé, the broadcast offers grain information from Winnipeg, Minneapolis, and Chicago; significant stock quotations from New York; lists the latest Dow-Jones industrial, utility, and rail averages; presents complete details on livestock markets at Chicago and South St. Paul. From time to time University of Minnesota marketing men present interpretative material on market trends.

Market Finale Monday through Friday, 2:25 p.m.; Saturday, 12:25 p.m.

Co-operating with the Minneapolis Chamber of Commerce, the Agricultural Extension Service at University Farm presents a five-minute résumé of closing grain market trends and quotations, including closing quotations on Milwaukee barley. Minnesota elevator operators will find this feature of special use.

MINNESOTA SCHOOL OF THE AIR

Altho these programs are intended primarily for classrooms, they are followed by many adult listeners who find them profitable and enjoyable. The programs are outlined in detail in the Minnesota School of the Air Bulletin, which will be mailed free on request. During the first semester this year, the programs were heard by forty thousand students each week. For the convenience of schools, the Minnesota School of the Air is organized on a semester basis. The second semester began February 5 and will conclude May 24. Listed below are the broadcasts for April and May. These programs are under the general direction of E. W. Ziebarth, director of the Minnesota School of the Air.

Countries and Cities Around the World Monday, 11:05-11:20 a.m.

Junior and Senior High School

April 1 Venezuela	April 29 Haiti
April 8 Caracas	May 6 Mexico City
April 15 Santiago	May 13 West Indies
April 22 Bolivia	May 20 Jamaica

Vocational Orientation—Choice of Occupation Monday, 1:30-2:20 p.m.

Senior High School and Junior College

This is the lecture section of a course offered by the General College of the University of Minnesota. The speakers are outstanding personalities in the occupational field which are discussed.

April 1 Introduction—Milton Hahn, instructor in vocational orientation, General College	}	Speakers to be selected
April 8 What College?		
April 15 Success in College		
April 22 Matching Human Patterns to Job Patterns		
April 29 Problems in Finding a Vocational Choice		
May 6 Costs of Failure in Your Chosen Field		
May 13 Human Abilities and Job Classification		
May 20 Making Sure of Your Choice		

WLB SCHEDULE FOR APRIL,

760 kilocycles

MONDAY	TUESDAY	WEDNESDAY
7:00 The Weathervane	Assigned to WCAL	The Weathervane
7:15 Up With the Sun		Up With the Sun
7:30 Bulletin Board: Music, time signals, weather		Bulletin Board: Music, time signals, weather
8:30 20th Century Europe class lecture		20th Century Europe class lecture
9:15 TB Association		Music
9:30 to 10:30—Assigned to WCAL, the St. Olaf Station in Northfield, which shares		
10:30 Market News and Information—Monday through Friday		
10:45 Walther Pfitzner, Pianist	Lady's Leisure	Child Welfare
Minnesota School of the Air.		
11:05 Travel Talk	Current Events	Children's Story
11:30 Political Science class lecture	Principles of Economics class lecture	Political Science class lecture
12:15 World News of importance—Monday through Saturday—United Press dispatches		
12:30 Farm Hour		Farm Hour
1:00 Minnesota Symphonic Band	12:30 to 1:30 Assigned to WCAL	Music for Young Listeners (NBC) Echoes of History (NBC)
1:30 Vocational Orientation	Science News	Macalester Convocation*
Minnesota School of the Air.		
2:05	Art for You	French and German
2:30 Afternoon Concert	WLB Playhouse*	Afternoon Concert
3:15 Background of the News—Monday through Friday		
3:30 University Lectures or Music	Assigned to WCAL	University Lectures or Music
4:00 Afternoon Novel		Afternoon Novel
4:15		Band Clinic
4:30 Music Department		
4:45 UP News		UP News
5:00 University Concert Band		Minnesota Symphonic Band
5:30 Story Book Time		Story Book Time
5:45 Talk		Talk
6:00 Minnesota Symphony Orchestra		Dinner Hour Concert
7:00 WLB Forum**		WLB Playhouse**
7:30 Music***		Music***

* April only.

** Beginning in May.

*** Beginning in June.

MAY, AND JUNE, 1940

5000 watts

THURSDAY	FRIDAY	SATURDAY
Assigned to WCAL	The Weathervane Up With the Sun Bulletin Board: Music, time signals, weather 20th Century Europe class lecture U. S. Government Reports	Assigned to WCAL
time with WLB		Music
Familiar Music	Neighbors' Broadcast	
Monday through Friday		
Music Appreciation	Vocational Guidance	Dr. O'Brien Art Gallery
University Convocation	Political Science class lecture	Recorded Concert
12:30 to 1:30 Assigned to WCAL	Farm Hour Damrosch Music Apprecia- tion Hour (NBC)	12:30 to 1:30 Assigned to WCAL
Art Gallery		
Monday through Friday		
Representative Authors	Current Events	
Afternoon Concert	Afternoon Concert	
Assigned to WCAL	University Lectures or Music Afternoon Novel TB Association UP News Organ Recital Story Book Time Talk Minnesota Symphony Orchestra Macalester Convocation** Walther Pfitzner, Pianist***	

WLB is required by the Federal Communications Commission to sign off at sunset. For this reason the service of the station is curtailed especially during those portions of the year when the days are short. The sign-off varies from 4:30 in December to 8:00 in June and July. During the months covered by this schedule the sign-off times are as follows: April, 7:00; May, 7:30; June, 8:00.

Current Events

Tuesday, 11:05-11:20 a.m.; Friday, 2:05-2:20 p.m.

Grades Six to Eight

During the first semester, the Minnesota School of the Air included a program on current events for younger listeners. The popularity of this course convinced the directors of the School of the Air that an additional program should be offered for the convenience of classes which could not hear the Friday afternoon broadcast. Altho this series is designed for young students, many adult listeners follow the broadcasts regularly.

Art for You

Tuesday, 2:05-2:20 p.m.

Junior and Senior High School

This program, presented by Clifton A. Gayne, Jr., instructor in art education at the University of Minnesota, is planned to help listeners increase their appreciation of the ways in which art may aid our citizens to live richly and vigorously.

April 2	Art and Printing	April 30	Contemporary Sculpture
April 9	Minnesota Painters	May 7	The Architecture of Our Time
April 16	American Painters Today	May 14	Are Motion Pictures Art?
April 23	Foreign Painters of Importance	May 21	Request Program

Old Tales and New from Many Lands

Wednesday, 11:05-11:20 a.m.

Primary Grades

This program is designed for pupils in the primary grades. The stories have been chosen by Marion Latta, the narrator, and approved by Neith E. Headley, head kindergarten teacher and instructor in the Institute of Child Welfare, University of Minnesota. (The programs marked with an asterisk (*) will be presented in dramatic form.)

April 3	* <i>Little Black Sambo</i>	May 1	* <i>Singing Fever</i>
April 10	<i>Crunch, the Squirrel</i>	May 8	Story Poems
April 17	* <i>Peter Rabbit Decides To Change His Name</i>	May 15	* <i>The Little Engine That Could</i>
April 24	<i>Alexander, the Gander</i>	May 22	<i>Mrs. Mallaby's Birthday</i>

German and French

Wednesday, 2:05-2:20 p.m.

High School and College

Class work in German and French is supplemented by these stimulating broadcasts. The home listener who is interested in learning more about these languages will find these programs exceptionally valuable, since they afford examples of good pronunciation and usage. These programs are approved by the American Association of the Teachers of French and the Department of German of the University of Minnesota. Texts of the material used are available at fifteen cents per set for either series.

April 3	German:	German Folk Music
April 10	French:	Dondo (15th century), <i>La Farce de Maître Pierre Pathelin</i> (play)
April 17	German:	Thoma, <i>Die kleinen Verwandten</i> (play)
April 24	French:	Duvernois, <i>La Dame de Bronze et le Monsieur de Cristal</i> (play)
May 1	German:	Humperdinck, <i>Hansel und Gretel</i> (opera)
May 8	French:	Hugo, <i>Les Misérables</i> (dramatized reading)
May 15	German:	Poems and Ballads (reading)
May 22	French:	Folk Songs

Band Clinic

Wednesday, 4:15-4:45 p.m.

All School Bands

This program, offered in co-operation with the Minnesota Music Project of the Works Projects Administration, is intended for school bands. The broadcasts consist of performances by the Minnesota Symphonic Band of the compositions being rehearsed and performed by school bands of all classes. A complete list of the compositions played and discussed is given in the Minnesota School of the Air Bulletin, which is available for free distribution. This program is prepared and presented by Leland B. Sateren.

Music Appreciation

Thursday, 11:00-11:30 a.m.

Junior and Senior High School

The Music Appreciation programs, now in their ninth consecutive year, are the oldest educational feature originated by any Minnesota radio station. These broadcasts are prepared and presented by Burton Paulu.

Music for Keyboard Instruments

- March 28 Listening to Organ Music
April 4 The Piano and Its Predecessors
April 11 Piano Music of Franz Liszt
April 18 Piano Concerto by Robert Schumann

Eight Concerts: From Bach to Prokofieff

- April 25 *St. Matthew's Passion*, by Johann Sebastian Bach
May 2 *Symphony Number 8*, by Ludwig van Beethoven
May 9 *Symphonie Fantastique*, by Hector Berlioz
May 16 *Symphonie Fantastique*, by Hector Berlioz
May 23 *Concerto in A Minor*, Opus 54, by Robert Schumann
May 30 *Quartet in G Minor*, by Edvard Grieg
June 6 Recital of Songs, by Johannes Brahms
June 13 *Lieutenant Kije Suite*, by Serge Prokofieff

Representative Authors

Thursday, 2:05-2:20 p.m.

High Schools

This series consists of readings and plays chosen from the recommended and supplementary lists provided in the state course of study. (The programs marked with an asterisk (*) will be presented in dramatic form.)

- | | | |
|----------|------------------------|--|
| April 4 | Arthur Conan Doyle | <i>*The Adventure of the Speckled Band</i> |
| April 11 | O. Henry | <i>*The Third Ingredient</i> |
| April 18 | Nathaniel Hawthorne | <i>Dr. Heidegger's Experiment</i> |
| April 25 | Francis Gilchrist Wood | <i>*Turkey Red</i> |
| May 2 | Mark Twain | <i>A Dog's Tale</i> |
| May 9 | William Wymark Jacobs | <i>*A Monkey's Paw</i> |
| May 16 | Ambrose Bierce | <i>An Occurrence at Owl Creek Bridge</i> |
| May 23 | William Shakespeare | <i>*Romeo and Juliet</i> |

Guidance for the Future Worker

Friday, 11:05-11:20 a.m.

Senior High School

The parents of young people who are trying to select vocations will find these programs especially interesting. (The programs marked with an asterisk (*) will be presented in dramatic form.)

- | | | | |
|----------|------------------------------|--------|--------------------------------|
| April 5 | <i>*Selling for a Living</i> | May 3 | Civil Service |
| April 12 | Clerical Jobs | May 10 | <i>*Jobs in Aviation</i> |
| April 19 | Social Service | May 17 | Earning Your Living in English |
| April 26 | Teaching | May 24 | Request Program |

MUSICAL PROGRAMS

The principal musical programs for April, May, and June, are outlined below. For the convenience of listeners having access to the Twin City libraries, those selections for which music or scores are available in the St. Paul and Minneapolis libraries have been marked.

Minneapolis Symphony Orchestra

The Minneapolis Symphony Orchestra will conclude its broadcasts for the year with two concerts to be heard at 3:40 p.m. Thursday, April 4, and Thursday, April 18. At the second of these concerts a university student will appear as soloist with the orchestra. Both of these programs will be played by the entire orchestra of ninety members with Dimitri Mitropoulos conducting.

NBC Music Appreciation Hour

Friday, 1:00-2:00 p.m.

Some of the finest educational and public service features originated by the Blue Network of the National Broadcasting Company are being added to WLB's schedule. One of these programs is the NBC Music Appreciation Hour, conducted by Walter Damrosch. The schedule for April is outlined below:

- April 5 Drums and Cymbals, The Dances of Europe
April 12 The Symphony, Modern European Composers
April 19 Other Percussion Instruments, The Dances of America
April 26 The Symphonic Poem, Modern American Composers

**Minnesota Symphony Orchestra
Minnesota Symphonic Band
Chamber Music Concerts
Jubilee Singers**

WLB is co-operating with the Minnesota Music Project of the Work Projects Administration in presenting a series of concerts utilizing the several musical organizations maintained by the Work Projects Administration. Dr. John J. Becker, state supervisor of the Minnesota Music Project, and Burton Paulu, manager of WLB, have scheduled concerts by the fifty-piece Minnesota Symphony Orchestra, the thirty-five piece Minnesota Symphonic Band, a group of chamber music players chosen from the Minnesota Symphony Orchestra, and the Jubilee Singers. The hours for these programs are listed in the schedule at the end of this bulletin.

**Walther Pfitzner, Pianist
Monday, 10:45-11:00 a.m.**

Walther Pfitzner will continue to play over WLB, presenting representative piano works of all types. Mr. Pfitzner is a graduate of the Royal Academy of Music at Leipzig, where he studied under Alfred Reisenauer, Stefan Krehl, Georg Schumann, and Artur Nikisch. Mr. Pfitzner has been prominent as teacher and performer in the Twin Cities since his arrival here three years ago.

**Organ Recitals
Friday, 5:00-5:30 p.m.**

These organ recitals are given on the splendid concert organ in Northrop Memorial Auditorium. For more than a dozen years WLB has presented the best in organ music. This series is organized with the co-operation of the Minnesota Chapter of the American Guild of Organists. Arthur B. Jennings, organ instructor at the University of Minnesota, appears as soloist on these programs, assisted from time to time by other prominent organists from the Twin Cities.

Recorded Programs

Broadcasts of recorded music have an important place on WLB's schedule. The careful selection and use of recordings make it possible to present diversified musical programs equalled by very few radio stations in the United States.

Principal Music Programs of WLB

Monday, April 1

- 10:45 Walther Pfitzner, Pianist
- 1:00 Minnesota Symphonic Band
- 2:30 Schubert—Symphony No. 5 in B Flat
- 6:00 Minnesota Symphony Orchestra

Tuesday, April 2

- 1:45 Early Music

Wednesday, April 3

- 1:00 Music for Young Listeners (NBC)
- 2:30 Chamber Music
- 3:00 Lieder Program
- 4:15 Band Clinic
- 5:00 Minnesota Symphonic Band
- 6:00 Dinner Hour Concert

Thursday, April 4

- 11:00 Music Appreciation—The Piano and Its Predecessors
- 2:30 Symphony Preview
- 3:40 Minneapolis Symphony Student Concert

Friday, April 5

- 1:00 Damrosch Music Appreciation Hour (NBC)
- 2:30 Beethoven—*†Concerto No. 5 in E Flat ("Emperor")
- 5:00 Organ Recital
- 6:00 Minnesota Symphony Orchestra

Saturday, April 6

- 11:30 Haydn—*†Symphony No. 45 in F Sharp Minor ("Farewell"), Smetana—*Moldau

* Music in the Minneapolis Public Library. † Music in the St. Paul Public Library.

Monday, April 8

- 10:45 Walther Pfitzner, Pianist
- 1:00 Minnesota Symphonic Band
- 2:30 Brahms—*†Sextet in B Flat, Opus 18
- 6:00 Minnesota Symphony Orchestra

Tuesday, April 9

- 1:45 Early Music

Wednesday, April 10

- 1:00 Music for Young Listeners (NBC)
- 2:30 Chamber Music
- 3:00 Lieder Program
- 4:15 Band Clinic
- 5:00 Minnesota Symphonic Band
- 6:00 Dinner Hour Concert

Thursday, April 11

- 11:00 Music Appreciation—Piano Music by Franz Liszt
- 2:30 Symphony Preview

Friday, April 12

- 1:00 Damrosch Music Appreciation Hour (NBC)
- 2:30 Liszt—Todentanz, *†Faust Waltz
- 5:00 Organ Recital
- 6:00 Minnesota Symphony Orchestra

Saturday, April 13

- 11:30 Haydn—Symphony No. 67 in F Major, Strauss—*†Don Juan

Monday, April 15

- 10:45 Walther Pfitzner, Pianist
- 1:00 Minnesota Symphonic Band
- 2:30 Beethoven*†—Quartet in F Major, Opus 59, No. 3 ("Rasoumowsky"),
*Thirty-two Variations in C Minor
- 6:00 Minnesota Symphony Orchestra

Tuesday, April 16

- 1:45 Early Music

Wednesday, April 17

- 1:00 Music for Young Listeners (NBC)
- 2:30 Chamber Music
- 3:00 Lieder Program
- 4:15 Band Clinic
- 5:00 Minnesota Symphonic Band
- 6:00 Dinner Hour Concert

Thursday, April 18

- 11:00 Music Appreciation—*†Piano Concerto, by Schumann
- 2:30 Chopin—*†Polonaise in C Sharp Minor, Opus 26, No. 1, Debussy—
*†Preludes (Book II)
- 3:40 Minneapolis Symphony Student Concert

Friday, April 19

- 1:00 Damrosch Music Appreciation Hour (NBC)
- 2:30 Schumann—*†Concerto in A Minor, Opus 54, Brahms—*†Tragic Overture
- 5:00 Organ Recital
- 6:00 Minnesota Symphony Orchestra

Saturday, April 20

- 11:30 Bach—*Suite No. 2 in B Minor, Haydn—Symphony No. 80 in D Minor

Monday, April 22

- 10:45 Walter Pfitzner, Pianist
- 1:00 Minnesota Symphonic Band
- 2:30 Palestrina and Vittoria—Choral Music
- 5:00 University Concert Band
- 6:00 Minnesota Symphony Orchestra

Tuesday, April 23

- 1:45 Early Music

Wednesday, April 24

- 1:00 Music for Young Listeners (NBC)
- 2:30 Chamber Music
- 3:00 Lieder Music
- 4:15 Band Clinic
- 5:00 Minnesota Symphonic Band
- 6:00 Dinner Hour Concert

* Music in the Minneapolis Public Library. † Music in the St. Paul Public Library.

Thursday, April 25

- 11:00 Music Appreciation—*†St. Matthew's Passion, by Johann Sebastian Bach
2:30 Smetana—Bohemia's Forests and Meadows, Sibelius—*Symphony No. 5 in E Flat

Friday, April 26

- 1:00 Damrosch Music Appreciation Hour (NBC)
2:30 Schubert—*†Maid of the Mill Song Cycle
5:00 Organ Recital
6:00 Minnesota Symphony Orchestra

Saturday, April 27

- 11:30 J. Strauss—Le Beau Danube Ballet, Delius—*In a Summer Garden

Monday, April 29

- 10:45 Walther Pfitzner, Pianist
1:00 Minnesota Symphonic Band
2:30 Mozart—*†Concertante Sinfonie, K 364
Beethoven—Eleven Viennese Dances
5:00 University Concert Band
6:00 Minnesota Symphony Orchestra

Tuesday, April 30

- 1:45 Early Music

Wednesday, May 1

- 2:30 Chamber Music
3:00 Lieder Program
4:15 Band Clinic
5:00 Minnesota Symphonic Band
6:00 Dinner Hour Concert

Thursday, May 2

- 11:00 Music Appreciation—*†Symphony No. 8, by Beethoven
2:30 Tschaiakowsky—*†Symphony No. 4 in F Minor

Friday, May 3

- 2:30 Beethoven—*†Symphony No. 8 in F Major
5:00 Organ Recital
6:00 Minnesota Symphony Orchestra

Saturday, May 4

- 11:30 Schubert—*†Symphony No. 8 in B Minor ("Unfinished"), Liszt—Fantasia on Beethoven's "Ruins of Athens"

Monday, May 6

- 10:45 Walther Pfitzner, Pianist
1:00 Minnesota Symphonic Band
2:30 Brahms—*†Sonata No. 2 in F for Cello, Opus 99, *†Waltzes, Opus 39
5:00 University Concert Band
6:00 Minnesota Symphony Orchestra

Tuesday, May 7

- 1:45 Early Music
2:30 Williams—Symphony in F Minor

Wednesday, May 8

- 2:30 Chamber Music
3:00 Lieder Program
4:15 Band Clinic
5:00 Minnesota Symphonic Band
6:00 Dinner Hour Concert

Thursday, May 9

- 11:00 Music Appreciation—*†Symphonie Fantastique, by Berlioz
2:30 Beethoven—*†Symphony No. 5 in C Minor

Friday, May 10

- 2:30 Vivaldi—Concerto in G Minor, K. P. E. Bach—Concerto in D Major
J. S. Bach—Es ist Vollbracht, from St. John's Passion
5:00 Organ Recital
6:00 Minnesota Symphony Orchestra

Saturday, May 11

- 11:30 R. Strauss—*† Tod und Verklärung, Lieder: *†Geduld, *†Heimliche Auf-
forderung, *†Nachtgang

* Music in the Minneapolis Public Library. † Music in the St. Paul Public Library.

Monday, May 13

- 10:45 Walther Pfitzner, Pianist
- 1:00 Minnesota Symphonic Band
- 2:30 Schumann—*†Kreisleriana, Brahms—*†Academic Festival Overture
- 5:00 University Concert Band
- 6:00 Minnesota Symphony Orchestra

Tuesday, May 14

- 1:45 Early Music
- 2:30 Brahms—*†Quartet in C Minor, Opus 51, No. 1

Wednesday, May 15

- 2:30 Chamber Music
- 3:00 Lieder Program
- 4:15 Band Clinic
- 5:00 Minnesota Symphonic Band
- 6:00 Dinner Hour Concert

Thursday, May 16

- 11:00 Music Appreciation—Symphonie Fantastique, by Berlioz
- 2:30 Corelli—*Concerto Grosso in G Minor ("Christmas Concerts")
Delius—Sea Drift

Friday, May 17

- 2:30 Berlioz—*†Symphonie Fantastique
- 5:00 Organ Recital
- 6:00 Minnesota Symphony Orchestra

Saturday, May 18

- 11:30 Brahms—*†Symphony No. 4 in E Minor

Monday, May 20

- 10:45 Walther Pfitzner, Pianist
- 1:00 Minnesota Symphonic Band
- 2:30 Beethoven—*†Quartet in F Major, Opus 18, No. 1, Consecration of the House Overture
- 5:00 University Concert Band
- 6:00 Minnesota Symphony Orchestra

Tuesday, May 21

- 1:45 Early Music
- 2:30 Schumann—*†Dichterliebe Cycle
Schubert—*†Impromptus, Opus 90, No. 4, Opus 142, No. 2

Wednesday, May 22

- 2:30 Chamber Music
- 3:00 Lieder Program
- 4:15 Band Clinic
- 5:00 Minnesota Symphonic Band
- 6:00 Dinner Hour Concert

Thursday, May 23

- 11:00 Music Appreciation—*†Concerto in A Minor, Opus 54, by Schumann
- 2:30 Mendelssohn—*Symphony No. 4 in A ("Italian"), *Midsummer Night's Dream Overture

Friday, May 24

- 2:30 Schumann—*†Concerto in A Minor, Opus 54, Liszt—*Hungarian Fantasia
- 5:00 Organ Recital
- 6:00 Minnesota Symphony Orchestra

Saturday, May 25

- 11:30 Mozart—*†Symphony No. 40 in G Minor, Respighi—*Pines of Rome

Monday, May 27

- 10:45 Walther Pfitzner, Pianist
- 1:00 Minnesota Symphonic Band
- 2:30 Wagner—*†Die Walküre Excerpts
- 5:00 University Concert Band
- 6:00 Minnesota Symphony Orchestra

Tuesday, May 28

- 1:45 Early Music
- 2:30 Schumann—*†Carnaval Suite, Enesco—*Roumanian Rhapsody No. 1

* Music in the Minneapolis Public Library. † Music in the St. Paul Public Library.

Wednesday, May 29

- 2:30 Chamber Music
- 3:00 Lieder Program
- 5:00 Minnesota Symphonic Band
- 6:00 Dinner Hour Concert

Thursday, May 30

- 11:00 Music Appreciation—*Quartet in G Minor, by Grieg
- 2:30 Grieg—*Quartet in G Minor, Opus 27
MacDowell—*†Dirge (from "Indian Suite")

Friday, May 31

- 2:30 Bach—*†Sonata in A Minor for violin unaccompanied, *Brandenburg Concerto in F, No. 2
- 5:00 Organ Recital
- 6:00 Minnesota Symphony Orchestra

Saturday, June 1

- 11:30 Beethoven—*†Egmont Overture, *†Symphony No. 1 in C Major, Opus 21

Monday, June 3

- 10:45 Walther Pfitzner, Pianist
- 1:00 Minnesota Symphonic Band
- 2:30 Schubert—*†Quintet in C Major, Opus 163
- 6:00 Minnesota Symphony Orchestra

Tuesday, June 4

- 1:45 Early Music
- 2:30 Verdi Concert: *†Aida—Grand March, Celeste Aida, Ritorna Vincitor, Ballet Suite
*†Forza del Destino—Pace, Pace
*†Rigoletto—Caro Nome, Donna é Mobile

Wednesday, June 5

- 2:30 Chamber Music
- 3:00 Lieder Program
- 5:00 Minnesota Symphonic Band
- 6:00 Dinner Hour Concert

Thursday, June 6

- 11:00 Music Appreciation—Recital of Songs by Brahms
- 2:30 Beethoven—*†Symphony No. 3 in E Flat ("Eroica")

Friday, June 7

- 2:30 Schumann—*Sonata in A Minor, Opus 105, for violin and piano
Mozart—*Concerto in D Major, K 218, for violin and orchestra
- 5:00 Organ Recital
- 6:00 Minnesota Symphony Orchestra

Saturday, June 8

- 11:30 Dvorak—*Quartet in A Flat Major, Opus 105, Offenbach—Gaité Parisienne

Monday, June 10

- 10:45 Walther Pfitzner, Pianist
- 1:00 Minnesota Symphonic Band
- 2:30 Famous Operatic Arias
- 6:00 Minnesota Symphony Orchestra

Tuesday, June 11

- 1:45 Early Music
- 2:30 Schubert—*Symphony No. 9 in C Major

Wednesday, June 12

- 2:30 Chamber Music
- 3:00 Lieder Program
- 5:00 Minnesota Symphonic Band
- 6:00 Dinner Hour Concert

Thursday, June 13

- 11:00 Music Appreciation—Lieutenant Kije Suite, by Prokofieff
- 2:30 Tschaiakowsky—*Trio in A Minor, Opus 50

Friday, June 14

- 2:30 Prokofieff—Lieutenant Kije Suite, Copeland—El Salon Mexico
- 5:00 Organ Recital
- 6:00 Minnesota Symphony Orchestra

Saturday, June 15

- 11:30 Schumann—Concerto in A Minor, Opus 129, for cello and orchestra,
Brahms—*†Variations on a Theme by Haydn, Opus 56a

* Music in the Minneapolis Public Library. † Music in the St. Paul Public Library.

BULLETIN OF
UNIVERSITY OF MINNESOTA

COLLEGE OF EDUCATION

Announcement of Courses
in
Elementary Education

SUMMER SESSION 1940

First Term—June 17 to July 26

Second Term—July 29 to August 30



Burton Hall

Vol. XLIII

No. 26

April 3 1940

Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota. Accepted for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized July 12, 1918

**COURSES IN ELEMENTARY EDUCATION
FOR
TEACHERS, PRINCIPALS, SUPERVISORS,
AND SUPERINTENDENTS**

SUMMER SESSION, 1940

During both quarters of the 1940 Summer Session the University of Minnesota will offer a wide variety of courses in various aspects of elementary education designed to meet the needs of teachers—urban and rural—principals, supervisors, and superintendents. The courses will deal with organization and administration of elementary schools, the changing curriculum, methods of teaching in the major areas of the curriculum, the psychology of learning, measurement of the educational product, the diagnosis and treatment of learning difficulties, and the supervision and improvement of instruction. A special feature of the Summer Session is to be a workshop course for rural and other elementary school teachers, offered by the University of Minnesota in co-operation with the W. K. Kellogg Foundation, at the Tuttle School, the University's demonstration center.

Special provision is also being made for opportunities for systematic directed observation and discussion of modern instructional practices to be demonstrated by a group of excellent teachers who are members of the regular staff of the Tuttle School. A number of well-known specialists from other institutions of learning have been added to the faculty for the Summer Session.

LEVELS OF TRAINING

TEACHERS WITHOUT DEGREES

The education courses that are offered include many of those that are required for graduates of two-year courses in normal schools, or other teachers who wish to meet the requirements leading to the Bachelor's degree in elementary education. Such students should follow the curriculum outlined in the Bulletin of the College of Education. Teachers

who wish to renew their certificates will also find the courses in the program that are needed for renewal. Teachers who are not working for degrees but who desire to extend their professional training will find many courses that will be rich in stimulation and information.

ELEMENTARY SCHOOL PRINCIPALS, SUPERVISORS, AND TEACHER TRAINING INSTRUCTORS

To secure the certificate in supervision at the University, the Master's degree is required. During the Summer Session the basic education courses leading to this degree are offered. Ordinarily students who wish to major in elementary school administration and supervision should select a major in Curriculum and Instruction. The choice of courses may be made in conference with an adviser. It is to be remembered that at the University of Minnesota the Master's degree can be taken either with or without a thesis (Plan A or Plan B). When Plan A is chosen, it is most frequently advised that the candidate have a minor in educational psychology, or in the academic area in which he has a major interest. Under Plan B the candidate can select courses in a wide variety of areas, depending on his particular field of interest and specialization.

Students contemplating a graduate program leading to the doctorate in supervision and administration in elementary schools should address inquiries on matters not covered by this bulletin to Professors G. L. Bond or L. J. Brueckner, graduate advisers in this field.

COURSES FOR SUPERINTENDENTS

The basic courses in elementary school supervision and instruction required for the Minnesota school superintendent's certificate are offered during both terms of the Summer Session.

COURSES IN ELEMENTARY EDUCATION

Specific requests of teachers in the field have been considered in selecting the 1940 offerings. The following groupings have been made for the convenience of students wishing to know the range of courses in relation to their own interests.

DEMONSTRATION AND OBSERVATION

Many of the courses in elementary education will use the facilities of the Tuttle Demonstration Elementary School. In addition, two demonstration and observation

courses will be offered, one a full-time workshop program for nine credits, and one for two credits open to those wishing to take other courses also.

Ed.C.I.186su. Laboratory in Elementary Instructional Practices. Daily observation of elementary classes, with discussion of techniques, emphasis on activity unit, visual aids, enriched materials, individual differences, and socialized situations. Students enrolling in this course must carry at least one other course in the College of Education. (2 cred.; experienced teachers only; first term)

Ed.C.I.187su. Laboratory in Elementary Instructional Practices. A full program for six weeks, open to twenty Kellogg Foundation students and thirty additional applicants. Mornings, observation at Demonstration Elementary School; afternoons, discussion of problems of elementary teaching, emphasizing diagnostic and remedial procedures, wider use of varied materials, and socializing the learning process. Special consideration of problems of teaching in double grade situations in village and small-city schools. (9 cred.; not open to those who have received credit in Ed.C.I. 187 or 188 in previous sessions; prereq., permission of the dean of the College of Education; first term)



Demonstration Class, Tuttle Elementary Demonstration School

TEACHING PROBLEMS IN THE ELEMENTARY AND JUNIOR HIGH SCHOOLS

- | | |
|------------|--|
| ArtEd.17 | Art for Elementary Teachers. (3 cred.; first term) |
| ArtEd.18 | Art for Elementary Teachers. (3 cred.; second term) |
| ArtEd.84 | Teaching of Art in the Elementary Grades. (3 cred.; second term) |
| Mu.Ed.50A | Primary Methods in Music. (2 cred.; first term) |
| Ed.C.I.102 | Contents and Activities of the Social Studies in the Elementary Schools. (3 cred.; first term) |
| Ed.C.I.103 | Problems in the Teaching of Elementary School Science. (3 cred.; first term) |
| Ed.C.I.129 | Principles and Problems of Teaching Social Hygiene. (3 cred.; first term) |

- Ed.C.I.143 Teaching of Reading in the Elementary School. (3 cred.; first term)
- Ed.C.I.144 Teaching of Reading in the Upper Grades and Junior and Senior High Schools. (3 cred.; second term)
- Ed.C.I.145 Remedial Reading. (3 cred.; either term)
- Ed.C.I.149 The Teaching of Intermediate Grade Arithmetic. (3 cred.; first term)
- Ed.C.I.151 Diagnostic and Remedial Instruction. (3 cred.; first term)
- Ed.C.I.153 Supervision and Teaching of English in the Elementary School. (3 cred.; second term)
- Ed.C.I.181 Foundations of Elementary School Methods. (3 cred.; first term)
- Ed.C.I.263 Research in Arithmetic Instruction. (Cred. ar.; either term)
- Ed.C.I.273 Problems in Reading. (Cred. ar.; first term)

CURRICULUM PROBLEMS

- Ed.C.I.119 Elementary School Curriculum. (3 cred.; either term)
- Ed.C.I.170 Curriculum and Course of Study Construction. (3 cred.; first term)
- Ed.C.I.204 Social Studies Curriculum. (3 cred.; first term)
- Ed.C.I.271 Problems in Curriculum Construction. (Cred. ar.; second term)

ADMINISTRATION AND SUPERVISION OF ELEMENTARY INSTRUCTION

- Ed.C.I.150 Supervision and Improvement of Instruction. (3 cred.; either term)
- Ed.C.I.160 Supervision of Elementary Subjects. (3 cred.; first term)
- Ed.C.I.261 Special Problems in School Supervision: Appraising Educational Programs. (3 cred.; first term)
- Ed.Ad.115 Organization of the Elementary School. (3 cred.; either term)
- Ed.Ad.124 Public School Administration. (3 cred.; either term)

Other courses in school administration will be offered in both terms.

RURAL EDUCATION

- Ed.C.I.117 Rural School Management and Instruction. (3 cred.; first term)
- Ed.Ad.111 Rural School Administration and Supervision. (3 cred.; first term)

SPECIAL EDUCATION

- Ed.C.I.109 Advanced Course in Sight Conservation (eye hygiene and teaching problems). (9 cred.; first term)
- Ed.C.I.110 Education of Handicapped Children. (3 cred.; first term)
- Ed.Psy.183 Psychology of Gifted Children. (3 cred.; second term)
- Ind.11 Special-Class Woodwork. (3 cred.; first term)

COURSES OF GENERAL INTEREST IN THE ELEMENTARY FIELD

- Ed.61A Introduction to Elementary School Teaching. (3 cred.; either term)
- Ed.101 Historical Foundations of Modern Education. (3 cred.; second term)
- Ed.105 Visual Aids in Teaching. (3 cred.; either term)
- Ed.107 Radio in Education. (3 cred.; either term)

Ed.167	Junior High School. (3 cred.; either term)
Ed.176	Conflicting Issues in Modern Education. (3 cred.; first term)
Ed.180	Education and the Social Order. (3 cred.; first term)
Ed.C.I.122	Literature for Adolescents. (3 cred.; first term)
Ed.Psy.60	Introduction to Statistical Methods. (3 cred.; either term)
Ed.Psy.113, 114	Psychology of Elementary School Subjects. (3 cred.; either term)
Ed.Psy.120	Basic Principles of Measurement. (3 cred.; either term)
Ed.Psy.140E	Tests and Measurements for Elementary Schools. (3 cred.; first term)
Ed.Psy.141	Construction and Use of Group Aptitude Tests. (3 cred.; second term)
Ed.Psy.148	The Development of the Elementary School Child. (3 cred.; first term)
Ed.Psy.293 or 294	Psychology of Learning. (3 cred.; either term)

NURSERY SCHOOL AND KINDERGARTEN-PRIMARY TEACHING

A four-year curriculum is offered to prepare teachers for nursery school, kindergarten, and primary positions, leading to a certificate for teaching kindergarten and the first three grades in elementary schools. Graduate work also may be taken in Child Welfare. The Nursery School and Kindergarten will be in session during the first term and will be available for demonstration and observation. A wide offering in the Institute of Child Welfare in the 1940 Summer Session includes the following courses:

Ed.C.I.130	Problems of Childhood Education. (2 cred.; first term)
Ed.T.55	Principles of Early Childhood Education. (3 cred.; first term)
Ed.T.57	Plastic Materials. (3 cred.; first term)
Ed.T.58	Rhythms, Games, and Music for the Young Child. (2 cred.; first term)
Ed.T.76A,76C	Methods and Observation in the Kindergarten and Nursery School. (1 cred. each; first term)
C.W.40	Child Training. (3 cred.; first term)
C.W.80	Child Psychology. (3 cred.; second term)
C.W.82	Later Childhood and Adolescence. (3 cred.; first term)
C.W.130	Motor, Linguistic, and Intellectual Development of the Child. (3 cred.; first term)
C.W.131	Personality, Emotional, and Social Development of the Child. (3 cred.; second term)
C.W.132	The Development of the Elementary School Child. (3 cred.; first term)
C.W.140	Behavior Problems. (3 cred.; first term)
C.W.170	Parent Education. (2 cred.; first term)
C.W.270	Readings in Child Development. (Cred. ar.; either term)

SUMMER SESSION BULLETIN—FEES AND REGISTRATION

The Bulletin of the Summer Session is available on request from the registrar's office, University of Minnesota. It gives a complete schedule of the courses listed in this special announcement, with a statement of their prerequisites. In addition, elementary school teachers will find many valuable courses offered in the subject-matter fields, to supplement the work they plan to take toward the major in elementary education. Information is given in the Summer Session Bulletin, also, concerning fees and registration procedures. The full-time fee for each term is thirty dollars, plus a two-dollar deposit. The fee for four credits or less is twenty dollars, plus a two-dollar deposit. The Summer Session Bulletin gives information concerning special fees charged for some courses.

SPECIAL SUMMER SESSION FEATURES

The recreational program of the Summer Session includes informal social evenings, excursions, concerts and recitals, dramatics, newsreels, lectures, and many sports activities. The Twin Cities, with their parks, lakes, theaters, and art and music centers, offer many attractions to the Summer Session student. The Summer Session office will send an announcement concerning special features to anyone interested.

SUMMER FACULTY IN ELEMENTARY AND SPECIAL EDUCATION

ADVISERS

ELEMENTARY EDUCATION

Jean H. Alexander, M.A. (Second session, undergraduates)
Clifford P. Archer, Ph.D. (Either session, undergraduates)
Guy L. Bond, Ph.D. (Either session, undergraduates and graduates)
Leo J. Brueckner, Ph.D. (Either session, undergraduates and graduates)

NURSERY SCHOOL, KINDERGARTEN-PRIMARY EDUCATION

John E. Anderson, Ph.D. (Undergraduates and graduates)

STAFF OF THE TUTTLE DEMONSTRATION ELEMENTARY SCHOOL

W. W. Staudenmaier, M.A., Instructor and Principal
Ruby D. Dahlin, B.S., Demonstration Teacher
Ruby A. Johnson, B.S., Demonstration Teacher
Katherine M. Michaelsen, B.S., Demonstration Teacher
Florence Pederson, B.S., Demonstration Teacher
Leonard L. Persinger, Demonstration Teacher
Fay Rogers, M.A., Demonstration Teacher
Adele Solheim, B.S., Demonstration Teacher
Norma Verbeck, B.S., Demonstration Teacher

VISITING INSTRUCTORS

- Charles C. Barnes, Ph.D., Director of Social Studies, Detroit Public Schools, and Professor of Education, Wayne University
- Elden A. Bond, Ph.D., Instructor, Harvard University
- Ella C. Clark, M.A., Supervisor of Intermediate Grades, Winona State Teachers College
- Prudence Cutright, M.A., Assistant Superintendent of Schools, Minneapolis
- William Griffiths, M.A., Social Hygienist, State Board of Health, Minnesota
- Margaret C. Gustin, M.A., Rural Supervisor, State Department of Education, Connecticut
- Winifred Hathaway, M.A., Associate Director, National Society for the Prevention of Blindness
- Fred A. Miller, M.A., Director, Clear Lake Camp, Kellogg Foundation, Dowling, Michigan
- John G. Rockwell, Ph.D., Commissioner, State Department of Education, Minnesota
- Carl L. Thiele, Ph.D., Director of Exact Sciences, Detroit Public Schools, and Professor of Exact Science Teaching, Wayne University
- Fred von Borghersrode, Ph.D., Director of Research, Minnesota Education Association
- Ralph K. Watkins, Ph.D., Professor of Education, University of Missouri

Other regular staff members in the College of Education and the Institute of Child Welfare, offering courses in kindergarten, primary, and elementary education, are listed in the Summer Session Bulletin, a copy of which will be mailed on request, addressed to registrar, University of Minnesota, Minneapolis, Minnesota.

The Bulletin of the
UNIVERSITY of MINNESOTA

The Medical School Announcement
for the Years 1940-1942



Volume XLIII, Number 33

April 30, 1940

*Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota.
Accepted for mailing at special rate of postage provided for in Section 1103, Act of
October 3, 1917, authorized July 12, 1918*

THE MEDICAL SCHOOL

ADMINISTRATIVE OFFICERS

Guy Stanton Ford, Ph.D., Litt.D., LL.D., L.H.D., President
Malcolm M. Willey, Ph.D., University Dean and Assistant to the President
Harold S. Diehl, M.A., M.D., D.Sc., Dean of the Medical Sciences
C. D. Creevy, M.D., Ph.D., Assistant Dean of the Medical School
Ray M. Amberg, Ph.C., Superintendent of University Hospital
Katharine J. Densford, R.N., M.A., Director of the School of Nursing
William A. O'Brien, M.D., Director of Postgraduate Medical Education
Anne Dudley Blitz, M.A., LL.D., Dean of Women
Edward E. Nicholson, M.A., Dean of Student Affairs
Rodney M. West, B.A., Registrar

GENERAL INFORMATION

The Medical School is conducted on the four-quarter system. Freshmen are received at the opening of the fall and winter quarters. Students with advanced standing may be received at the beginning of any quarter for which they are accepted.

REQUIREMENTS FOR ADMISSION

The minimum requirements for admission to the Medical School are three full years of work in colleges approved by the Association of American Universities, and including the specific courses listed below.

A candidate's record must show a total number of honor points at least equal to the total number of credits* both in the required subjects and in all subjects taken collectively. This is equivalent to a "C" average in the usual marking systems.

Mere fulfillment of the minimum scholastic requirements does not in itself insure admission to the Medical School. See "Limitation of Registration," page 5, and "Residence," page 5.

DETAILS OF REQUIREMENTS

1. **Chemistry.**—Thirty-two credits including general inorganic chemistry, qualitative and quantitative analysis, organic and physical chemistry, with laboratory work. At Minnesota, Inorganic Chemistry 4-5 (or 1-2-3) and 11; Analytical Chemistry 7, Organic Chemistry 1-2; and Physical Chemistry 107-108 are necessary. Students are advised to take chemistry in high school.

2. **Zoology.**—Thirteen credits, including proper laboratory work. At the University of Minnesota, General Zoology, Course 1-2-3, and Introduction to Genetics and Eugenics, Course 83, are required.

3. **Physics.**—Twelve credits, covering mechanics, acoustics, heat, optics, and electricity. At the University of Minnesota, Course 4-5-6 will be accepted.

4. **Rhetoric.**—Nine credits. At the University of Minnesota this requirement is met by Composition 4-5-6 (9 credits) or by English A-B-C (15 credits). No student found deficient in the use of written or spoken English will be permitted to enter upon or to continue in the medical course.

5. **Psychology.**—Six credits of general psychology.

6. **German.**—The German requirement may be met

a. By taking at the University of Minnesota Courses 1, 2, 3 and 30-31-32.

b. By passing the examination in scientific German conducted by the Department of German. The usual requirement for admission to this examination consists of 16 semester or 24 quarter credits of college German.

7. **Preliminary tests.**—All applicants must take the Strong Vocational Interest and Sophomore Culture Tests as well as the National and Minnesota Medical Aptitude Tests before their applications will be considered.

* "Credit" means quarter credit. Three quarter credits equal two semester credits. For description of courses of study mentioned see the Bulletin of the College of Science, Literature, and the Arts of this University.

8. **A personal interview** with the Admissions Committee may be required of applicants.

9. **Health.**—In order to complete registration in the Medical School, prospective students must submit to physical examination by the Students' Health Service. Students not already immune are required during the medical course to be immunized against certain diseases.

10. **Academic degree.**—The degree of bachelor of arts or bachelor of science must be acquired by all medical students before registering for the junior year.

MODIFIED ADMISSION REQUIREMENTS

The regulations governing the quality and amount of premedical training apply without exception to those who present the minimum amount of work. For mature and superior students reasonable substitutions may be permitted. Cases will be considered individually upon petition to the Admissions Committee of the Medical School.

The total number of credits required of superior students who do their premedical work at Minnesota may, at the discretion of the Admissions Committee, be diminished under the quality credit rule of the College of Science, Literature, and the Arts. Required courses may not be omitted unless special permission is first obtained from the Admissions Committee of the Medical School.

RECOMMENDED PREMEDICAL WORK

While it is possible to secure admission to the Medical School after the minimum amount of prescribed college work has been completed, the applicant is urged to prepare himself more fully by the study of some of the following subjects.

Agricultural biochemistry, anthropology, astronomy, botany, composition, drawing, economics, English, geography, geology, history, mathematics, personal health, philosophy, physics, political science, psychology,* speech, sociology (especially Social Pathology), and zoology (Introduction to Animal Parasitology).

A list of recommended courses is available in the dean's office. Four years of premedical study are desirable; the work should be planned so as to lead to an academic degree if four years are taken. This does not mean that a mediocre student with a degree will be given preference over a superior student with three years' work.

The curriculum in liberal arts intended for those who wish to get a broader view of the fields of knowledge ("second curriculum" in the Bulletin of the College of Science, Literature, and the Arts) is recommended to premedical students who wish to secure an academic degree without majoring in a special field.

PRELIMINARY TESTS

The National Medical Aptitude Test is given in December of each year at the various universities and colleges of the country. It is best taken during the second or sophomore year in college.

The Minnesota Medical Aptitude, the Strong Vocational Interest, and the Sophomore Culture Tests must be taken at the end of the second premedical year or in the first quarter of the third year. Students at the University of Minnesota may take these tests on the campus at a time to be announced in the official bulletin. Students in other colleges and universities should communicate with the University

* Psychology Laboratory 4-5 (premedical section) and Abnormal Psychology are recommended.

Testing Bureau to make arrangements for taking these tests. Fees are payable by the applicant.

LIMITATION OF REGISTRATION

One hundred freshmen are admitted each year. Blanks for application are available at the office of the Medical School.

Applications for admission should be filed before January 2. Students who have taken their premedical work at schools other than the University of Minnesota must submit to the registrar of the University at the time application is made a transcript of the work taken thus far.

The selection of medical students will be based upon their scholastic standing in the premedical studies, upon their character as disclosed by personal interviews and recommendations, and upon their scores in the various tests mentioned above.

Selections will be made as soon as possible after January 2 and the applicants notified promptly thereafter.

Accepted applicants will receive a statement for a preliminary fee of \$10, to be applied on the tuition for the fall quarter. This must be paid within ten days and will not be returned if the student fails to matriculate.

WINTER QUARTER ADMISSIONS

Not to exceed fifteen students *may* be accepted to begin the freshman year in the winter quarter. These students must take Gross Anatomy during the following summer. They are tentatively accepted at the same time as applicants for the fall quarter. They should apply before January 2 of the academic year preceding that in which admission is sought. In the fall quarter these students register for Physiological Chemistry in the College of Science, Literature, and the Arts for credit in the Medical School. If their work is satisfactory and the premedical requirements are completed, they are admitted to the Medical School in the winter quarter. During the winter quarter they must take Comparative Anatomy as a prerequisite for Histology. Their freshman year consists of the winter and spring quarters and Summer Session. If they are successful in these quarters and pass the freshman comprehensive examinations, these students become regular sophomores the following fall.

The work of the sophomore and junior years is given in the fall, winter, and spring quarters. Senior work is given in all four quarters with three divisions of the class in continuous attendance as follows: Divisions A, B, D in the summer, Divisions A, B, C in the fall, Divisions A, C, D in the winter, and Divisions B, C, D in the spring. Division A graduates in March; the others in June.

RESIDENCE

First choice is given to native residents of Minnesota; second choice is given to residents of adjoining states which do not have medical schools; residents of states other than these will be admitted to the Medical School only under exceptional circumstances. Applicants who become residents of the state after graduating from high school will be considered with this group.

SPECIAL STUDENTS

The term "special student" is applied to a medical graduate who desires to register for a time in the Medical School but who does not wish to work toward an advanced degree.

IRREGULAR STUDENTS

The term "irregular student" indicates one who is not following the regular schedule but who is not deficient and is entitled to time credit toward a medical degree.

ADMISSION WITH ADVANCED STANDING

Honorably dismissed students of Class A medical schools may be received into advanced classes *provided vacancies exist*. Such students must present credentials covering premedical work and such parts of the medical course as they have successfully completed, and must pass the comprehensive examination of the class preceding the one which they desire to enter. These examinations are given at the University in June and September.

As an alternative to the comprehensive examination candidates for admission to the junior class may, in special cases previously approved by the Admissions Committee, present evidence of having passed Part I of the National Board of Medical Examiners.

FEES

The quarterly fee for the medical course is \$75 for residents of Minnesota and \$125 for nonresidents, payable at the beginning of each quarter. No fee is charged in the Medical School for the final hospital or advanced laboratory (fifth) year. The registrar of the University determines the status of applicants as to residence.

Applicants who are not legal residents of Minnesota must pay an application fee of \$5 at the time of application. This will be credited to the tuition for the first quarter in the case of successful applicants, but will not be refunded to those whose applications are rejected.

In addition to tuition, each student is charged an incidental fee of \$8.50 each quarter. Laboratory fees may be instituted or modified at any time by action of the Board of Regents.

A matriculation deposit of \$10 is required, payable with the tuition of the first quarter in residence, as a guarantee for the return and protection of university materials and equipment, the balance to be refunded automatically upon the student's withdrawal, failure to return for any succeeding quarter, or graduation.

Students who take less than the regular course of study may arrange their fees at the rate of \$3.25 (nonresidents \$5.75) for each weekly clock hour per quarter.

Repetition of a course requires the payment of additional fees.

A graduation fee of \$7.50 is charged for each degree conferred.

Privilege fees.—The fee for the privilege of late registration or late payment of fees is \$2 through the third day of classes. On the fourth day the fee is \$2.50 and then increases 50 cents per day to a maximum of \$5.

A fee of \$5 is charged for repetition of a comprehensive examination.

For more detailed information concerning the cost of attending the Medical School, see the Bulletin of General Information of the University of Minnesota.

LOAN FUNDS, ASSISTANTSHIPS

The University offers no scholarships in the Medical School, but fairly adequate loan funds are available to medical students who have demonstrated their ability. A few student assistantships are available in the advanced years of the

course. A bulletin entitled "University Aids for Student Expenses" is available at the registrar's office.

MICROSCOPES AND OTHER PROFESSIONAL EQUIPMENT

Each medical student must be provided throughout the entire four-year course with an approved microscope not more than ten years old.

For the junior and senior years each student is required to provide himself with a hemocytometer, a head mirror, and a stethoscope of a type approved by the Department of Medicine.

THE SUMMER SESSION

Courses offered in the summer include complete senior schedules, and also a repetition of most of the freshman and sophomore courses given in the regular year.

For courses of instruction offered and schedule of fees for special courses, see the Bulletin of the Summer Session.

The office of the Medical School must be notified by every medical student who registers for work in the Summer Session.

CLINICAL OPPORTUNITIES

The University Hospitals include under one roof the Elliot and Todd Memorial Hospitals, the Memorial Cancer Institute, the Eustis Children's Hospital, the Psychopathic Unit, and the Students' Health Service, providing a total capacity of 480 beds and 30 bassinets. In addition, a Psychiatric Clinic for children and a general Out-patient Department caring for between 300 and 400 patients a day are included in the University Hospital group.

AFFILIATED HOSPITALS

The Minneapolis General Hospital is affiliated with the Medical School, the principal services being under direction of full-time members of the faculty. This hospital has 867 beds.

The Ancker Hospital of St. Paul is used for important bedside teaching and operates about 850 beds.

The Gillette State Hospital for Crippled Children, of 250 beds, at Phalen Park, St. Paul, and the Hennepin County Tuberculosis Sanatorium at Glen Lake, an institution of 688 beds, are used for clinical instruction.

Certain elective clinics are held in other institutions, such as Pillsbury Settlement House, Margaret Barry Settlement House, Wells Memorial House, Emanuel Cohen Center, the South Town Clinic, the Salvation Army Home, and the Shriners' Hospital for Crippled Children, Minneapolis, and the Wilder Dispensary, St. Paul.

SPECIAL LECTURES

During each year many special lectures on medical and related scientific subjects are given at the Medical School. As opportunity offers, speakers are secured from the medical centers of this and other countries. Regularly several lectures by members of the Mayo Foundation and by prominent physicians of the state are scheduled at the Medical School.

The Minnesota chapter of the Phi Beta Pi Medical Fraternity has instituted the Clarence Martin Jackson lectureship in honor of the head of the Department of Anatomy, under which an annual lecture is given at the Medical School by someone distinguished in medical research or practice. The Alpha Omega Alpha, honor medical society, the Minnesota Pathological Society, and the publishers of the *Journal-Lancet*, each support an annual lecture by a distinguished medical scientist.

The late Dr. E. Starr Judd, a graduate of the Medical School, class of 1902, and professor of surgery in the Mayo Foundation of the University of Minnesota, generously endowed an annual lectureship in the field of surgery.

In honor of the late Dean Elias Potter Lyon, the alumni and faculty of the Medical School with his many other friends have endowed a lectureship in the field of his major scientific interest, physiology and physiological chemistry.

The Minnesota Public Health Association, in memory of Dr. Harold S. Boquist, class of 1921, a promising worker in the field of tuberculosis who died in 1934, supports an annual lecture devoted to tuberculosis.

The Twin City Urological Society supports a lectureship in honor of Dr. Franklin R. Wright, former head of the Division of Urology.

An annual Richard Olding Beard lectureship is supported by the School of Nursing Endowment Fund.

These and various other special lectures constitute important opportunities for students to hear distinguished speakers from other medical centers.

THE GRADUATE SCHOOL OF MEDICINE

The Graduate School offers opportunities for study and research in the Medical School in Minneapolis (including the Minneapolis General Hospital and the Miller and Ancker Hospitals in St. Paul) and in the Mayo Foundation for Medical Education and Research at Rochester.

Further information may be found in the special announcement of the Graduate School.

In the Medical School teaching assistantships in the preclinical sciences pay \$600 per academic year for half-time service. A Bachelor's degree is prerequisite to these. In the clinical departments the fellowship stipends are \$600 the first year, \$600 the second year, and \$900 the third year, with a deduction of \$300 if the fellow resides in a hospital. At the Mayo Foundation fellowships pay stipends differing slightly from the above figures. The degree of doctor of medicine and a year of internship are prerequisite to clinical fellowships. About 200 fellowships are available each year at Rochester and Minneapolis.

REGULATIONS CONCERNING THE RELATION OF THE MEDICAL SCHOOL AND THE GRADUATE SCHOOL

No student who has failed in a comprehensive examination in the Medical School may subsequently register for medical courses in the Graduate School until he has taken and passed the examination.

Students who fail to secure entrance to the Medical School and who then register for medical courses in the Graduate School may not use credits thus obtained toward the medical degree unless permission is secured from the dean of the Medical School *prior to the taking of such courses*.

Graduate students seeking admission to the Medical School will apply on the same basis as other students.

Medical School courses taken by graduate students as part of a *regular graduate program* need not be repeated if the student transfers to the Medical School, provided such work is approved by the head of the department in which the work was taken.

Students who transfer to the Medical School from the Graduate School must pay the bursar the difference between the fees of the two schools.

POSTGRADUATE MEDICAL INSTRUCTION

The Division of Postgraduate Medical Instruction, in co-operation with the University's Center for Continuation Study, offers unique opportunities to physicians and other medical and hospital personnel to keep abreast of progress in the various fields of medicine and health work. Announcements of these courses, most of which are a week in length, can be obtained by addressing the Center for Continuation Study.

Short courses for physicians at various points in the state are conducted co-operatively by the Medical School, the State Board of Health, the State Medical Association, and the General Extension Division of the University.

OTHER COURSES

The School of Nursing is administered as a division of the Medical School. Professional training in public health for physicians, engineers, and nurses is offered jointly by the Medical and Graduate Schools. A course in medical technology is offered jointly by the College of Science, Literature, and the Arts and the Medical School. A course for dietitians is held in the University Hospital. Circulars descriptive of any of these courses will be sent on request. Courses in medical social service are conducted by the Department of Sociology, the practical work being done in the University Hospital.

LIBRARY

The medical library is one of the best in this country. It is housed in the Library Building and provides a beautiful reading room.

GIFTS AND MEMORIALS

The Medical School has been the recipient of the following major gifts for buildings, fellowships, research, and care of patients.

The Elliot Memorial Hospital, from the estate of Dr. and Mrs. Adolphus F. Elliot.

The site for this hospital, from friends of Dr. Elliot and other citizens of Minneapolis.

The Memorial Cancer Institute, from the Citizens' Aid Society of Minneapolis as a memorial to the late Mr. George Chase Christian. In addition the Citizens' Aid Society provides an annual grant for the support of cancer research and special activities of the institute.

The Todd Memorial Hospital for diseases of the eye, ear, nose, and throat, from Mrs. F. C. Todd, Mrs. E. C. Gale, and Mrs. Emery Mapes. This building is a memorial to Dr. Frank C. Todd, professor of ophthalmology and otolaryngology in the Medical School, who died in the army medical service in 1918.

The Eustis Children's Hospital and an endowment of approximately \$2,000,000, from the late William Henry Eustis of Minneapolis. Mr. Eustis also gave to the University a splendid tract of land on the West River Drive for the erection of a convalescent home for children.

The James E. Moore Fund, the income from which is used to support research and other special needs of the Department of Surgery, was provided by the will of Dr. James E. Moore who served as chief of the Department of Surgery from 1904 to 1918.

The Howard Baker Fund for the benefit of the Department of Surgery of the Medical School, from the estate of Mr. Howard Baker of Coronado, California.

The Psychiatric Clinic for Children, supported jointly by the Home for Aged Women and Children of Minneapolis and the Commonwealth Fund of New York.

The Human Serum Laboratory, established by Mrs. John C. Dwan in memory of her husband the late John C. Dwan.

A fund for the study and development of postgraduate medical instruction, from the Commonwealth Fund of New York.

The Shevlin Fellowship in the basic medical sciences, endowed by Mr. Thomas Shevlin of Minneapolis in 1909.

The Haydn S. and Mary M. Cole Fellowships in Orthopedic Surgery, endowed by the late Haydn S. Cole of St. Paul.

The Miller Hospital Fellowship in Ophthalmology, supported by Dr. Frank E. Burch of St. Paul.

The Washburn Home Fellowship in Pediatrics, supported by Washburn Memorial Orphan Asylum of Minneapolis.

The Fellowship in Obstetrics, supported by the Harriet Walker Memorial Association Fund of Minneapolis.

The George G. Eitel Scholarship Fund for medical students, provided by the will of the late Dr. George G. Eitel.

The Floyd B. Olson Cancer Memorial Foundation Research Fund, from the income from funds appropriated by the 1937 State Legislature in memory of the late Governor Floyd B. Olson.

The Ivar Sivertsen Foundation, a grant from the W. H. Barber Company for the support of cancer research over the period 1939-44.

The Charles Fremont Dight Eugenics Research Fund for instruction of students on heredity and eugenics, provided by the will of the late Dr. Charles Fremont Dight.

The Minnesota Medical Foundation. The object and purpose of this corporation is and shall be: to promote the welfare of the community by the co-operation of alumni and friends of the Medical School of the University of Minnesota in improving the undergraduate, graduate, and research functions of that institution; to establish scholarships, lectureships, and professorships; and to support research and student loan funds in that institution; to publish and promote the publication of a representative medical bulletin; and in general, by all legitimate and usual means, to advance the interests of the University of Minnesota Medical School and its alumni, without consideration for benefits bestowed.

PRIZES

THE ROLLIN E. CUTTS PRIZE IN SURGERY

The income from \$500 is awarded in the form of a gold medal to that member of the senior class of the Medical School who presents the best thesis based upon original work in a surgical subject.

MINNEAPOLIS SURGICAL SOCIETY PRIZES

The Minneapolis Surgical Society offers a first prize of \$75 and a second prize of \$25 to those members of the senior class or to those serving the first year of their internships in Minneapolis hospitals who write the best papers in some field of clinical surgery. Papers must be in the hands of the secretary of the Minneapolis Surgical Society in March. For more definite information inquire at the office of the Department of Surgery in the University of Minnesota Hospital.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION PRIZE

The above named society offers an annual prize of \$100 and a medal to the most representative student or students in the senior class of the Medical School. The award is made on the basis of the scholarship, extra-curricular activity, and character of the student as well as upon the general excellence of the thesis.

CURRICULUM

CURRICULUM FOR THE DEGREE OF BACHELOR OF MEDICINE

There is under consideration a plan whereby the clerkship will be started at the end of the sophomore year and spread through the junior and senior years. If adopted this will necessitate considerable modification of the present program.

OPTIONAL COURSES OF STUDY

Candidates may:

- a. Pursue the regular curriculum outlined below, or
- b. Follow the regular curriculum with modifications in the direction of special work in some particular department. Such students with the written consent of the dean of the Medical School may register during certain quarters in the Graduate School; and such registration, if major work is done in a Medical School department, may be transferred later to the Medical School to count toward a medical degree. Such students may qualify for advanced degrees such as M.S. and Ph.D. See paragraph under Irregular Programs, page 13.

REGULAR CURRICULUM

DEPARTMENTAL HOURS

	Clock Hours		Clock Hours
Anatomy, gross and microscopic.....	693	Physiology, including Physiological	
Bacteriology	176	Chemistry and Biophysics.....	462
Medicine	987	Preventive Medicine and Public Health	86
Obstetrics	411	Roentgenology	59
Ophthalmology and Otolaryngology.....	108	Surgery	581
Pathology	396		
Pediatrics	330	Total	4,465
Pharmacology	176		

COMPREHENSIVE EXAMINATIONS

Progress in the Medical School depends upon the results of the comprehensive examinations which are given at the end of the each year except the fourth. The regular examinations are held in June, and are given again in September for those who fail to pass at the regular time.

The freshman and sophomore examinations may be repeated but once. Students who fail a second time in either one are dropped from the Medical School and are ineligible for readmission.

The junior examination may be repeated twice, unless the student has already failed once in the freshman and once in the sophomore examinations, in which event the junior examination may be repeated but once.

No student may fail more than three times in the comprehensive examinations in the first three years.

Examinations at the end of the senior year are given by the individual clinical departments.

PLAN OF CLINICAL CURRICULUM: SENIOR YEAR

In order to utilize the clinical facilities of the school throughout the year the senior class is divided into four divisions of not more than 28 students each, known as A, B, C, and D.

Divisions, A, B, and D begin senior work in the first Summer Session after the junior year. Division A attends continuously the summer, fall, and winter quarters and graduates in March. Division B attends the summer, fall, and spring quarters; Division C, the fall, winter, and spring quarters; Division D, the summer, winter, and spring quarters. Divisions B, C, and D graduate in June.

Students are assigned by lot during the junior year to the various divisions of the senior class. Anyone desiring to change his section may do so if he can find another student who is willing to exchange sections with him. Such exchanges must be approved in writing in the office of the Medical School.

In the senior year the course consists of clerkships and of work in the outpatient clinic together with certain clinical lectures. Students interested in investigative problems in medical science or in public health may, by petition approved by the head of the department concerned and by the Students' Work Committee, substitute other work for the regular program.

The clerkship consists of: obstetrics and gynecology, seven weeks; pediatrics, six weeks; medicine and the medical specialties, thirteen weeks; and surgery and the surgical specialties, eleven weeks. The clerks are responsible for histories and physical examinations at the hospital and for dispensary attendance during vacations between quarters. See special schedule of clerkships published each quarter.

IRREGULAR PROGRAMS

While the course of studies in this school is arranged on the traditional four-year plan, it is believed by the faculty that a rigid curriculum is not desirable and that some students will find it wise to extend their medical education over a longer period. Students who are obliged to work for self-support during school attendance are especially advised to spread their medical course over a longer time than the minimum of twelve quarters. The assistant dean will assist such students in making workable programs.

It is to be understood that the required courses set forth only the minimum fundamental information in the various branches of medical science and only the minimum of clinical experience with which a graduate may begin to practice. Attention is directed to the elective courses scheduled in the various departments and to the opportunities offered by the Graduate School. Able students are urged to undertake advanced work and research in some chosen field, to the end alike of advancing medical knowledge and of preparing themselves to fill teaching positions or to carry the investigative spirit into their medical practice. Their attention is called to the Honors Course described below. The dean and the heads of departments will advise such students and will assist them to lay out programs suitable to their needs. Petitions for reasonable substitutions in the required curriculum will be approved.

HONORS COURSE

By the Honors Course is meant a mechanism under which superior students may pursue their studies with greater freedom than that granted by the regular curriculum.

The Honors Course applies only to the last two years of the medical curriculum, all students being required to take the comprehensive examination at the end of the first and second years, if they expect later to receive the degree of bachelor of medicine.

Students having an average of "B" or better in the sophomore comprehensive examination and who are candidates for a graduate degree may petition the Honors Course Committee to become "honors" students.

Those whose petitions are approved may pursue medical studies in such order and manner as may be determined by the committee. Each year the honors student must submit his program to the committee for approval before putting it into effect.

When an honors student is prepared in the work of any department in accord with such a program he may, with written permission of the committee, take an examination, the nature of which is determined by the department.

Satisfactory completion of the examination entitles an honors student to credit on the registrar's books for the number of hours assigned to the department in the regular curriculum.

Should an honors student fail to qualify for a graduate degree, all previously taken departmental examinations will be cancelled and the student will be required to take the junior comprehensive and the senior examinations under the usual rules.

When an honors course student has fulfilled the legal time requirement, has attained his graduate degree, and has passed the respective departmental examinations, the Honors Course Committee will consider his general work, his various examinations, and his research achievements; on recommendation of the committee, the M.B. degree will be granted.

At any time during his course of study, on recommendation of the committee, an honors student may be required to return to the regular curriculum, the results of previously taken departmental examinations being cancelled.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

a. Completion of the premedical college work in accordance with the requirements for admission to the Medical School and regulations of the Arts College of the University of Minnesota.

b. Completion of the required courses and the comprehensive examination of the first two years of the medical course.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF MEDICINE

Good moral character; compliance with the admission requirements; fulfillment of the requirements for the degree of bachelor of arts or science, to which one year in medicine for the arts degree, and two years in medicine for the science degree, may contribute; completion of the full four-year period (12 quarters) of work in the Medical School and compliance with the rules of scholarship.

CURRICULUM FOR THE DEGREE OF DOCTOR OF MEDICINE

Students who have attained the M.B. may qualify for the M.D. by:

a. Completion of one year (12 months) of internship in a hospital approved by the Internship Committee, or

b. Completion of one year's work of advanced character in an approved laboratory, or

c. An approved year of advanced study or work in public health.

COURSES FOR PHYSICIANS

Physicians who desire to attend medical lectures and clinics for a limited period of time may obtain a visitor's permit from the dean. They may enter for regular lecture and clinical courses in the Medical School upon payment of the usual Medical School fees. On this basis they may arrange for special courses of study in anatomy, physiology, experimental surgery, cadaver surgery, pathology, bacteriology, pharmacology, etc., as the facilities of the respective departments will permit.

Special courses, usually one week in length, in the various fields of medicine, are offered throughout the year by the Division of Postgraduate Medical Instruction in co-operation with the Center for Continuation Study.

DESCRIPTION OF COURSES*

ANATOMY

Departmental Office, 201 Institute of Anatomy

Professors Clarence M. Jackson, M.S., M.D., LL.D., Head, Edward A. Boyden, Ph.D., Hal Downey, Ph.D., Andrew T. Rasmussen, Ph.D., Richard E. Scammon, Ph.D., LL.D.; Associate Professor Emeritus Charles A. Erdmann, Ph.D., M.D.; Assistant Professors Raymond F. Blount, Ph.D., Edith Boyd, B.A., M.D., Shirley P. Miller, Ph.D., Lemon Jonathan Wells, B.Ed. Ph.D.; Instructor William R. Movius, B.S., M.D.; Teaching Assistants Thomas F. Dougherty, M.A., Glenn A. Drager, B.S., Howard M. Frykman, B.S., Robert G. Grenell, M.S., Erling S. Hegre, B.A., Robert A. Huseby, B.S., Frank E. Johnson, B.S., Robert L. Merrick, M.S., Charles R. Noback, M.S., John W. Rebuck, M.S.

REQUIRED COURSES

- 1f-w-s. Anatomy for Embalmers. 132 hours. Dr. Miller and assistants.
- 3f,s. Elementary Anatomy. For student nurses. 44 hours; 3 credits. Dr. Blount.
- 4w. Elementary Anatomy. For dental hygienists. 44 hours; 3 credits. Dr. Blount.
- 59f,su. Systematic Anatomy. For freshman dental students. 121 hours; 6 credits. Enrolment limited. Dr. Miller and assistants.
- 60s,su. Anatomy of the Head and Neck. For freshman dental students. Prerequisite, Course 59; 132 hours; 6 credits. Enrolment limited. Dr. Miller and assistants.
- 61w,su. Histology and Embryology. For freshman dental students. Prerequisite, Course 59; 132 hours; 6 credits. Enrolment limited. Microscope fee \$1.50. Dr. Rasmussen and assistants.
- 100f,su-101w,su. Gross Human Anatomy. Dissection, including osteology. For freshman medical students. 330 hours; 18 credits. Enrolment limited. Dr. Boyden and assistants.
- 103s,su. Human Histology. Microscopic study of the various tissues and organs. For freshman medical students. Prerequisite, Course 100-101; 165 hours; 9 credits. Enrolment limited. Dr. Downey and assistants.
- 107s. Human Embryology. Development of the human body. For freshman medical students. Prerequisite, Course 100-101; 99 hours; 6 credits. Enrolment limited. Dr. Boyden, Dr. Wells, and assistants.
- 111f,su. Human Neurology. A study of the central nervous system and sense organs. For sophomore medical students. Prerequisites, Courses 103, 107; 99 hours; 6 credits. Enrolment limited. Dr. Rasmussen and assistants.

ELECTIVE COURSES

In general, the elective courses are for small groups of 6 to 16 students. For registration in these courses, permission of the instructor is required.

* The letters, f, w, s, and su indicate that the corresponding courses are offered in the fall, winter, spring, and summer quarters, respectively. Numbers joined by hyphens indicate that the course is continued through more than one quarter. Letters separated by commas indicate the repetition of the course in corresponding quarters.

- 115f,w,s. History of Anatomy. Medical bibliography is included. Lectures. 22 hours; 2 credits. Dr. Miller.
- 116f,w. Correlated Anatomy. Review of gross anatomy from demonstrations. For junior and senior medical students. Prerequisite, Course 100-101; written permission of instructor required; hours arranged; 1 credit. Limited to 12 students. Dr. Blount.
- 120w. Experimental Embryology. Hours and credits arranged. Dr. Blount.
- 129f-130w.* Topographic Anatomy. Based upon a study of serial cross sections of the human body. Prerequisite, Course 100-101; 33 hours; 2 credits each quarter. Dr. Jackson. (Not offered 1940-41).
- 134f,w. Anatomy of the Newborn. A detailed laboratory study of the anatomy of the newborn. Prerequisite, Course 107, or equivalent; 44 hours; 3 credits each quarter. Dr. Boyd.
- 148s. Roentgen Anatomy of Bones and Joints. See Radiology 187a. Prerequisite, Course 100-101; 11 hours; 1 credit. Dr. Rigler.
- 149w. Experimental Neurology. A study of the morphology of the central nervous system as determined by experimental methods. Prerequisite, Course 111; 60 hours; 3 credits. Dr. Rasmussen.
- 150f,w. Special Topics in Neurology. Study of the literature on selected phases of human neurology. Prerequisite, Course 111; hours and credits arranged. Dr. Rasmussen.
- 152f,w,su. Prosection. Preparation of special dissections to be used for demonstrations in human gross anatomy. Prerequisite, Course 100-101; hours and credits arranged. Dr. Boyden.
- 153f-154w-155s-156su.* Advanced Anatomy. Advanced work, largely individual in character, in gross anatomy, histology, embryology, hematology, or neurology. Hours and credits arranged. Drs. Jackson, Boyden, Downey, Rasmussen, Blount, Boyd, and Miller.
- 157s. Developmental Anatomy of the Head. Prerequisite, Course 107; 66 hours; 3 credits. Dr. Boyden. (Offered only in odd-numbered years.)
- 158s. Special Histology and Neurology of the Head Region. Prerequisites, Courses 103, 111; 66 hours; 3 credits. Dr. Rasmussen. (Offered only in even-numbered years.)
- 160w. Physical Growth. Lectures on the prenatal and postnatal growth of the external dimensions and organs of the body. Same as Course 260 in Child Welfare. Prerequisite, Course 107; hours arranged; 2 credits. Dr. Boyd.
- 161f-162w-163s. Statistical Work. Instruction given in methods of quantitative analysis of data collected by the student. Same as Course 261f-262w-263s in Child Welfare. Hours and credits arranged. Dr. Boyd.
- 165f-166w. Hematology. Primarily for medical students, but open to others with proper qualifications. Normal and pathologic morphology of the blood and blood-forming organs, with special emphasis on the study of the blood from the standpoint of diagnosis and prognosis. Written permission of instructor required. 4 credits each quarter. Microscope fee \$1.50 per quarter. Dr. Downey.
- 167s. Seminar in Hematology. Discussion of literature and research. Prerequisite, Course 165-166. 11 hours; 1 credit. Dr. Downey.

* These courses may be taken continuously through three or four quarters or in any one quarter.

- 201f-202w-203s-204su.* Research in Anatomy. Research work in gross or microscopic anatomy, neurology, histology, or embryology. Hours and credits arranged. Drs. Jackson, Boyden, Downey, Rasmussen, Scammon, Blount, and Boyd.
- 205f-206w-207s. Anatomical Seminar. Presentation and discussion of research work in progress in the department, together with reviews of current anatomical literature. 11 hours; 1 credit. Dr. Jackson and staff.

BACTERIOLOGY AND IMMUNOLOGY

Departmental Office, 228 Millard Hall

Professors Winford P. Larson, M.D., Head, Robert G. Green, M.A., M.D., H. Orin Halvorson, Ch.E., Ph.D., Arthur T. Henrici, M.D.; Assistant Professor Charles E. Skinner, Ph.D.; Instructors Robert E. Hoyt, M.S., Milton Levine, Ph.D., George M. Savage, Ph.D.; Teaching Assistants Charles H. Drake, M.S., Ruth A. Foster, B.A., William F. McLimans, B.A., Z. John Ordal, B.S., Henry M. Tsuchiya, M.S.

REQUIRED COURSES

- 1f,w,s. Elementary Bacteriology. Nursing students and others. 66 hours; 4 credits. Dr. Skinner and others.
- 52w. General and Special Bacteriology for Dental Students. 66 hours; 4½ credits. Dr. Larson and others.
- 53f,w,s. General Bacteriology. For students in Home Economics and Agriculture. Prerequisites, 10 credits in chemistry and 4 credits in botany or zoology; 99 hours; 5 credits. Dr. Savage and others.
- 101w. Medical Bacteriology. Culture media; methods of staining and identification; principles of sterilization and disinfection; examination of air, water, milk; relation of bacteriology to the industries. For medical students. Prerequisites, 10 credits in chemistry and 10 credits in biology; 99 hours; 5 credits. Dr. Henrici.
- 102s. Medical Bacteriology. The pathogenic bacteria, especially in relation to definite diseases; principles of infection and immunity. For medical students and others. Prerequisite, Bacteriology 101; 77 hours; 4 credits. Drs. Larson and Green.

ELECTIVE COURSES

- 103w. Soil Microbiology. Prerequisites, Bacteriology 53 and 15 credits in chemistry; 9 hours; 5 credits. Dr. Skinner.
- 104s. Sanitary Bacteriology. Prerequisites, Bacteriology 53 and 15 credits in chemistry; 77 hours; 4 credits. Enrolment limited to 15 students. Dr. Skinner.
- 114s. Molds, Yeasts, and Actinomycetes. Prerequisites, Bacteriology 53 or 101; 66 hours; 4 credits. Dr. Henrici.

* These courses may be taken continuously through three or four quarters or in any one quarter.

- 116w. Immunity. Laws of hemolysis. Quantitative relationship between antigen and antibody. Wassermann reaction. Opsonins, vaccines, toxin, antitoxin, precipitin reactions, blood grouping, atopy, anaphylaxis. Prerequisite, Bacteriology 102; 66 hours; 3 credits. Dr. Larson.
- 120s. Diseases of Animals Transmissible to Man. Plague, tularemia, undulant fever, typhus fever, spotted fever, and other human diseases from animal reservoirs. Prerequisite, Bacteriology 102; 33 hours; 3 credits. Dr. Green.
- 121f-122w. Physiology of Bacteria. Growth. Enzymes. Metabolism. Dormancy, death. Prerequisites, Bacteriology 53 and 8 credits in organic chemistry or biochemistry; 33 hours; 6 credits. Dr. Halvorson.
- 123s. Applied Bacteriology. Industrial fermentations. Bacteriology of water and sewage. Prerequisite: Bacteriology 121-122; 33 hours; 3 credits. Dr. Halvorson.
- 124f. Filterable Viruses. Character, nature, and transmission of viruses. Important virus diseases. Prerequisites: Bacteriology 102, Histology 103 or 149, and Pathology 101w; lecture and laboratory; 44 hours; 4 credits. Enrolment limited to 10 students. Dr. Green.
- 153f,w,s. Problems in Bacteriology. Permission of instructor required. Hours and credits arranged. Staff.
- 201f,w,s. Research in Bacteriology. Graduate students of the necessary preliminary training may elect research, either as majors or minors, in bacteriology. Hours and credits arranged. Drs. Larson, Green, Halvorson, Henrici, and Skinner.
- 203f,w,s. Seminar in Bacteriology. 1 hour; 1 credit. Staff.

PATHOLOGY

Departmental Office, 110 Institute of Anatomy

Professors Elexious T. Bell, B.S., M.D., Head, Benjamin J. Clawson, M.D., Ph.D.; Associate Professors Kano Ikeda, M.D., James S. McCartney, Jr., B.A., M.D., John F. Noble, M.D.; Assistant Professors A. B. Baker, M.D., Ph.D., Nathaniel H. Lufkin, M.D., M.S.; Instructors Robert Hebbel, M.S., M.D., George K. Higgins, M.D., M.S.; Teaching Assistants Thomas J. Kenyon, B.S., M.D., Harold H. Noran, B.S., M.D.; Medical Fellows James B. Arey, M.D., Lawrence Berman, M.D., Herbert S. Breyfogle, B.A., M.D., Milton M. Horvitz, B.S., M.D., Stanley V. Lofness, B.S., M.D.

REQUIRED COURSES

- 4f. Pathology for Students in Dentistry. 110 hours. Dr. Clawson and assistants.
- 101w. Pathology. General Pathology. For sophomore medical students. Prerequisites, histology, embryology, and special bacteriology; 165 hours; 9 credits. Drs. Bell, Clawson, McCartney, and assistants.
- 102s. Pathology. Special Pathology. For sophomore medical students. Prerequisites, Pathology 101; 165 hours; 9 credits. Drs. Bell, Clawson, McCartney, and assistants.
- 109su,f,w,s. Clinical Pathological Conference. Presentation of clinical data and pathologic specimens from selected cases with discussion of diagnosis. 11 hours; 1 credit in each quarter. Required in three quarters, senior year. elective for others. Dr. Bell and staff.

ELECTIVE COURSES

- 104su,f,w,s. Autopsies. For junior and senior medical students. Dr. Bell and staff.
- 107f,w,s. Advanced Pathology. Prerequisite, Pathology 102.
- 107f. Surgical Pathology. 33 hours; 1½ credits. Drs. Bell and McCartney.
- 107aw. Surgical Pathology. 22 hours; 1 credit. Dr. McCartney.
- 107bw. Diseases of the Heart. 22 hours; 1 credit. Dr. Clawson.
- 107as. Surgical Pathology. 11 hours; ½ credit. Dr. McCartney.
- 107bs. Diseases of the Kidney. 22 hours; 1 credit. Dr. Bell.
- 110f,w,s. Seminar in Pathology. Prerequisite, Pathology 102. Dr. Bell.
- 111su,f,w,s. Conference on Autopsies. Prerequisite, Pathology 102. Dr. Bell and staff.
- 112f. Neuropathology. 22 hours; 1 credit. Dr. Baker.
- 113f. Pathology of Tuberculosis. 22 hours; 1 credit. Dr. Higgins.
- 201su,f,w,s. Research. Graduate students of the necessary preliminary training may elect research in pathology as either a major or a minor field. Hours and credits arranged. Dr. Bell and staff.

PHARMACOLOGY

Departmental Office, 105 Millard Hall

Professors Arthur D. Hirschfelder, B.S., M.D., Head, Raymond N. Bieter, M.D., Ph.D.; Associate Professor Harold N. G. Wright, Ph.D.; Associate Professor Emeritus Edgar B. Brown, Phm.D., M.D.; Teaching Assistants Lewis D. Fink, M.S., William E. Morris, B.S.

REQUIRED COURSES

- 2s. Therapeutics and Toxicology for Students in Pharmacy. 33 hours; 3 credits. Drs. Hirschfelder, Bieter, and Wright.
- 8w,su. Elementary Pharmacology. For student nurses. 33 hours; 2½ credits. Dr. Wright and others.
- 54w. Dental Pharmacology. For junior dental students. Prerequisites, Physiology 57, 58, 59; lect. 44 hours, lab. 22 hours; 5 credits. Drs. Bieter and Wright.
- 101w. Introduction to Pharmacology. For sophomore medical students. Prerequisites, Physiology 100, 101, 103; 22 hours; 2 credits. Drs. Hirschfelder, Bieter, and Wright.
- 102s. General and Experimental Pharmacology. A detailed study of drugs important in medical practice. For sophomore medical students. Prerequisite, Course 101; lect. 33 hours, lab. 66 hours; 6 credits. Drs. Hirschfelder, Bieter, and Wright.
- 103w. General Pharmacology. Continuation of 102. For junior medical students. Prerequisite, Course 102; 22 hours; 2 credits. Drs. Hirschfelder, Bieter, and Wright.
- 104s. General Pharmacology. Continuation of 103. For junior medical students. 22 hours; 2 credits. Drs. Hirschfelder, Bieter, and Wright.
- 108f. Prescription Writing. For junior medical students. Prerequisite, Course 102; 11 hours; 1 credit. Dr. Wright.

ELECTIVE COURSES

- 109f,w,s. Pharmacological Problems. Experimental study of special topics in pharmacology, with a review of the literature. Hours and credits arranged. Drs. Hirschfelder, Bieter, and Wright.
- 110f,w,s. Detection of Poisons. Hours and credits arranged. Dr. Wright.
- 201f,w,s.† Seminar in Physiology and Pharmacology. Reviews of recent literature. 11 hours; 1 credit. Dr. Hirschfelder.
- 203f,w,s.† Research in Pharmacology. For graduate and advanced students. Hours and credits arranged. Drs. Hirschfelder, Bieter, and Wright.
- 204f,w.† Advanced Pharmacology. Hours and credits arranged. Limited to 4 graduate students. Drs. Hirschfelder, Bieter, and Wright.
- 205f,w.† General Discussions in Pharmacology. With collateral readings. 11 hours; 1 credit. Limited to 6 advanced students. Drs. Hirschfelder, Bieter, and Wright.

PHYSIOLOGY

Departmental Office, 318 Millard Hall

DIVISION OF GENERAL PHYSIOLOGY

Professors Maurice B. Visscher, M.D., Ph.D., Head, Ancel Keys, Ph.D., D.Phil. (Cambridge), Frederick H. Scott, M.B., Ph.D., D.Sc., Karl W. Stenstrom, Ph.D.; Assistant Professors Alan Hemingway, Ph.D., Joseph T. King, Ph.D., M.D.; Instructors Robert B. Dean, Ph.D., Edwin S. Fletcher, Ph.D., Austin F. Henschel, Ph.D., Myrtle P. Hodgkins, R.N., B.A., Herman Kabat, Ph.D.; Chemist Karl Sollner, C.M., Ph.D.; Teaching Assistants Richard S. Abrams, M.S., Zelda B. Ball, B.S., Mark Hanson, B.S., Nathan Lifson, M.D., F. Peter Salzburg, M.D., Walter B. Shelley, B.S., J. Paul Stapp, M.S.

REQUIRED COURSES

- 2f,s. Physiology for Nurses. 4 credits. Dr. Kabat and others.
- 4s,su.* Human Physiology. For academic, home economics, and pharmacy students. (51w may be substituted for this course.) 66 hours; 4 credits. Drs. Scott, Hemingway, and others.
- 51w.* Human Physiology. For physical education students and others. May be taken in place of Course 4 by students having proper qualifications. Prerequisites, human anatomy or comparative anatomy, and Physiology 50 or organic chemistry; 88 hours; 6 credits. Dr. Keys and others.
- 58w,59s.* Human Physiology. For dental students and others. Prerequisites, zoology and organic chemistry; 220 hours; 14 credits (6 credits winter quarter, 8 credits spring quarter). Dr. King and others.
- 103f,su. Physiology of Circulation, Respiration, etc. For sophomore medical students and others. Prerequisites, organic chemistry and zoology; 132 hours; 9 credits. Drs. Visscher, Scott, Hemingway, and others.

* Sequences 50, 51, 52 and 56, 57, 58, 59 are intermediate courses intended for those who desire a less detailed consideration of physiology and physiological chemistry than that given in 100, 101, 103, 104. Students may not receive credit for both intermediate and advanced sequences, nor for Course 4 in addition to either of these sequences.

† Written permission required.

- 104w,su. Physiology of Endocrines, Nervous System, etc. For sophomore medical students and others. Prerequisite, Course 103, or organic chemistry and neurology; 88 hours; 6 credits. Drs. Visscher, Scott, Kabat, and others.
- 105f. Roentgen Rays, Light, and Radium. The physical and physiological basis of physical therapy. Junior medical students. Prerequisites, Courses 103, 104; 11 hours; 1 credit. Dr. Stenstrom.

ELECTIVE COURSES

- 113su,f,w,s. Problems in Physiology. Arranged with qualified students. Each student will be assigned a topic for special laboratory study. Conferences and reading. May be taken one or more quarters. Prerequisites, Courses 103, 104, or equivalent; 66 hours; 3 credits each quarter or arranged. Drs. Visscher, Keys, Scott, and King.
- 114w. Physiology of Muscular Activity. Prerequisites, Physiology 51 with grade of A or B or Physiology 103; reading knowledge of German recommended; 11 hours conference and term paper; 2 credits. Dr. Keys.
- 115w. Methods in Human Physiology. Prerequisites, Physiology 114 (which may be taken concurrently); 33 hours laboratory; 1 credit. Limited to 8 students. Dr. Keys.
- 116f. Tissue Culture Theory. 2 credits; hours arranged. Dr. King.
- 117w. Tissue Culture Laboratory. Prerequisite, Course 116f; 3 credits; hours arranged. Limited to 4 students. Dr. King.
- 135f,w,s. Conference on Physiology. Arranged with qualified students. Various topics in the field of physiology will be considered by the several instructors. Consult department office for schedule. 11 hours; 1 credit. Drs. Visscher, Keys, Scott, and Sollner.
- 163f,164w,165s. Physical Chemistry and Biophysics in Biology and Medicine. Prerequisites, Courses 100, 101 or Biochemistry 112; 33 hours; 3 credits per quarter. Dr. Hemingway.
- 166f,167w,168s. Laboratory Work Related to Courses 163, 164, 165. Hours and credits arranged. Dr. Hemingway.
- 170f,w,s,su. Problems in Biophysics. Special work arranged with qualified students. Dr. Stenstrom.
- 201f,w,s. Seminar in Physiology and Pharmacology. For advanced students. Same as Pharmacology 201. 11 hours; credits arranged. Drs. Visscher, Hirschfelder, and staff.
- 202f,w,s,su. Readings in Physiology. Topics will be selected for each student and written reviews will be prepared and discussed. 1 to 3 credits arranged. Drs. Visscher, Keys, Scott, and King.
- 203f,w,s,su. Research in Physiology. Hours and credits arranged. Drs. Visscher, Keys, Scott, and King.
- 204f,w,s,su. Research in the Physics and Physiology of Radiation. Hours and credits arranged. Dr. Stenstrom.
- For electives in the practical aspects of radiology and allied subjects offered by Dr. Stenstrom, see Radiology, pages 38-39.
- 206s. Seminar in History of Physiology and Related Sciences. 11 hours; 1 credit. Dr. Visscher.

DIVISION OF PHYSIOLOGICAL CHEMISTRY

Professor George O. Burr, Ph.D., Director; Associate Professor Wallace D. Armstrong, Ph.D., M.D., Assistant Professors L. Earle Arnow, Ph.D., Leo T. Samuels, Ph.D.; Instructors Richard H. Barnes, B.S., Ph.D., Olaf Mickelsen, Ph.D.; Assistants Norman S. Olsen, B.S., Roger Reinecke, B.S., M.A., Marion E. Swendseid, B.S.

REQUIRED COURSES

- 1f,s. Physiological Chemistry for Nurses. 4 credits. Dr. Arnow and others.
- 50f.* Physiological Chemistry. For physical education students, degree students in nursing, and others. Prerequisite, general chemistry; 44 hours; 4 credits. Dr. Samuels and others.
- 52s.* Practical Nutrition. Prerequisite, Physiology 50 or 56 and 57 (latter may be taken concurrently) or 100; 22 hours; 2 credits. Dr. Keys and others.
- 56w,57s.* Physiological Chemistry. For dental students and others. Prerequisites, zoology and organic chemistry; 132 hours; 9 credits. Dr. Armstrong and others.
- 100f,su. Physiological Chemistry. For freshman medical students and others. Prerequisites, organic and physical chemistry and physics; 99 hours; 7 credits. Drs. Burr, Armstrong, Arnow, Samuels, and others.
- 100tf,su. Physiological Chemistry. For medical technologists and others. Prerequisites, organic chemistry and physics; 110 hours; 8 credits. Dr. Burr and others.
- 101w,su. Physiological Chemistry. For freshman medical students and others. Prerequisites, Physiology 100; 110 hours; 6 credits. Dr. Burr and others.

ELECTIVE COURSES

- 153f,w,s,su. Problems in Physiological Chemistry. Special work arranged with qualified students. May be taken one or more quarters. Prerequisites, Courses 100, 101; hours and credits arranged. Drs. Burr, Armstrong, Arnow, and Samuels.
- 154f,w,s. Conference in Physiological Chemistry. 11 hours; 1 credit. Drs. Burr, Armstrong, Arnow, and Samuels.
- 155f,w,s. Seminar and Conference on Dental and Oral Biochemistry. Reports on assigned topics and discussions of current literature. Prerequisites, Physiology 100-101, Physiology 56-57 taken in 1939 or later, or registration for these courses; hours and credits arranged. Dr. Armstrong.
- 180f. General Survey of Colloid Chemistry. Prerequisite, Physiological Chemistry 103; 3 credits. Dr. Freundlich.
- 182s. Colloids in Biology and Medicine. Prerequisite, Physiological Chemistry 180; 3 credits. Dr. Freundlich.
- 200s. Seminar in Physiological Chemistry. Dr. Burr.
- 205f,w,s,su. Research in Physiological Chemistry. Hours and credits arranged. Drs. Burr, Armstrong, Arnow, and Samuels.

* Sequences 50, 51, 52 and 56, 57, 58, 59 are intermediate courses intended for those who desire a less detailed consideration of physiology and physiological chemistry than that given in 100, 101, 103, 104. Students may not receive credit for both intermediate and advanced sequences, nor for Course 4 in addition to either of these sequences.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

 Departmental Office, 121 Millard Hall

 DIVISION OF PUBLIC HEALTH ADMINISTRATION
 AND EPIDEMIOLOGY

Professors Gaylord W. Anderson, B.A., M.D., Head, Ruth E. Boynton, M.S., M.D., Harold S. Diehl, M.A., M.D., D.Sc., J. Arthur Myers, M.D., Ph.D.; Clinical Professors,† Albert J. Chesley,* M.D., Francis E. Harrington, B.S., M.D.; Associate Professor Ralph V. Ellis, M.A., M.D.; Clinical Associate Professor† Orianna McDaniel,* M.D.; Clinical Assistant Professor Lucy S. Heathman,* Ph.D., M.D., Herman Hilleboe, B.S., M.D., C.P.H.; Clinical Instructors Robert N. Barr,* B.S., M.D., C.P.H., Paul Kabler,* M.D., Ph.D., Clara Nigg,* Ph.D., Malvin J. Nydahl, B.S., M.D.

- 53f. Elements of Preventive Medicine and Public Health. For public health nurses and students in medical social work. 5 credits. Dr. Anderson.
- 58w. Maternal and Child Hygiene. For public health nurses. 2 credits. Dr. Boynton.
- 59s. Health of the School Child. 3 credits. Dr. Ellis.
- 60f,s. Tuberculosis and Its Control. 2 credits. Dr. Myers.
- 100s. Preventive Medicine. Environmental and biologic factors in the maintenance and transmission of disease, and the possibilities of control or prevention through the efforts of the private physician alone or in collaboration with community, state, or federal agencies. For junior medical students. 36 hours; 3 credits. Dr. Anderson.
- 101f,w,s,su. Public Health Administration and Field Work. A series of field trips to acquaint the student with the activities of the State Board of Health and with problems of water filtration, sewage disposal, and milk sanitation. For senior medical students. 2 credits. Dr. Anderson.
- 103f,w,s. Public Health Bacteriology. Credits arranged. Dr. Heathman.
- 104f,w. Epidemiology I. For physicians, others by permission. 5 credits. Drs. Anderson, Diehl, and Treloar.
- 105s. Epidemiology II. For physicians. Credits arranged. Dr. Anderson.
- 106f,w. Public Health Administration—General. For physicians, engineers, nurses, and social workers. 3 credits. Dr. Anderson.
- 107f. Child and Adult Hygiene. For physicians. 4 credits. Drs. Boynton, Ellis, and associates.
- 108w. The Care of the Handicapped Child. 2 credits. Dr. Hilleboe.
- 109w. Environment and Disease. For engineers. 3 credits. Dr. Anderson.
- 122w. Public Health Administration—Problems. 3 credits. Dr. Anderson.
123. Topics in Public Health. Credits arranged. Dr. Anderson.
- 200f,w,s. Research. Credits arranged. Drs. Anderson, Diehl, and others.
- 210f,w,s. Seminar in Preventive Medicine and Public Health. Staff.

* Member of staff of State Department of Health.

† Titles prefixed by "clinical" indicate appointments on a part-time basis.

DIVISION OF PUBLIC HEALTH ENGINEERING

Professors Frederic H. Bass, B.S., Charles A. Mann, Ph.D.; Clinical Associate Professor Harold A. Whittaker,* B.A.; Assistant Professors Theodore A. Olson, M.A., George O. Pierce, M.S.; Lecturers Otto E. Brownell,* C.E., Herbert M. Bosch,* B.S., Philip R. Carter,* D.V.M., Jack J. Handy,* B.S., Harvey G. Rogers,* Dean M. Taylor,* B. Chem. Eng.

REQUIRED COURSES

- 102f. Sanitation—General. 5 credits. Messrs. Whittaker, Olson, and Pierce.
 112w. Environmental Sanitation—Water Supplies. For engineers. 4 credits. Messrs. Whittaker and Pierce.
 113w. Environmental Sanitation—Pollution of Waters. For engineers. 2 credits. Messrs. Whittaker, Olson, and Pierce.
 115w. Environmental Sanitation—Milk and Other Foods. For engineers. 2 credits. Mr. Whittaker and Dr. Carter.
 116w. Environmental Sanitation—Problems, Methods, and Organization. For engineers. 3 credits. Messrs. Whittaker and Pierce.

DIVISION OF PUBLIC HEALTH NURSING

Associate Professor Margaret G. Arnstein, R.N., M.A., M.P.H., Director; Assistant Professor Mellie F. Palmer, R.N., B.S., C.P.H.; Clinical Assistant Professors Laura Draper, B.A., B.S., R.N., Olivia T. Peterson,* R.N.; Instructor Mary E. Parker, B.A., R.N.; Clinical Instructors Gertrude Lyons, R.N., B.A., C.P.H., Pearl Shalit, R.N., M.S.S., Jean Taylor, R.N., B.A., C.P.H., Viktor O. Wilson, B.S., M.D., C.P.H.

- 55s. Nursing and Social Problems in Gonorrhoea and Syphilis Control. For public health nurses and students in medical social work. 2 credits. Miss Arnstein.
 62f,63w. Principles of Public Health Nursing. For public health nurses. 3 credits per quarter. Miss Arnstein.
 65f,w,s. Field Practice in School Nursing. For public health nurses. Credits arranged. Miss Arnstein.
 66f,w,s. Field Practice in County Nursing. For public health nurses. Credits arranged. Miss Arnstein.
 67f,w,s,su. Field Practice with Family Health Agency. For public health nurses. Credits arranged. Miss Arnstein, Miss Draper, and Mrs. Lyons.
 68s. Orthopedic Nursing Field Work. For public health nurses. Credits arranged. Miss Arnstein.
 69s. School Nursing Procedures. For public health nurses. 3 credits. Miss Palmer.
 170s. Supervision in Public Health Nursing. For public health nurses. 3 credits. Miss Arnstein.
 171f,w,s. Advanced Problems in Public Health Nursing. For public health nurses. Credits arranged. Miss Arnstein, Miss Palmer.
 173f,w,s. Advanced Field Work in Public Health Nursing. For public health nurses. Credits arranged. Miss Arnstein.

* Member of staff of State Department of Health.

DIVISION OF PERSONAL HEALTH AND HEALTH EDUCATION

Professors Ruth E. Boynton, M.S., M.D., J. Arthur Myers, M.D., Ph.D., William A. O'Brien, M.D.; Associate Professors Ralph V. Ellis, M.A., M.D.; Assistant Professors Donald W. Cowan, M.D., M.S., Robert G. Hinckley, B.S., M.D., Carl J. Potthoff, M.D.; Instructors John J. Boehrer, B.A., M.D., Hally J. Fisher, R.N., Phillip D. Kernan, B.S., M.D., Elizabeth H. Lange, B.A., M.D., Royal V. Sherman, B.A., M.D.

- A1f,w. Home Nursing and Hygiene I. Subcollegiate course in School of Agriculture. Miss Fisher.
- A2w. Home Nursing and Hygiene II. Subcollegiate course in School of Agriculture. Miss Fisher.
- A8f,w. Hygiene. Subcollegiate course in School of Agriculture. Dr. Sherman.
- 2f,s. First Aid. 1 credit. Miss Fisher.
- 3f,w,s. Personal Health. 2 credits. Dr. O'Brien.
- 4w,s. Health Problems of Adult Life. 2 credits. Dr. Watson.
- 50f,s. Public and Personal Health. 3 credits. Dr. Boehrer.
- 51f,s. Community Hygiene. 3 credits. Dr. Cowan.
- 52f,w,s. Health Care of the Family. For home economics students. 3 credits. Miss Fisher, Dr. Lange.
- 57s. Health of Infant and Preschool Child. 2 credits. Dr. Boynton.
- 59s. Health of the School Child. 3 credits. Dr. Ellis.
- 60f,s. Tuberculosis and Its Control. 2 credits. Dr. Myers.

DIVISION OF BIOSTATISTICS

Associate Professor Alan E. Treloar, Ph.D.; Instructor Margaret P. Martin, Ph.D.

- 90w. Measurement in Medicine. Consideration of quantitative as opposed to qualitative methods of description, and some elements of statistical analysis particularly as they pertain to vital statistics. For medical students only. 2 credits. Dr. Treloar.
- 110f,s. Biometric Principles. Introduction to statistical analysis with emphasis on basic principles of statistical reasoning. The description of univariate distributions, normal correlations, simple tests of significance, and goodness of fit. Course 111 will be taken concurrently. 3 credits, lab. 2 credits; to be taken concurrently. Dr. Treloar.
- 111f,‡ Biostatistics Laboratory. Practical training in machine calculation and statistical techniques discussed in Course 110. 2 credits. Dr. Martin.
- 120w. Correlation Analysis. 3 credits. Dr. Martin.
- 121w,‡ Correlation Laboratory. 2 credits. Dr. Martin.
- 130s. Statistical Inference. 3 credits. Dr. Treloar.
- 131s,‡ Sampling Laboratory. 2 credits. Dr. Martin.
- 140,‡ Topics in Biostatistics. Credits arranged. Dr. Treloar.
- 150,‡ Life Tables. 3 credits. Dr. Treloar.

‡ A fee of \$1 is charged for this course.

MEDICINE

Departmental Office, 126 Millard Hall

J. Charnley McKinley,* M.D., Ph.D., Professor of Neuropsychiatry and Head.

DIVISION OF INTERNAL MEDICINE

Professors Cecil J. Watson,* M.D., Ph.D., Director, Moses Barron, B.S., M.D., George E. Fahr,*§ B.S., M.D., J. Arthur Myers, M.D., Ph.D., S. Marx White, B.S., M.D.; Clinical Professors† Henry L. Ulrich, B.S., M.D., Charles B. Wright, B.A., M.D.;‡ Associate Professors Ralph V. Ellis,* M.A., M.D., Gerald T. Evans,* M.D., C.M., Ph.D.; Clinical Associate Professors† James B. Carey, B.S., M.D., Carl B. Drake, B.A., M.D., Edwin L. Gardner, B.S., M.D., Reuben A. Johnson, B.S., M.D., Arthur C. Kerkhof, M.D., Ph.D., Ernest T. F. Richards, M.D., C.M., Frederick H. K. Schaaf, M.D., John P. Schneider, M.D., Macnider Wetherby, B.S., M.D.; Assistant Professors Robert G. Hinckley,* B.S., M.D., Wesley W. Spink,* B.A., M.D.; Clinical Assistant Professors† Karl W. Anderson, B.S., M.D., Archibald H. Beard, B.A., M.D., Everett K. Geer, B.S., M.D., Phillip Hallock, B.S., M.D., Edgar T. Herrmann, B.S., M.D., Max H. Hoffmann, B.S., M.D., Ernest S. Mariette, B.S., M.D., Donald McCarthy, B.S., M.D., Chauncey A. McKinlay, B.A., M.D., Harry Oerting, M.D., Thomas A. Peppard, M.D., Robert I. Rizer, B.S., M.D., Morse J. Shapiro, B.S., M.D., Adam M. Smith, B.S., M.D., Horatio B. Sweetser, Jr., B.S., M.D., Samuel A. Weisman, B.S., M.D., Thomas Ziskin, M.D.; Instructors John J. Boehrer, B.A., M.D., John A. Layne,* B.S., M.D., Oscar L. N. Nelson,* B.A., M.D.; Clinical Instructors† Karl d'A. Andresen, B.A., M.D., Joseph F. Borg, B.S., M.D., Theodore J. Bulinski, B.S., M.D., Charles R. Drake, M.D., Robert K. Grau, B.S., M.D., DeForest R. Hastings, B.S., M.D., Douglas P. Head, B.A., M.D., John E. Holt, B.S., M.D., Norman Johnson, B.A., M.D., John LaDue, B.A., M.D., George X. Levitt, B.S., M.D., Thomas Lowry, B.A., M.D., Johannes K. Moen, B.S., M.D., Harold E. Richardson, B.S., M.D., Joseph P. Spano, B.S., M.D., Alphonse E. Walch, M.D., Ralph W. Warnock, B.S., M.D., Asher A. White, B.S., M.D., Ragnvald S. Ylvisaker, B.A., M.D.; Clinical Assistants† Jacob S. Blumenthal, M.D., John F. Briggs, B.S., M.D., Dorothy Hutchinson Brown, M.A., M.D., Leonard K. Buzzell, B.S., M.D., Archibald E. Cardle, B.S., M.D., William H. Carroll, B.S., M.D., Sumner S. Cohen, B.S., M.D., John A. Dahl, M.D., Ejvind P. K. Fenger, B.S., M.D., Victor K. Funk, B.A., M.D., Wayne S. Hagen, B.A., M.D., Lynn Hammerstad, B.S., M.D., James L. Jaeck, B.S., M.D., Emil W. Johnson, B.S., M.D., Robert E. Johnson, B.A., M.D., Herbert W. Jones, Jr., M.D., Leonard M. Larson, B.S., M.D., Beatrice Lovett, B.S., M.D., Stanley W. Lundblad, M.D., Peter M. Mattill, M.S., M.D., John R. Meade, M.D., Leslie R. Scherer, B.A., M.D., David V. Sharp, M.D., J. Allen Wilson, M.D., Ph.D.; Medical Fellows Martin Buhler, B.S., M.D., William O. Clarke, B.A., M.D., Roscoe E. Conklin, M.D., David M. Craig, B.S., M.D., Edmund B. Flink, B.S., M.D., David W. Hilger, B.S., M.D., William H. Hollinshead, B.S., M.D., Evrel

* Full-time appointment.

† Titles prefixed by "clinical" indicate appointments on a part-time basis.

‡ In charge at Minneapolis General Hospital.

§ Deceased.

Larson, B.S., M.D., William L. Lehman, B.S., M.D., Harold E. Miller, M.D., Ben Sommers, M.D., Milton H. Wiley, B.S., M.D.; Research Assistant Samuel Schwartz, B.S.

REQUIRED COURSES

- 15f. Diet Therapy (for nurses). The diseases which demand dietary treatment and the scientific principles underlying diet therapy. 11 hours; 1 credit. Drs. Ylvisaker and Dahl.
- 18w,su-19f,s. Principles of Medical and Surgical Nursing. Drs. Fahr, Kerkof, Nelson, A. A. White, and Ylvisaker.
- 101w-102s. Introductory Physical Diagnosis. In conjunction with the Department of Surgery. Lectures and practical work on the examination of the normal body. This is followed during the second quarter by lectures on the pathological variations and signs, and orientation lectures in psychiatry. Students are assigned to hospital wards for the examination of selected cases. Sophomore year. Prerequisites, gross anatomy, Physiology 103; 77 hours; 7 credits. Includes Medicine 116s and 119s. Drs. McKinley, Watson, Myers, and others.
- 103f,w,s. Clinics in Medicine. Half divisions at Ancker Hospital, St. Paul. Junior year. 17 hours for each student. Drs. C. B. Drake, Herrmann, and Oerting.
- 104f,w,s. Introduction to Internal Medicine. Systematic lectures and clinics in the field of internal medicine. Junior year. Prerequisite, Medicine 101-102; 22 hours a quarter, 66 hours total. Dr. Watson and staff.
- 105f,w,s. Divisional Clinic in Medicine. Junior year, each division one quarter. Prerequisite, Medicine 101-102; 17 hours per student. Classroom of Minneapolis General Hospital. Dr. Fahr and staff.
- 106f,w,s. Physical Diagnosis and Case Taking. Individual work, a junior and a senior work together; histories, physical examinations, and provisional diagnoses on assigned dispensary patients under supervision of instructors. Junior year. Prerequisite, Medicine 101-102; 66 hours. In sections at University Dispensary. Dr. Wetherby and others.
- 107f. Clinical Chemistry and Microscopy. Methods of laboratory examination for diagnostic purposes. Junior year. Prerequisites, general pathology, physiological chemistry; 66 hours. Dr. Watson and staff.
- 108f,w,s. Dispensary Clinics. Junior year. Prerequisite, Medicine 101-102; 33 hours per student. University Dispensary. Dispensary staff.
- 109f,w,s. Class Clinic in Medicine. Junior year. Prerequisite, Medicine 101-102; 11 hours each quarter; 22 hours total per student. University Hospital. Dr. Barron.
- 110su,f,w,s. Class Clinic in Medicine. Students on clerkship attend this clinic throughout the year. Senior year. Prerequisite, junior courses in medicine; 22 hours for two quarters, 11 hours for one quarter, total per student 55 hours. University Hospital and Minneapolis General Hospital. Drs. Watson, Fahr, and staff.
- 111su,f,w,s. Clinical Clerkship in Medicine. Individual work in the medical wards of the University Hospital, taking and recording of case histories, making of physical examinations and of provisional diagnoses. Clerks are held responsible for history and course of disease as well as a detailed knowledge of the treatment given to patients assigned them. Senior year. Prerequisites, clear record in all prior subjects; 400 hours. Dr. Watson and staff.
- 111v. Admission Clerkship. Assignment to admission service, University Hospital. Part of medical clerkship. Dr. Wetherby.

- 111xsu,f,w,s. Same as Course 111 at the Minneapolis General Hospital. Dr. Fahr and staff.
- 111ysu,f,w,s. Physical Diagnosis and Therapy. Conducted with sections in the following dispensary clinics: (1) general medicine; (2) heart clinic; (3) chest clinic; (4) metabolism; (5) gastrointestinal clinic. Senior year. Part of medical clerkship, Course 111.

ELECTIVE COURSES

128. Physical Signs in Pulmonary Tuberculosis. Junior year. 17 hours per student. Tuberculosis Pavilion, Ancker Hospital, St. Paul. Dr. Geer.
129. Advanced Physical Diagnosis. Not less than 3 nor more than 6 students. Minneapolis General Hospital. Dr. Peppard.
130. Graphic Recording and Functional Diagnosis of Cardiovascular Diseases. Not less than 3 nor more than 6 students. Dr. Ziskin.
131. Advanced Physical Diagnosis of the Chest. Practical dispensary work on tuberculous patients. Not less than 3 nor more than 6 students. Dr. Weisman.
132. Diagnosis and Treatment of Diseases of the Lungs. Three lectures and two clinics per week (hospital wards and dispensary). Lectures with or without hospital work. Sophomores, juniors, and seniors. Hours and credits arranged. Dr. Myers.
133. Gastroenterology. Clinic demonstration and discussions of disorders of the gastrointestinal tract. Junior year. 4 to 8 students. Dr. Carey.
134. Gastroscopy. Senior year. Limited to 2 students. University Hospital. Dr. Carey.
135. Essentials of Diagnosis and Treatment of Heart Disease. Practical clinics on cardiac patients at Lymanhurst. Junior year. Limited to 8 students. Dr. Shapiro.
136. The Respiratory Organs in Health and Disease. Designed for students desiring training in preparation of scientific and clinical papers for publication. One or more quarters. Limited to 6 students. Dr. Myers.
137. Problems in Pathological Physiology. Experimental work in physiology of the cardiovascular, gastrointestinal, respiratory, and renal systems as affected by experimental procedures, simulating the common processes of disease in those organs. Sophomores. Hours, problems, and credits arranged. One to 4 students. Laboratory of Pathological Physiology, Millard Hall. Dr. Fahr.
138. Problems in Clinical Physiology. Experimental and clinical investigations of the pathological functions in cardiovascular, renal, gastrointestinal, and respiratory diseases. Juniors and seniors. Hours, problems, and credits arranged. One to 4 students. Laboratory of Pathological Physiology, Millard Hall and the Minneapolis General Hospital, and the University Dispensary. Dr. Fahr.

COURSES FOR GRADUATE STUDENTS

- 201f,w,s,su. Clinical Medicine. Drs. Watson, Barron, Fahr, S. M. White, and Spink.
- 202f,w,s,su. Diseases of the Cardiovascular Apparatus. Dr. Fahr.
- 203f,w,s,su. Research in Medicine. Drs. Watson, Fahr, and Spink.
- 205f,w,s,su. Tuberculosis. Dr. Myers.

For other courses see Graduate Medical School Bulletin.

DIVISION OF NERVOUS AND MENTAL DISEASES

Professors J. Charnley McKinley,* M.D., Ph.D., Director, Eric K. Clarke,* B.S., M.D.; Clinical Professor† Ernest M. Hammes, M.D.; Associate Professor Joseph C. Michael, B.S., M.D.; Clinical Associate Professor Hyman S. Lippman, M.D., Ph.D.; Assistant Professors A. B. Baker,* M.D., Ph.D., Starke R. Hathaway,* Ph.D., Robert G. Hinckley, B.S., M.D., Reynold A. Jensen,* B.S., M.D., Burtrum C. Schiele,* B.A., M.D.; Clinical Assistant Professors† Royal C. Gray, M.D., Ph.D., Charles J. Hutchinson, B.A., M.D., Gordon R. Kamman, B.S., M.D., George N. Ruhberg, B.S., M.D., Frank W. Whitmore, M.D.; Professorial Lecturers George H. Freeman, M.D., William L. Patterson, M.A., M.D.; Instructors Alexander Blumstein,* B.S., M.D., Stuart W. Cook,* Ph.D., Lillian Cottrell,* M.D., M.S., Robert E. Harris,* Ph.D.; Clinical Instructors† Nathan J. Berkwitz, M.D., Ph.D., Walter P. Gardner, B.S., M.D., Burton P. Grimes, B.A., M.D., Hewitt B. Hannah, B.A., M.D., John E. Skogland, M.D., Ph.D.; Teaching Assistant Donald C. Arnold,* B.S., Ph.D.; Clinical Assistants† Joel C. Hultkrans, B.S., M.D., Robert L. Meller, B.S., M.D., Ralph Rossen, B.S., M.D.; Medical Fellows Gunnar Linner, B.S., M.D., Charlotte L. Meller, M.D., Charles G. Polan, B.S., M.D., LaVerne C. Strough, B.S., M.D.

REQUIRED COURSES

- 115f,w,s. Clinical Neuropsychiatry. Systematic clinics, demonstrations, and lectures. Junior year. Prerequisites, Medicine 101-102; 66 hours. Drs. McKinley, Hammes, and staff.
- 116s. Introductory Psychiatry. Part of Physical Diagnosis, Course 102s. Sophomore year. 11 hours. Dr. McKinley and staff.
- 117f,w,s. Clinics in Neurology and Psychiatry. Half divisions at the Ancker Hospital, St. Paul. Junior year. 17 hours. Drs. Hammes, Kamman, Ruhberg, and Whitmore.
- 117x. Same as 117 at the Minneapolis General Hospital. Dr. Michael and staff.
- 118su,f,w,s. Clinical Clerkship in Neuropsychiatry. Sections of the class for three-week periods in the University Hospital and Dispensary. Part of medical clerkship, Course 111. Dr. McKinley and staff.
- 119s. Lectures and Practical Demonstrations in the Neurologic Examination. Part of Introductory Physical Diagnosis, Course 102s. Dr. McKinley and staff.

ELECTIVE COURSES

- 20f,su. Introductory Psychiatry (Social Work 170). For upper group only. Prerequisites, elementary psychology and sociology; 33 hours. Dr. Hinckley.
- 21w,su. Descriptive Neuropsychiatry (Social Work 171). Prerequisite, Medicine 20 or psychology (Abnormal Psychology, Dr. Bird); 33 hours. Drs. Baker and Kamman.
- 22s. Advanced Considerations in Psychiatry (Social Work 172). For sociology, psychiatric nurses, etc. Prerequisite, Medicine 20 and 21; 11 hours. Dr. Clarke.
- 23w. Mental Hygiene Aspects of Public Nursing. For graduate nurses only. 33 hours. Dr. Clarke.
142. Psychiatric Problems. Limited to 4 to 6 students. Minneapolis General Hospital. Dr. Michael.

* Full-time appointment.

† Titles prefixed by "clinical" indicate appointments on a part-time basis.

143. Pathology of the Nervous System. Not less than 5 students. Same as Pathology 111. Carries sophomore credit. Dr. Baker.
144. Neuropathology. Individual gross and microscopic studies on existing preparations in neuropathology. Prerequisites, Pathology 101 and 102; credits and hours arranged. Limited to 2 students. Dr. Baker.
145. Problems in Nervous and Mental Diseases. The student will be assigned a topic for special study. Prerequisite, Pathology 102; credits and hours arranged. Limited to 2 students. Drs. McKinley, Baker, and Hathaway.
146. Psychiatric Problems in General Medical Practice, Including the Psychoneuroses. Junior year. Not less than 5 students. University Hospital. Dr. Schiele.
147. Clinic in Neurology and Psychiatry. Demonstration of cases of special teaching significance as they present themselves in this field at the Minneapolis General Hospital. Junior year. Limited to 4 students. Dr. Blumstein.
148. Diagnosis and Treatment of Neurosyphilis. Minneapolis General Hospital. Dr. Blumstein.

COURSES FOR GRADUATE STUDENTS

- 207f,w,s,su. Pathology of the Nervous System. Dr. Baker.
- 208f,w,s,su. Clinical Neurology. Drs. McKinley, Hammes, Baker, and Schiele.
- 208xf,w,s,su. Clinical Psychiatry. Drs. McKinley, Hathaway, and Schiele.
- 209f,w,s,su. Research in Neurology and Psychiatry. Drs. McKinley, Baker, and Hathaway.
- 210f. Advanced Neuropathology. Prerequisites, Pathology 101 and 102. Dr. Baker.
- 211w,s. Intracranial Neoplasms. Prerequisites, Pathology 101 and 102. Dr. Baker.
- 212f,w,s,su. Survey of Neuropathology. Prerequisite, Medicine 210. Dr. Baker.

For other courses see Graduate Medical School Bulletin.

DIVISION OF DERMATOLOGY

Professors Henry E. Michelson, B.S., M.D., Director, Samuel E. Sweitzer, M.D.; Associate Professor John Butler, M.D.; Clinical Associate Professors Harry G. Irvine, M.D., Francis W. Lynch, M.D., M.S.; Clinical Assistant Professors Charles D. Freeman, M.D., Carl W. Laymon, M.D., Ph.D., John F. Madden, M.D., M.S., Elmer M. Rusten, B.A., M.D., Louis H. Winer, B.S., M.D.; Clinical Instructors Clifton A. Boreen, B.S., M.D., Edward C. Gager, M.D., Henry N. Klein, M.D.; Clinical Assistants Emmet V. Kenefick, M.D., Ernest A. Strakosch, M.D., Merriam G. Fredericks, B.S., M.D.; Medical Fellow Lawrence M. Nelson, B.S., M.D.

REQUIRED COURSES

- 123w. Courses in Dermatology. Clinical lectures upon the common skin diseases and syphilis, including diagnosis and treatment. Junior year. Prerequisite, Medicine 101-102; 33 hours. Dr. Michelson.
- 124su,f,w,s. Physical Diagnosis and Therapy. Sections of the senior class in dermatology and syphilis, in the dispensary at the University and at the Minneapolis General Hospital. Part of medical clerkship, Course 111. Dr. Michelson and staff.

ELECTIVE COURSES

- 157f,w,s. Ward Clinics in Dermatology. Junior year. 17 hours. Ancker Hospital, St. Paul. Drs. Lynch, Madden, Gager, and Klein.
158. Clinic in Dermatology. Wilder Dispensary. Dr. Klein.

159. Assistantship, Dermatology and Syphilis. Prerequisite, medical clerkship. Limited to one student. Minneapolis General Hospital. Drs. Sweitzer, Rusten, and Winer.
160. Assistantship and Conference in Dermatology. Prerequisite, medical clerkship. Limited to one student. University Hospital and Dispensary. Dr. Michelson and staff.
161. Assistantship in Dermatology. Prerequisite, Course 124. Limited to 2 students. University Dispensary. Dr. Michelson and staff.
162. Assistantship in Dermatology. Prerequisite, Course 124. Limited to 2 students. Minneapolis General Hospital. Dr. Sweitzer.
163. Treatment of Syphilis. University Dispensary. Limited to 2 students. University Dispensary. Dr. Michelson.
164. Seminar in Pathology. Histopathology of the skin. Clinical and pathologic phases will be exemplified. Prerequisite, Pathology 102. Same as Pathology 110. Dr. Winer.
165. Seminar in Dermatology. Hours arranged. Dr. Michelson and others.
166. Allergy and Dermatology. University Hospital. Dr. Rusten.

COURSES FOR GRADUATE STUDENTS

- 267f,w,s,su. Dermatology and Syphilology. Dr. Michelson and staff.
 268f,w,s,su. Histopathology. Dr. Michelson and staff.
 269f,w,s,su. Therapy of Syphilis. Dr. Michelson and staff.
 270f,w,s,su. Dermatology and Syphilology. Dr. Sweitzer and staff.
 271f,w,s,su. Dermatology in Students' Health Service. Dr. Michelson and staff.
 272f,w,s,su. Allergy in Dermatology. Drs. Michelson, Sweitzer, and staff.
 273f,w,s,su. Dermatology and Syphilology. Dr. Michelson and staff.
 275f,w,s,su. Tumor Clinic. Dr. Peyton and staff.

OBSTETRICS AND GYNECOLOGY

Departmental Office, University Hospital

Professor John L. McKelvey,* B.A., M.D., C.M., Head; Professors Emeritus Jennings C. Litzenberg, B.S., M.D., John L. Rothrock, M.A., M.D.; Associate Professor A. Louis Dippel, M.A., M.D.; Clinical Associate Professor† Robert Meyer,* M.D.; Assistant Professor Emeritus Arthur E. Benjamin, M.D.; Clinical Assistant Professors† Lee W. Barry, M.D., Ph.D., Claude J. Ehrenberg, B.S., M.D., Everett C. Hartley, B.A., M.D., George F. Hudson, B.A., M.D., Leonard A. Lang, B.S., M.D., Rae T. La Vake, B.A., M.D., Clarence O. Maland, B.S., M.D., Jalmar H. Simons,‡ B.S., M.D., Samuel B. Solhaug, M.D., Ph.D., Roy E. Swanson, M.D., Ph.D., Herbert M. N. Wynne, B.S., M.D.; Instructor Charles E. McLennan,* M.A., M.D.; Clinical Instructors‡ Milton Abramson, M.D., Ph.D., Duma C. Arnold, B.S., M.D., Joseph F. Bicek, B.S., M.D., Louis Freidman, B.S., M.D., Arnold P. Gruenhagen, B.S., M.D., John H. Hazen, B.A., B.S., M.D., James F. Hammond,

* Full-time appointment.

† Titles prefixed by "clinical" indicate appointments on a part-time basis except as noted.

‡ In charge at Minneapolis General Hospital.

M.D., C.M., Eugene M. Kasper, M.D., Ph.D., Arthur A. H. Koepsell, B.S., M.D., Harold R. Leland, B.S., M.D., Edward C. Maeder, M.D., Ph.D., Charles E. Proshek, B.S., M.D., Owen F. Robbins, B.S., M.D., William P. Sadler, B.A., M.D., Albert G. Schulze, M.D., James J. Swendson, B.S., M.D., Thurston W. Weum, B.S., M.D.; Clinical Assistants† Paul N. Larson, B.S., M.D., Charles H. McKenzie, M.D.; Medical Fellows* Hubert L. Anderson, M.D., Albert F. Hayes, B.S., M.D., Emil G. Holmstrom, M.D., George E. B. Rogers, M.D., James F. Shandorf, B.A., M.D., Rodney F. Sturley, B.S., M.D.

REQUIRED COURSES

- 1f.s. Obstetrical Nursing. For student nurses. Dr. McKelvey and others.
 2f.s. Gynecological Nursing. For student nurses. Dr. McKelvey and others.
 120f. Obstetrics. The physiology of pregnancy, labor, and the puerperium. For junior medical students. 33 hours. Drs. McKelvey, McLennan, and staff.
 121w. Obstetrics. The pathology of pregnancy, labor, and the puerperium. For junior medical students. Prerequisite, Course 120; 33 hours. Drs. McKelvey, McLennan, and staff.
 122su,f,w,s. Division Clinic. For junior medical students. 17 hours per student. Minneapolis General Hospital. Drs. Lang, Simons, and staff.
 123s. Gynecology. A study of diagnostic methods in diseases of women. For junior medical students. 33 hours. Drs. McKelvey, McLennan, and staff.
 130su,f,w,s. Clinic in Obstetrics and Gynecology. The pathology of pregnancy, labor, and the puerperium, and of diseases of women. Required of seniors during three quarters; elective for others. Prerequisites, Courses 120, 121, 122, 123; 55 hours. Drs. McKelvey, McLennan, and staff.
 135su,f,w,s. Clinical Clerkship in Obstetrics and Gynecology. Includes clinics in obstetrics and gynecology in the University Hospital and Dispensary. 240 hours. Drs. McKelvey, La Vake, McLennan, and staff.
 135xsu,f,w,s. Part of Course 135 at the Minneapolis General Hospital. Drs. Lang, Simons, and staff.

ELECTIVE COURSES

150. Gynecological Clinic. Diagnosis and treatment of diseases of women. 4 students. Wilder Dispensary, St. Paul. Drs. Hartley and Koepsell.
 151. Venereal Diseases. Evening clinic. 3 students. Lymanhurst. Dr. Proshek.
 155. Prenatal Clinics. Antepartum care of pregnant women at the various prenatal stations. Limited to one student at each station. Drs. Simons, Abramson, and others.

COURSES FOR GRADUATE STUDENTS

- 201f-202w-203s-204su. Advanced Obstetrics and Gynecology. Part I. Required of first year fellows. Drs. McKelvey, Barry, Lang, Simons, and associates.
 205f-206w-207s-208su. Advanced Obstetrics and Gynecology. Part II. Required of second year fellows. Drs. McKelvey, Barry, Lang, Simons, and associates.
 209f-210w-211s-212su. Advanced Obstetrics and Gynecology. Part III. Third year fellows. Drs. McKelvey, Barry, Lang, Simons, and associates.
 216f-217w-218s-219su. Research. Staff.

OPHTHALMOLOGY AND OTOLARYNGOLOGY*

Departmental Office, 523E Todd Memorial Hospital

DIVISION OF OPHTHALMOLOGY

Professor Frank E. Burch, M.D., Head; Associate Professor John S. Macnie, B.A., M.D.; Clinical Assistant Professors Paul D. Berrisford, B.S., M.D., John C. Brown, B.S., M.D., Walter E. Camp, M.A., M.D., Hendrie W. Grant, M.S., M.D., Erling W. Hansen, B.S., M.D., Charles Hymes, M.S., M.D., Malcolm C. Pfunder, B.S., M.D., Virgil J. Schwartz, B.S., M.D.; Clinical Instructors Edward P. Burch, B.A., M.D., Thomas J. Edwards, B.S., M.D., Walter H. Fink, M.D., M.S., Walter Lees Hoffman, M.D., M.S., Bjarne Houkom, M.D., M.S., Richard O. Leavenworth, B.S., M.D., John J. Prendergast, B.S., M.D., Charles E. Stanford, B.A., M.D., Robert R. Tracht, M.S., M.D.; Medical Fellows Alton Lindblom, B.S., M.D., Donald E. Otten, B.S., M.D., George M. Tangen, B.S., M.D., Francis M. Walsh, B.S., M.D.

REQUIRED COURSES

- 100f. Ophthalmology. Lectures and demonstrations. For junior medical students. 20 hours. Dr. F. E. Burch.
- 103f,w,s,su. Clinic in Diseases of the Eye. Diagnosis and treatment of cases. Part of the required section clinics, surgical clerkship period. 20 hours. University Dispensary. Drs. Macnie, Hansen, Hymes, and E. P. Burch.
- 106f,w,s. Operative Clinic in Eye. 13 hours. Limited to 6 students. University Hospital. Drs. F. E. Burch, Macnie, Hansen, and Hymes.
- 107f,w,s. Medical and Neurological Ophthalmology. 2 sections, 22 hours credit. Limited to 16 students. Todd Memorial Room. Dr. E. P. Burch.
- 108w,s. Advanced Ophthalmoscopy. Prerequisite, 107; 22 hours credit. Limited to 6 students. University Dispensary. Eye clinic. Dr. Stanford.

COURSES FOR GRADUATE STUDENTS

- 200f,w,s. Refraction. Dr. Tracht.
- 201f,w,s. Advanced Refraction. Drs. Hymes, E. P. Burch, Edwards, Houkom, and Prendergast.
- 202f,w,s. Clinical Ophthalmology. Drs. F. E. Burch, Macnie, Hansen, and Hymes.
- 203f. Biomicroscopy. Dr. E. P. Burch.
- 204f,w. Ocular Muscles. Dr. Grant.
- 205w. Perimetry. Dr. E. P. Burch.
- 206f,w,s. Surgery of the Eye. Drs. F. E. Burch, Macnie, Hansen, and Hymes.
- 207w. Pathology of the Eye. Dr. Camp.
- 208f. Ophthalmoscopy. Dr. Edwards.
- 209s. Neuro-Ophthalmoscopy. Dr. E. P. Burch.
- 210s. Animal Surgery. Dr. F. E. Burch.
- 211w,s. Physiology of Vision and Physiologic Optics. Dr. Pfunder.
- 212w,s. Seminar in Ophthalmology. Dr. F. E. Burch and staff.
- 213s. Review of Texts on External Diseases. Dr. Stanford.
- 214f. Histology of the Eye. Dr. Prendergast.
- 215w. Radiology of the Eye, Orbit, and of the Head. Dr. Rigler and staff.
- 216s. Plastic Surgery of the Eye and Adnexa. Dr. H. P. Ritchie.

* All members of this department except medical fellows are on a part-time basis.

- 217w. Allergy of the Eye. Dr. Hansen.
 218s. Ophthalmic Therapeutics. Dr. E. P. Burch.
 219s. History of Ophthalmology. Dr. Prendergast.

DIVISION OF OTOTOLOGY, RHINOLOGY, AND LARYNGOLOGY

Professor Horace Newhart, B.A., M.D., Director; Clinical Associate Professor Lawrence R. Boies, M.A., M.D.; Clinical Assistant Professor Frank L. Bryant, B.S., M.D., Charles E. Connor, M.A., M.D., C. Alford Fjeldstad, M.S., M.D., Kenneth A. Phelps, B.S., M.D., Fred J. Pratt, Jr., M.D.; Clinical Instructors Jerome A. Hilger, M.D., M.S., John J. Hochfilzer, M.D.; Clinical Assistants Conrad J. Holmberg, B.A., M.D., Gerald M. Koepcke, B.S., M.D.; Medical Fellows Malcolm R. Johnson, B.S., M.D., Emmet N. Milhaupt, B.A., M.D., Robert E. Priest, B.S., M.D.

REQUIRED COURSES

- 101f. Laryngology and Rhinology. Lectures and demonstrations. For junior medical students. 15 hours. Drs. Phelps and Pratt.
 102f. Otology. Lectures and demonstrations. For junior medical students. 15 hours. Drs. Phelps and Pratt.
 104f,w,s,su. Clinic in Diseases of the Ear. Diagnosis and treatment of cases. Part of section clinics, surgical clerkship period. 18 hours. University Dispensary. Drs. Newhart, Bryant, Fjeldstad, Hilger, and Holmberg.
 105f,w,s,su. Clinic in Diseases of the Nose and Throat. Diagnosis and treatment of cases. Part of section clinics, surgical clerkship period. 18 hours. University Dispensary. Drs. Newhart, Boies, Bryant, Fjeldstad, Hilger, and Holmberg.

ELECTIVE COURSES

- 115f,w,s,su. Clinics in Diseases of the Ear, Nose, and Throat. 50 hours. Wilder Dispensary, St. Paul. Dr. Connor.
 116f,w,s,su. Operative Clinic in Ear, Nose, and Throat. 13 hours. Limited to six students. University Hospital. Drs. Newhart, Boies, Bryant, Fjeldstad, Phelps, and Hilger.
 117w,s. Clinical Otorhinolaryngology. Demonstration of diagnosis and treatment of cases with special reference to the needs of the general practitioner. Classroom and bedside instruction. Prerequisites, Courses 101 and 102. Minimum 6, maximum 12 students. Drs. Newhart, Boies, Bryant, Fjeldstad, and Hilger.

COURSES FOR GRADUATE STUDENTS

- 230f,w,s,su. Clinical Otology. Drs. Newhart, Bryant, and Fjeldstad.
 231f,w,s,su. Clinical Rhinology and Laryngology. Dr. Boies.
 232f,w,s,su. Surgery of the Ear, Nose, and Throat. Operative clinic in the University Hospital. Drs. Newhart, Boies, Bryant, Fjeldstad, and Phelps.
 233f,w. Operative Surgery of the Temporal Bone. Drs. Newhart and Fjeldstad.
 234f,w. Operative Surgery of the Nose and Throat. Dr. Pratt.
 235s. Roentgenology of the Head. Dr. Rigler.
 236w. Functional Ear Tests. Drs. Newhart and Fjeldstad.
 237f. Endoscopy. Lectures and demonstrations. Dr. Phelps.
 238f. Pathology of the Ear, Nose, and Throat. Dr. Connor.
 239s. Endocranial Complications of Ear Diseases. Dr. Newhart.

- 240s. Physiotherapy and Surgery of the Malignant Diseases of the Ear, Nose, and Throat. Drs. Stenstrom, Boies, and Peyton.
 241f,w,s. Seminar in Otolaryngology. Drs. Newhart, Boies, Fjeldstad, and Pratt.
 242f. Diseases of the Labyrinth. Dr. Fjeldstad.
 243f. Ophthalmoscopic and Perimetric Findings in Endocranial Complications. Dr. E. P. Burch.
 244s. Speech Pathology. Dr. Bryngelson.
 245s. Allergy. Dr. Ellis.
 246w. Practical Acoustics for Otologists. Dr. Hartig.
 247w. Plastic Surgery of the Nose. Dr. Hochfilzer.

PEDIATRICS

Departmental Office, 205W Eustis Hospital

Professors Irvine McQuarrie,* Ph.D., M.D., Head, Eric K. Clarke,* B.S., M.D.; Clinical Professor Emeritus† James T. Christison, M.D.; Clinical Professors† Edgar J. Huenekens, M.D., M.A., Frederick C. Rodda, M.D., Max Seham, M.D., Chester A. Stewart, M.D., Ph.D.; Associate Professors Bryng Bryngelson,* Ph.D., Arild E. Hansen,* M.D., Ph.D., Albert V. Stoesser,* M.D., Ph.D.; Clinical Associate Professors† Hyman S. Lippman, M.D., Ph.D., Erling S. Platou, B.S., M.D., Walter R. Ramsey, M.D., Rood Taylor, M.D., Ph.D.; Assistant Professors Reynold A. Jensen,* B.A., M.D., Mildred R. Ziegler,* Ph.D.; Clinical Assistant Professors† Edward D. Anderson, B.A., M.D., Tobias L. Birnberg, M.D., Joseph T. Cohen, D.D.S., Paul F. Dwan, B.S., M.D., Lawrence F. Richdorf, M.D., Ph.D., W. Ray Shannon, M.S., M.D., Robert L. Wilder, B.S., M.D., Oswald S. Wyatt, B.S., M.D.; Instructors John A. Anderson,* B.S., M.D., Charlotte Fisk,* B.S., M.D.; Clinical Instructors† John M. Adams, B.S., M.D., Marguerite Booth, B.A., M.D., M.S., Woodard L. Colby, B.S., M.D., Lyman R. Critchfield, B.S., M.D., George K. Hagaman, M.D., Frank G. Hedenstrom, B.S., M.D., Evelyn V. Johnson, M.D., Emanuel S. Lippman, B.A., M.D., Cecile R. Moriarty, B.S., M.D., Thomas Myers, B.S., M.D., Lillian L. Nye, M.A., M.D., Edwin F. Robb, B.A., M.D., Robert Rosenthal, M.D., David M. Siperstein, M.A., M.D., Alexander R. Stewart, M.D., C.M., Viktor O. Wilson, B.S., M.D., C.P.H.; Clinical Assistants† Carolyn G. Adams, B.A., M.D., Aaron Friedell, B.A., M.D., Hermina Hartig, B.S., M.D., Arthur E. Karlstrom, B.S., M.D., Alfred J. Ouellette, B.S., M.D., Everett C. Perlman, B.S., M.D., Ralph V. Platou, B.S., M.D., Eva Shaperman, B.S., M.D.; Medical Fellows* Northrop Beach, B.A., M.D., Leonard O. Bradley, M.D., J. Willard Hanson, B.S., M.D., William W. Kearney, M.D., Orville M. Moore, B.S., M.D., Arthur J. Moss, B.S., M.D., William R. Murlin, B.A., M.D., Wallace Sako, B.S., M.D., Harold Rypins Research Assistant Luigi Luzzatti, M.D.

REQUIRED COURSES

Junior Year

- 120f. The Normal Child. Physical growth and development by Dr. R. E. Scammon and Dr. Edith Boyd; psychological development by Dr. J. E. Anderson and Dr. Florence Goodenough of the Institute of Child Welfare; the clinical

* Full-time appointment.

† Titles prefixed by "clinical" indicate appointments on a part-time basis.

- physiology and metabolism of infancy and childhood by Dr. McQuarrie. 11 hours.
- 121f. Clinical Diagnosis in Infancy and Childhood. The pathogenesis of disorders of childhood and their recognition and classification, including the disturbances of speech, psychiatric disorders, dental diagnosis, and indications for orthodontia. Follows Course 120. 11 hours. Drs. Clarke, Stoesser, Jensen, and clinical staff.
- 122w,s. Diseases of Infancy and Childhood. The diseases which are more or less peculiar to the age periods before the sixteenth year. 44 hours. Drs. McQuarrie, Hansen, and clinical staff.
- 123f,w,s. Divisional Demonstration Clinic on Noncontagious Diseases. One quarter for each student. 17 hours. Minneapolis General Hospital. Dr. Huenekens.
- 124f,w,s. Divisional Demonstration Clinic on Contagious Diseases. One quarter for each student. 17 hours. Minneapolis General and Ancker Hospitals. Dr. Stoesser and clinical staff.

Senior Year

- 130f,w,s,su. Amphitheater Clinic. Diagnosis, prognosis, prophylaxis, and treatment in pediatric practice. 33 hours. Drs. McQuarrie, Hansen, and senior clinical staff.
- 135f,w,s,su. Clinical Clerkship in Pediatrics. Patients in the wards and dispensaries are assigned to individual students for examination, treatment, and "follow-up" observation under supervision. Bedside clinics for one hour daily. One sixth of class on pediatric clerkship at one time, one half assigned to the University Hospital, the other half to the Minneapolis General Hospital. Drs. McQuarrie, Clarke, C. A. Stewart, Hansen, Stoesser, and staff.

ELECTIVE COURSES§

- 150f,w,s,¶ Physiology and Diseases of the Newborn. Drs. Rodda and Shannon.
- 152f,w,s,¶ Fundamental Principles of Nutrition and Metabolism As Applied to Children. Seminar course. Drs. McQuarrie, Hansen, and Ziegler.
- 154f,w,s,¶ Endocrinology As Applied to Pediatrics. Seminar Course. Drs. McQuarrie and J. A. Anderson.
- 156f,w,s,¶ Advanced Study of Noncontagious Diseases. Both clinical and experimental subject-matter included. Drs. McQuarrie and Hansen.
- 158f,w,s,¶ Advanced Study of Contagious Diseases. Drs. Stoesser and Platou.
- 160f,w,s. Allergic Disorders in Childhood. Dr. Stoesser.
- 162f,w,s. Common Behavior Disturbances in Childhood—Their Recognition and Management. Drs. Clarke, H. S. Lippman, and Jensen.
- 164f,w,s,¶ Rare and Unusual Diseases of Infancy and Childhood. Seminar course. Drs. McQuarrie and C. A. Stewart.
- 166f,w,s. Weekly Seminar for Detailed Discussion of Fundamental Subjects Related to Pediatrics. Dr. Ziegler.
- 168f,w,s. Speech Disturbances in Childhood. Clinic course. Drs. Clarke, Bryngelson, Carolyn Adams, and Miss Adelaide Moren.
- 170f,w,s. Rheumatic Infection and Heart Diseases in Childhood. Drs. Hansen and Dwan.
- 172f,w,s. Dental Disorders in Relation to General Health. Drs. Brekhus, Rudolph, Cohen, and Charlotte Fisk.

§ Time and credit to be arranged with Dr. McQuarrie.

¶ Not offered to fewer than 10 students.

COURSES FOR GRADUATE STUDENTS

- 200f,w,s,su. Amphitheater Clinic in Pediatrics. 11 hours credit per quarter. Drs. McQuarrie, Hansen, and senior clinical staff.
- 202f,w,s,su.§ Pediatric Clinic. Outpatient Department, University Hospital. Daily, 9:00-12:00. Dr. C. A. Stewart.
- 204f,w,s,su.§ Three to twelve months' residence in pediatrics at the University Hospital. Drs. McQuarrie, Clarke, C. A. Stewart, Hansen, Ziegler, and J. A. Anderson.
- 206f,w,s,su.§ Three to twelve months' residence in pediatrics and contagious diseases at the Minneapolis General Hospital. Drs. Huenekens, Seham, Stoesser, Platou, Dwan, Wilder, and Adams.
- 208f,w,s,su.§ Pediatric Research. Special problems. Students may collaborate with members of the staff or with other students. Drs. McQuarrie, Ziegler, and staff.

RADIOLOGY

Departmental Office, University Hospital, M534

Professors Leo G. Rigler,* B.S., M.D., Head, Karl W. Stenstrom,* Ph.D.; Clinical Assistant Professors† Robert G. Allison, M.D., Miland E. Knapp, M.A., M.D., Walter H. Ude, B.S., M.D.; Instructors Harold O. Peterson, M.D., James F. Marvin, M.S.; Clinical Instructors‡ J. Richards Aurelius, B.S., M.D., Chauncey N. Borman, M.D., Cyrus O. Hansen, B.A., B.S., M.D., Malcolm B. Hanson, M.D., Oscar Lipschultz, B.S., M.D., John P. Medelman, B.S., M.D., Russell W. Morse, B.S., M.D.; Assistant Wybren Hiemstra, M.D.; Clinical Assitants† Alfred B. Greene, B.S., Ames Naslund, B.S., M.D.; Medical Fellows J. I. Chalek, B.S., M.D., Daniel Fink, B.S., M.D., Kenneth Olson, B.S., M.D.

REQUIRED COURSES

- 105f. Roentgen Rays, Light, and Radium. Lectures and demonstrations. Sophomore medical students. 11 hours. See Physiology 105. Dr. Stenstrom.
- 121f. Roentgenology and Radiation Therapy. Lectures and demonstrations. For junior medical students. 33 hours. Drs. Rigler and Stenstrom.
- 135su,f,w,s. Radiation Therapy for Surgical Clerks. Part of Surgery 135. Dr. Stenstrom.
- 135asu,f,w,s. Roentgen Diagnostic Clinic for Medical Clerks. Part of Medicine 135. Drs. Rigler and Lipschultz.
- 135bsu,f,w,s. Roentgen Diagnostic Clinic for Surgical Clerks. Part of Surgery 135. Drs. Rigler and Peterson.
- 135xsu,f,w,s. Medical-Roentgenologic Conference for Medical Clerks. Part of Medicine 135. Drs. Rigler and Lipschultz.
- 135ysu,f,w,s. Surgical-Roentgenologic Conference for Surgical Clerks. Part of Surgery 135. Drs. Rigler and Lipschultz.
- 135zsu,f,w,s. Pediatric-Roentgenologic Conference for Pediatric Clerks. Part of Pediatrics 135. Drs. Rigler and Lipschultz.

* Full-time appointment.

† Titles prefixed by "clinical" indicate appointments on a part-time basis except as noted.

§ Time and credit to be arranged with Dr. McQuarrie.

ELECTIVE COURSES

- 103f,w,s,su. Clinic in Physical Therapy. Junior, senior, and graduate students. 22 hours. Dr. Knapp.
- 104s. Roentgen and Radium Therapy. Junior, senior, and graduate students. 11 hours. Dr. Stenstrom.
- 106w. Lectures in Physical Therapy. 11 hours. Drs. Stenstrom and Knapp.
- 185f,w,s,su. Reading of Films. Junior or senior year. Prerequisite, Radiology 121; 11 hours. Drs. Rigler and Peterson.
- 186f,w,s. Roentgen Technique. Junior or senior year. 22 hours. Dr. Rigler.
- 187af,s,su. Roentgen Anatomy of Bones and Joints. Same as Anatomy 148. Prerequisites, Anatomy 100 and 101; 11 hours. Dr. Borman.
- 187bf,s. Roentgen Anatomy of Viscera. Prerequisites, Anatomy 100 and 101; 11 hours. Dr. Borman.
- 188af,w,s,su. Roentgen Diagnosis of Diseases of Bones and Joints. Prerequisite, Radiology 121; 11 hours. Dr. C. O. Hansen.
- 188bf,w,s,su. Roentgen Diagnosis of Diseases of Thorax. Prerequisite, Radiology 121; 11 hours. Dr. M. B. Hanson.
- 188cf,w,s. Roentgen Diagnosis of Diseases of Abdominal Viscera. Prerequisite, Radiology 121; 11 hours. Dr. Aurelius.
- 188dw,s. Roentgen Diagnosis of Diseases of the Gastrointestinal Tract. Prerequisite, Radiology 121; 11 hours. Dr. Morse.
- 189af,w,s,su. Clinic in X-Ray Diagnosis. Prerequisite, Radiology 121; 11 hours. University Hospital. Dr. Rigler.
- 189bf,w,s,su. Clinic in X-Ray Diagnosis. Prerequisite, Radiology 121; 11 hours. Minneapolis General Hospital. Dr. Ude.
- 189cf,w,s,su. Clinic in X-Ray Diagnosis. Prerequisite, Radiology 121; 11 hours. Minneapolis General Hospital. Dr. Lipschultz.
- 189df,w,s,su. Clinic in X-Ray Diagnosis. Prerequisite, Radiology 121; 11 hours. University Hospital. Dr. Medelman.
- 195f,w,s,su. Clinic in X-Ray Therapy. Junior or senior year. 11 hours. Dr. Stenstrom.
- 200f,w,s,su. Research in Roentgenology. Hours and credits arranged. Dr. Rigler.
- 205f,w,s,su. Research in Radiation Therapy. Hours and credits arranged. Dr. Stenstrom.
- 208f,w,s. Radiology Seminar. 11 hours. Drs. Rigler and Stenstrom.

SURGERY

Departmental Office, University Hospital E-201

DIVISION OF GENERAL SURGERY

Professors Owen H. Wangenstein,* M.D., Head, Wallace H. Cole, M.D., William T. Peyton,* M.D., Ph.D., Arthur C. Strachauer, M.D., Arthur A. Zierold, D.D.S., M.D., Ph.D.; Clinical Professor† Alexander R. Colvin, M.D., Harry P. Ritchie, Ph.B., M.D.; Associate Professors C. D. Creevy,* M.D., Ph.D., James A. Johnson, M.D.; Clinical Associate Professors† Orwood J. Campbell, M.D., Ph.D., Walter A. Fansler, M.A., M.D., James M. Hayes, M.D., M.S., Archa E. Wilcox, M.D., Harry B. Zimmerman, M.D.; Assistant Professors John R. Paine,* Ph.D., M.D.; Clinical Assistant Professors†

* Full-time appointment.

† Titles prefixed by "clinical" indicate appointments on a part-time basis.

John S. Abbott, B.A., M.D., Arthur F. Bratrud, B.S., M.D., Louis E. Daugherty, M.D., George R. Dunn, Ph.B., M.D., L. Haynes Fowler, M.S., M.D., William A. Hanson, B.S., M.D., Victor P. Hauser, B.A., B.S., M.D., E. Mendelssohn Jones, M.D., Thomas J. Kinsella, B.S., M.D., N. Logan Leven, M.D., Ph.D., Frank S. McKinney, B.A., M.D., Edward Moren, M.D., Martin Nordland, B.S., M.D., Charles E. Rea,* M.D., Ph.D., Edward A. Regnier, M.S., M.D., Carl O. Rice, M.D., Ph.D., Emil C. Robitshek, M.D., Roscoe C. Webb, B.A., M.D., Oswald S. Wyatt, B.S., M.D.; Professorial Lecturer Carl W. Waldron, M.D., D.D.S.; Professorial Lecturer Emeritus Arnold Schwyzer, M.D.; Instructor Clarence D. Dennis, M.D., Ph.D.; Clinical Instructors† James Kerr Anderson, B.A., M.D., George S. Bergh, M.D., M.S., Richard R. Cranmer, M.D., John M. Culligan, Litt.B., M.D., M.S., George D. Eitel, B.S., M.D., D. Greth Gardiner, B.S., M.D., Vernon L. Hart, M.D., Earl C. Henrikson, M.D., M.S., Harold E. Hullsiek, B.S., M.D., Lawrence M. Larson, M.D., Ph.D., Robert F. McGandy, B.S., M.D., Frederick A. Olson, M.D., M.S., Olof A. Olson, M.D., Wallace P. Ritchie, M.D., M.S., Louis Sperling, M.D., Rolla I. Stewart, B.A., M.D., Willard D. White, B.S., M.D.; Clinical Assistants† Max W. Alberts, B.S., M.D., U. Schuyler Anderson, B.S., M.D., Harry F. Bayard, B.S., M.D., Edwin G. Benjamin, B.S., M.D., Harry W. Christianson, B.S., M.D., Kenneth E. Fritzell, B.S., M.D., Carl J. Lind, B.S., M.D., Donald C. McKinnon, M.A., M.D., Hamlin Mattson, B.S., M.D., Horace G. Scott, M.D., M.S., Benedict Trach, M.D.; Medical Fellows* Carroll J. Bellis, M.D., Ph.D., Norvel O. Brink, B.S., M.D., Harry Hall, M.D., Howard Hall, B.S., M.D., Lyle J. Hay, M.D., Herman Koschnitzke, M.D., Arnold J. Kremen, M.D., Bernard Lannin, M.D., Richard L. Varco, B.S., M.D., Edwin J. Welte, M.D.

- 1w. Correlation Clinic on Surgical Anatomy. Freshmen. 11 hours. Dr. Peyton.
 12f. Principles of Surgery for Dental Students. Seniors. 11 hours. Surgical staff.
 16s. Essentials of Medicine for Social Workers. (See Graduate School Bulletin, Sociology 136). Seniors. 22 hours. Surgical staff.
 18su,w,19f,s. Principles of Surgical Nursing. 22 hours. Surgical staff.

REQUIRED COURSES

- 121s. Principles of Surgery. The basic principles of surgery, including anesthesia, antiseptics, asepsis, hemostasis, inflammations, and the process of the repair of tissues. Lectures and demonstrations. Sophomores. 33 hours. Drs. Creevy, Knight, Peyton, Paine, Rea, and Bergh.
 122f,w,s. Fractures and Dislocations (Divisional Clinic). Juniors. 17 hours. Minneapolis General Hospital. Drs. Zierold, Campbell, and Regnier.
 123w,124s. Introductory Physical Diagnosis of Surgical Disorders. The technique of physical examination in surgical conditions. Sophomores. 24 hours. (This course is given as a part of Medicine 101w,102s.) Surgical staff.
 126f,w. Orientation Course in General Surgery. A series of clinical lectures on regional surgery (exclusive of Urology, Orthopedics, and Neurosurgery), emphasizing pathology, diagnosis and essentials of treatment. These lectures attempt to orient the student in his study and reading. Juniors. 33 hours. Surgical staff.
 128f,w,s. Diagnostic Clinic. Juniors. 17 hours. Ancker Hospital. Dr. Colvin and associates.

* Full-time appointment.

† Titles prefixed by "clinical" indicate appointments on a part-time basis except as noted.

- 129f,w,s. Surgical Clinics for Juniors. Amphitheater clinic demonstrating surgical conditions in hospital patients. 33 hours. Surgical staff.
- 130su,f,w,s,131w,s. Surgical Clinic for Seniors. 55 hours. Amphitheater clinic. Surgical staff.
- 135su,f,w,s. Clinical Clerkship. The individual study of assigned patients; case histories, laboratory examinations, provisional diagnoses with suggestions as to therapy; attendance at operation and observation of post-operative management. Seniors. 300 hours. University and Minneapolis General Hospitals. Surgical staff.
- 135asu,f,w,s. Clinical Pathology of Tumors. A combined clinical and pathological consideration of tumors. Insofar as available material permits, a systematic presentation of the manifestations and effects of malignant tumors which come in the province of general surgery and its divisions will be reviewed. Part of Course 135. University Hospital. Surgical staff.
- 135absu,f,w,s. Clinical Pathological Tumor Conference. Conference of surgical, radiotherapeutic, and pathological staffs in which systematic reviews of treated cases are presented by the surgical staff. Two sessions each quarter.
- 135bsu,f,w,s. Reading Course. A weekly recitation during the clerkship on assigned reading in a standard textbook of surgery. Quiz and lecture. Part of Course 135. Surgical staff.
- 135csu,f,w,s. Surgical-Pathological Conference. A review of the gross and microscopic findings of surgical specimens removed during the preceding week; also an attempt will be made to review systematically some of the aspects of surgical pathology which are of especial importance to surgeons. Part of Course 135. Surgical staff.
- 135casu,f,w,s. Medico-Surgical Pathological Conference. Weekly combined meetings of medical and surgical staffs in which the post-mortem findings of particularly interesting and instructive cases are discussed.
- 135dsu,f,w,s. Roentgenological-Surgical Conference. The films of all surgical patients presenting interesting roentgen findings are reviewed. (See also Radiology program.) Staffs of the Departments of Radiology and Surgery.
- 135esu,f,w,s. Surgical Ward Conference. Weekly conference in which cases presenting interesting problems are discussed. Part of Course 135. Surgical staff.
- 135gsu,f,w,s. Outpatient Surgical Clinic, General Surgery, and Proctology. Sections daily in the Outpatient Department. Part of Course 135. Drs. Wangensteen, Peyton, Bratrud, Hanson, Leven, McKinney, Paine, Rea, J. K. Anderson, Bergh, W. P. Ritchie, and Sperling.
- 135gasu,f,w,s. Applied Surgical Anatomy. Weekly demonstrations in which by the use of dissections prepared by surgical fellows a systematic review of the regional anatomy of the major conditions coming within the purview of surgery and its specialties is presented. Surgical staff.
- 135hsu,f,w,s. Clerkship on Fractures. Under the supervision of the hospital staff the student participates in the care of fractures. Part of Course 135. Minneapolis General Hospital. Surgical staff.
- 135hasu,f,w,s. Laboratory Surgery. A course conducted in small groups in which the senior student gains practical experience in asepsis, hemostasis and other fundamental techniques of operative surgery upon animals. Surgical staff.
- 135isu,f,w,s. Anesthetics. Administration of anesthetics under supervision. Part of Course 135. University Hospital. Dr. Knight and others.

ELECTIVE COURSES

- 152su,f,w,s. Diagnosis of Tumors. Study of patients with malignancy in the Out-patient Department. 22 hours. Surgical staff.
- 153su,f,w,s,§ Problems in Clinical Investigation. A study of special case records correlated with literature study. Hours and credits arranged. Drs. Wangenstein, Peyton, Creevy, Paine, Rea, and Bergh.
- 156f,w,s. Bedside Clinic. Juniors. 11 hours; time arranged. Minneapolis General Hospital. Dr. Robitshek.
- 159f,w,s. Clinic in Traumatic Surgery. Juniors and seniors. 11 hours. Minneapolis General Hospital. Dr. Zierold.
- 167su,f,w,s,§ Problems in Experimental Surgery. Students under supervision will investigate problems assigned to them. As their experience increases they are permitted to do the operations incident to their problems. Prerequisite, Surgery 153; hours and credits arranged. Drs. Wangenstein, Peyton, Creevy, Paine, Rea, and Bergh.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f,w,s. Outpatient Clinic in Surgery. The student is required to assist in the outpatient surgical clinic, and to participate in diagnosis and treatment. University Hospital surgical staff.
- 101af,w,s. Outpatient Clinic in Surgery. Minneapolis General Hospital surgical staff.
- 102f,w,s. Applied Surgical Anatomy on the Cadaver.
- 105f,w,s. Proctoscopy and Sigmoidoscopy. The diagnosis and treatment of lesions of the lower bowel. University Hospital surgical staff.
- 105af,w,s. Proctoscopy and Sigmoidoscopy. Minneapolis General Hospital surgical staff.
- 134f,w,s. Tumor Clinic. A combined clinical and pathological consideration of tumors as seen by the general surgeon. University Hospital surgical staff.
- 135f,w,s. Surgical Ward Conference. Presentation of interesting cases by the student. University Hospital surgical staff.
- 137f,w,s. Roentgenological-Surgical Conference. A weekly review of the films of all surgical patients. Staffs of the Departments of Radiology and Surgery.
- 138f,w,s. Medical and Surgical Pathological Conference. Review of interesting cases by the medical, surgical, and pathological staffs.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 205f,206w,207s. Surgical Diagnosis. The surgical fellow assists in the instruction of the clinical clerks and interns, and studies problems in diagnosis in the Outpatient Department and in the University Hospital. Drs. Wangenstein, Cole, Peyton, H. P. Ritchie, Creevy, Evans, Paine, and Rea.
- 208f,209w,210s. Surgical Service. The surgical fellow acts as house surgeon at the University Hospital. Drs. Wangenstein, Cole, Peyton, H. P. Ritchie, Creevy, Evans, Paine, and Rea.
- 211f,212w,213s. Operative Surgery. The surgical fellow acts as first assistant at operations in the University Hospital, and later may be permitted to operate. Drs. Wangenstein, Cole, Peyton, H. P. Ritchie, Creevy, Evans, Paine, and Rea.
- 216f,w,s. Surgical Research. Problems in experimental or clinical surgery. University Hospital surgical staff.

§ Students must obtain permission of department before registering.

- 217f,w,s. Surgical Seminar. Conference for review of surgical literature, for presentation of cases, and as research. University Hospital surgical staff.
- 225f-226w-227s. Surgical Diagnosis. Minneapolis General Hospital. Drs. Zierold, Campbell, Fansler, Regnier.
- 228f-229w-230s. Surgical Service. Minneapolis General Hospital. Drs. Zierold, Campbell, Fansler, Regnier, and Robitshek.
- 231f-232w-233s. Operative Surgery. Minneapolis General Hospital. Drs. Zierold, Campbell, Fansler, and Regnier.
- 236f,w,s. Surgical Research. Minneapolis General Hospital. Drs. Zierold, Campbell, Fansler, and Regnier.
- 237f,w,s. Surgical Seminar. Minneapolis General Hospital. Surgical staff.

DIVISION OF NEUROSURGERY

Professors William T. Peyton,* M.D., Ph.D., Director, Arthur A. Zierold, D.D.S., M.D., Ph.D.; Clinical Professor† J. Frank Corbett, M.D.; Clinical Assistant Professors† Harold F. Buchstein, M.D., George R. Dunn, Ph.B., M.D.; Clinical Instructor† Wallace P. Ritchie, M.D., M.S.; Medical Fellows* Lyle A. French, B.S., M.D., Leonard A. Titrud, B.A., M.D.

REQUIRED COURSES

- 127w. Surgical Diseases of the Nervous System. Lectures on the surgical diseases of the brain, spinal cord, meninges, peripheral nerves, and sympathetic nervous system. Juniors. 11 hours. Dr. Peyton and associates.
- 162su,f,w,s. Outpatient Clinic in Neurosurgery. Examination and observation of patients with surgical diseases of the nervous system before and after operation. Part of Course 135. Dr. Peyton and associates.
- 163su,f,w,s. Clinical Clerkship in Neurosurgery. Case studies. Part of Course 135.

ELECTIVE COURSE

- 164su,f,w,s. Head Injuries. Minneapolis General Hospital. Junior or senior year. 11 hours. Dr. Zierold and associates.

DIVISION OF ORTHOPEDIC SURGERY‡

Professor Wallace H. Cole, M.D., Director; Associate Professor Charles A. Reed, B.S., M.D.; Clinical Associate Professor† Carl G. Chatterton, M.D.; Clinical Assistant Professors† Edward T. Evans, B.S., M.D., Paul W. Giessler, B.S., M.D.; Clinical Instructors† Vernon L. Hart, M.D., Myron O. Henry, B.S., M.D., John H. Moe, B.S., M.D., Stewart W. Shimonek, B.S., M.D., William H. von der Weyer, M.D., George A. Williamson, M.D.; Clinical Assistant† John F. Pohl, B.S., M.D.; Medical Fellows Harold C. Freedman,* M.D., Daniel J. Moos, B.S., M.D., Maynard C. Nelson,* M.D., Frederick G. Rosen-dahl, B.A., M.D.

REQUIRED COURSES

- 140f,w,s. Orthopedic Surgery at Gillette State Hospital. Clinical lectures, demonstrations, and operations. Juniors. 22 hours. Gillette State Hospital, Phalen Park. Drs. Cole, Chatterton, and others.

* Full-time appointment.

† Titles prefixed by "clinical" indicate appointments on a part-time basis.

‡ All members of this division, except medical fellows, are on a part-time basis.

- 142w. Lectures in Orthopedic Surgery. Orthopedic conditions in the adult; lantern slides and demonstrations. Juniors. 11 hours. Orthopedic surgery staff.
- 145su,f,w,s. Orthopedic Outpatient Clinic. A part of required section clinics. Three times weekly. A part of Course 135. Orthopedic surgery staff.

DIVISION OF UROLOGY

Associate Professor C. D. Creevy,* M.D., Ph.D., Director; Associate Professor Emeritus Franklin R. Wright, D.D.S., M.D.; Clinical Associate Professors† Frederick E. B. Foley, Ph.B., M.D., Gilbert J. Thomas, M.D.; Clinical Assistant Professors† Theodore H. Sweetser, B.S., M.D., Anton G. Wethall, B.S., M.D.; Clinical Instructors† Philip F. Donohue, B.S., M.D., Joseph C. Giere, B.A., B.S., M.D., Ernest L. Meland, M.D., M.S., William J. Noonan, M.D., Ragnar T. Soderlind, M.D.; Clinical Assistants† Richard M. Leick, M.D., Edward G. Olsen, M.D., Theodore L. Stebbins, B.S., M.D.; Medical Fellow* Baxter Smith, M.D.

REQUIRED COURSES

- 146w. Lectures in Urology. The etiology, diagnosis, and treatment of diseases of the urogenital tract. Juniors. 18 hours. Urological staff.
- 148su,f,w,s. Cystoscopic Clinic. Demonstration of cystoscopy. Seniors. Part of Course 135. Drs. Wethall, Giere, and Meland.
- 149su,f,w,s. Outpatient Clinic in Urology. The observation, examination, and treatment of patients. Seniors. Part of Course 135. Urological staff.

ELECTIVE COURSES

- 160f,w,s. Clinic in Urology at Minneapolis General Hospital. Juniors. 17 hours. Dr. Sweetser.
- 161f,w,s. Clinic in Urology at Ancker Hospital. Juniors. 17 hours. Drs. Foley and Donohue.

DIVISION OF ANESTHESIA

Associate Professor Ralph T. Knight,* B.A., M.D., Director; Clinical Assistant Professor† Stanley R. Maxeiner, M.D.; Medical Fellows* John E. Grimm, M.D., Jane Musselman, B.S., M.D.

REQUIRED COURSES

- 121bs. Principles of Anesthesia. Part of Course 121. 5 lectures. Drs. Knight and Maxeiner.
- 135su,f,w,s. Individual Instruction in Anesthesia. Part of surgical clerkship, Surgery 135. Dr. Knight and others.
- 135ia,su,f,w,s. Clinical Conferences in Anesthesia. Part of surgical clerkship, Surgery 135. In small groups, 6 hours each. Dr. Knight.

ELECTIVE COURSE

- 165f,w,s,su. Clinical Anesthesia. Selected students may spend additional time in the clinical administration of anesthetics. Dr. Knight.

* Full-time appointment.

† Titles prefixed by "clinical" indicate appointments on a part-time basis.

COURSE FOR UNDERGRADUATE AND GRADUATE STUDENTS

104f,w,s,su. Principles of Anesthesia. Lectures and conferences. 11 hours. 1 cred. Dr. Knight.

COURSES PRIMARILY FOR GRADUATE STUDENTS

207f,w,s,su. General Anesthesia. Instruction and experience in general and regional anesthesia. Dr. Knight.

208f,w,s,su. Pre- and Post-operative Evaluation. Selection of the proper anesthetic and observation of its after effects upon the patient. Dr. Knight.

210f,w,s,su. Research in Anesthesia. Qualified students may investigate problems in anesthesia either in the laboratory of experimental surgery or in the hospital. Dr. Knight.

211f,w,s,su. Seminar in Anesthesia. Regular conferences for review of anesthesia literature and reports on interesting cases and problems, as well as of research work being done by the Division of Anesthesia. Dr. Knight.

SCHOOL OF NURSING

(With departmental status)

Professor Katharine J. Densford, R.N., M.A., Director.

See School of Nursing Bulletin.

UNIVERSITY HOSPITAL

(With departmental status)

Ray M. Amberg, Ph.C., Superintendent.

DIVISION OF DIETETICS

Assistant Professor Gertrude I. Thomas, Director.

For courses see School of Nursing Bulletin and special circular.

DIVISION OF SOCIAL SERVICE

Assistant Professor and Director of Social Service Division Frances M. Money; Instructor and Social Worker Lydia B. Christ, B.A.; Teaching Assistants and Medical Social Workers Frances D. Boone, M.A., Dorothy Bostrom, B.S., Thelma Larson, B.A., Evelyn S. Lyon, B.A., Margaret E. Roll, B.S.; Teaching Assistants and Psychiatric Social Workers Virginia Bradley, M.A., Eleanor Gay, M.A.

PSYCHIATRIC CLINIC FOR CHILDREN

Instructor and Chief Psychiatric Social Worker Betty Porter, M.S.; Instructor and Psychiatric Social Worker Elizabeth Glynn, M.S.; Teaching Assistants and Social Workers Ralphyne Brady, M.S., Helen Haines, B.A.

Field work is offered for social work students in the Graduate School. For a statement of courses see the College of Science, Literature, and the Arts Bulletin, and the special bulletin of the Graduate Course in Social Work.

INTERDEPARTMENTAL INSTRUCTION

CORRELATION CLINICS

Regular weekly clinics are held for both the freshman and sophomore classes. The aim is to emphasize the condition of various patients in terms of the fundamental sciences.

Freshman year: fall quarter, General Introduction, Dr. O'Brien; winter quarter, Anatomy, Dr. Peyton; spring quarter, Bacteriology and Physiological Chemistry, Dr. O'Brien.

Sophomore year: fall quarter, Neurology, Dr. J. C. McKinley; winter quarter, Physiology and General Pathology. Dr. O'Brien; spring quarter, Special Pathology, Dr. Barron.

SPECIAL COURSES

Measurement in Medicine. Winter quarter of freshman year. 22 hours; 2 credits. Dr. Treloar.

Medical History and Bibliography. Fall quarter of sophomore year. 22 hours; 2 credits. Dr. Scammon.

Orientation to Practice. Last quarter of senior year. 15 hours. Dr. Diehl and others.

INSTITUTE OF TECHNOLOGY

SCHOOL OF CHEMISTRY

Any advanced work given in the School of Chemistry may be elected for credit in the Medical School. Such courses as Colloid Chemistry, 128f, 129w, 130s, by Dr. Reyerson, Nuclear Chemistry and Radioactivity, 161f, 162w, by Dr. Hull, and General Survey of Colloid Chemistry, 180f, Colloids in Industry, 181w, Colloids in Biology and Medicine, 182s, by Dr. Freundlich, are recommended. For description of these courses see Bulletin of the Institute of Technology.

AGRICULTURAL BIOCHEMISTRY

(Contributing elective courses to the Medical School)

Professors Ross A. Gortner, Ph.D., D.Sc., Chief, Clyde H. Bailey, Ph.D., William F. Geddes, Ph.D., Leroy S. Palmer, Ph.D.; Associate Professor David R. Briggs, Ph.D., Cornelia Kennedy, Ph.D., William M. Sandstrom, Ph.D.

113f-114w-115s. Biochemical Laboratory Methods. A laboratory course paralleling the lectures in 119-123, using recent methods for the investigation of biologically important compounds, with especial reference to the detection and estimation of such compounds in cells or tissues. Prerequisite, Qualitative Analysis, parallel 119-123; 2 credits each quarter. Dr. Sandstrom.

116w. Advanced Animal Nutrition. Lectures and assigned readings on recent developments in animal nutrition, covering the field of proteins, mineral metabolism, vitamins, and the relation of nutrition to disease. Prerequisite, 119 or physiological chemistry; 3 credits. Drs. Palmer and Kennedy.

119f. Colloids. Lectures and assigned readings dealing with the colloidal state of matter, the preparation and properties of colloidal systems, and the relation of these to biochemical processes. Prerequisites, organic chemistry and zoology (1 year); 3 credits. Dr. Gortner.

- 120w. Proteins. Lectures and assigned readings on composition, structure, chemical and physical properties, and the functions of proteins and amino acids. Prerequisite, 119; 3 credits. Dr. Gortner.
- 121w. Carbohydrates. Lectures and assigned readings on the composition, structure, chemical and physical properties, and the functions of the carbohydrates. Prerequisite, 119. Dr. Geddes.
- 122s. The Lipids and Fats. Lectures and assigned readings on the composition, structure, chemical and physical properties, and the functions of the fats and fatlike compounds. Prerequisite, 119. Dr. Briggs.
- 123s. Enzymes. Lectures and assigned readings on enzyme action, including the methods of preparation and investigation of enzymes and their function in biological and industrial processes. Prerequisite, 119. Dr. Sandstrom.

DEPARTMENT OF ZOOLOGY

(Contributing elective courses to the Medical School)

For faculty, see the Science, Literature, and the Arts Bulletin.

- 51f.‡ Introductory Animal Parasitology. An elementary course dealing with parasitic Protozoa, worms, and arthropods, and their relation to diseases of man and animals. 5 credits. Dr. Riley.
- 107f‡-108w.‡ Protozoology. Lectures, laboratory, and reference work. 3 credits each quarter. Dr. Turner.
- 144w‡-145s‡-146s.*‡ Animal Parasites and Parasitism. 3 credits each quarter. Dr. Riley.
- 170f‡-171w.‡ Advanced Genetics. 3 credits. Dr. Oliver.
- 180f.‡ Comparative Embryology. 3 credits. Dr. Ringoen.
- 181w. Endocrines and Reproduction. 3 credits. Dr. Ringoen.
- 182s. Experimental Embryology. Lectures and discussions of the more recent investigations in developmental mechanics. 3 credits. Dr. Ringoen.

This department through Dr. Oliver also contributes ten lectures on genetics with special medical references to Course 103, Department of Physiology.

* 144w-145s is a 6-credit course. 146s (3 credits) may be taken simultaneously with 145s, at hours to be arranged.

‡ A fee of \$1 is charged for this course.