

*School of Public Health*

1960-1962



**Bulletin**

*of the UNIVERSITY of MINNESOTA*

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## Public Health Nursing

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Francisco Grande, M.D., Professor  
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Marie J. Doud, Clinical Preceptor; Administrator, Highland Hospital, Rochester, New York  
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Richard E. Fox, Clinical Preceptor; Superintendent, St. Luke's Hospital, Duluth  
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Benjamin W. Mandelstam, M.D., Clinical Preceptor; Administrator, Mt. Sinai Hospital, Minneapolis

Harold Mickey, B.B.A., Clinical Preceptor; Administrator, Methodist Hospital, Rochester

Russell H. Miller, B.A., M.H.A., Clinical Preceptor; Administrator, University of Kansas Medical Center, Kansas City, Kansas

Robert A. Molgren, B.A., M.H.A., Clinical Preceptor; Administrator, Saint Luke's Hospital, Kansas City, Missouri

Russell A. Nelson, M.D., Clinical Preceptor; Director, Johns Hopkins Hospital, Baltimore, Maryland

David E. Olsson, B.S., M.H.A., Clinical Preceptor; Administrator, San Jose Hospital, San Jose, California

Carl N. Platou, B.A., M.H.A., Clinical Preceptor; Administrator, Fairview Hospital, Minneapolis

Boone Powell, M.H.A., Clinical Preceptor; Administrator, Baylor University Hospital, Dallas, Texas

Oliver G. Pratt, B.S., Clinical Preceptor; Executive Director, Rhode Island Hospital, Providence, Rhode Island

Glenn M. Reno, B.S., M.H.A., Clinical Preceptor; Administrator, Menorah Medical Center, Kansas City, Missouri

Kenneth J. Shoos, B.A., Clinical Preceptor; Superintendent, St. Luke's Hospital, Cleveland, Ohio

William N. Wallace, B.A., M.H.A., Clinical Preceptor; Administrator, The Charles T. Miller Hospital, St. Paul

### Field Associates

K. Elizabeth Anderson, M.A., Director of Health Education, Montana State Health Department, Helena, Montana

Ralph H. Boatman, Ph.D., Director, Health Education, The Tuberculosis Institute of Chicago and Cook County, Chicago, Illinois

Marion T. Bryant, M.P.H., Chief, Bureau of Health Education, County of San Diego Department of Public Health, San Diego, California

Gladys Casady, Assistant Chief, Section of Vital Statistics, Minnesota Department of Health

Marcia Clifford, R.N., Health Director, St. Cloud City Health Department, St. Cloud

Muriel L. Colquhoun, Bureau of Vital Records, Division of Public Health, Minneapolis

M. B. Crabill, M.P.H., Director, Division of Sanitation, Omaha-Douglas County Health Department, Omaha, Nebraska

Violet DuBois, Director, Division of Health Education, Omaha-Douglas County Health Department, Omaha, Nebraska

Mario Fischer, M.D., Director of Public Health, Duluth and St. Louis County Health Departments, Duluth

Mary Graupman, R.N., B.S., Assistant Supervising Nurse, Rochester-Olmsted County Health Unit, Rochester

Margaret Griffin, R.N., B.S., Educational Consultant, Family Nursing Service, St. Paul

Ann W. Haynes, M.P.H., Chief, Bureau of Health Education, California Department of Public Health, Berkeley, California

Vera Lundstrom, R.N., B.S., Supervisor, Rural Hennepin County Nursing District, Minneapolis

E. D. Lyman, M.D., M.P.H., Health Director, Omaha-Douglas County Health Department, Omaha, Nebraska

Norbert Reinstein, M.P.H., Program Director, Tuberculosis and Health Society, Detroit, Michigan

Lidwina Suek, R.N., B.S., M.P.H., Chief Nurse, Health Service, Public Schools, Minneapolis

## Special Lecturers, 1958-1960

- Martha Adams, M.A., Director, Department of Public Health Nursing, National League for Nursing, New York
- Clyde Berry, Ph.D., Associate Director, Institute of Agricultural Medicine, College of Medicine, State University of Iowa
- Thomas Bedford, D.Sc., Ph.D., London School of Hygiene and Tropical Medicine
- William Bonne, M.D., Director, Division of Communicable Disease Section, World Health Organization
- Gerald F. Briggs, B.S., Vice President-Chief Engineer, Edward E. Johnson, Inc., St. Paul
- Irene Brzezinski, M.P.H., Health Education Consultant, The Tuberculosis Institute of Chicago and Cook County, Chicago, Illinois
- Charles Carl, M.S., Director, Division of Sanitary Engineering, South Dakota State Health Department
- D. J. Cederstrom, Ph.D., Administrative Geologist, U. S. Geological Survey, Washington, D. C.
- Eugene Cronkite, M.D., Head, Division of Experimental Pathology, Brookhaven National Laboratory
- Mayhew Derryberry, Ph.D., Chief, Public Health Education Services, U. S. Public Health Service
- Lloyd F. Detwiller, M.H.A., Assistant Deputy Minister of Hospital Insurance, B.C. Hospital Insurance Service, Victoria, B.C., Canada
- Richard Dieter, B.S., Executive Director, United Cerebral Palsy of Greater Minneapolis, Inc.
- Madelene M. Donnelly, M.D., M.P.H., Director, Division of Maternal and Child Health, Iowa State Health Department
- Carl M. Eklund, M.D., Medical Director, National Microbiological Institute, Rocky Mountain Laboratory, Hamilton, Montana
- Wallace C. Fulton, M.P.H., Public Health Associate, The Equitable Life Assurance Society of the United States, New York, New York
- James Geary, M.A., Director of Special Education, Minnesota State Department of Education
- Godfrey M. Hochbaum, Ph.D., Assistant Chief, Behavioral Studies Section, Public Health Service, Department of Health, Education, and Welfare, Washington, D. C.
- John Hickey, M.S., Chief, Germ-Free Services Section, Sanitary Engineering Branch, National Institutes of Health
- Milton Hill, P.E., Assistant Director, Office of Professional Education, New York State Health Department
- Peter Isaac, B.S., S.M., Department of Civil Engineering, University of Durham King's College
- William D. Johnson, B.A., Director, Public Health Statistics, South Dakota State Health Department
- Martin Kaplan, V.M.D., Section on Veterinary Public Health, World Health Organization, Geneva, Switzerland
- A. Harris Kenyon, B.S., Director, Minneapolis District, Food and Drug Administration
- Anne Kimball, Ph.D., Chief, Special Laboratory Studies Section, Minnesota Department of Health
- Otto J. M. Kranendonk, M.D., Chief, Netherlands New Guinea Yaws Control Program
- Arthur J. Lesser, M.D., M.P.H., Director, Health Services, Children's Bureau
- Mary Lester, R.N., M.P.H., Communicable Disease Center, U. S. Public Health Service, Atlanta, Georgia
- James Lieberman, D.V.M., M.P.H., Assistant to the Chief, Training Branch, Communicable Disease Center
- Bernyn F. Mattison, M.D., M.P.H., Executive Secretary, American Public Health Association
- W. F. Mayes, M.D., M.P.H., Medical Director, Assistant Chief, Division of General Health Services, U. S. Public Health Service
- J. L. Mogg, M.S., Engineer, Edward E. Johnson, Inc., St. Paul

Alger J. Olson, B.A., Health Educator, Minnesota Department of Health  
 W. Parker Mauldin, Associate, Demographic Director, The Population Council, New York  
 Anne Pavlich, B.S., Assistant Director, Nursing Services of the Minneapolis and Hennepin  
 County Chapter, American Red Cross  
 Sheldon Reed, Ph.D., Director, Dight Institute  
 Emilie Sargent, R.N., M.S., D.Sc., Executive Director, Detroit Visiting Nurse Association,  
 Detroit, Michigan  
 Robert D. Schneider, B.A., District Geologist, U. S. Geological Survey, St. Paul  
 R. L. Schreurs, M.S., Geologist, Edward E. Johnson, Inc., St. Paul  
 Donald L. Snow, M.S., Chief, Sanitary Engineering Branch, National Institutes of Health,  
 Bethesda, Maryland  
 James Steele, D.V.M., M.P.H., Chief, Veterinary Public Health Section, Communicable  
 Disease Center, U. S. Public Health Service, Atlanta, Georgia  
 Conrad P. Straub, Ph.D., Chief, Radiological Health, Robert A. Taft Sanitary Engineering  
 Center, Public Health Service, Cincinnati, Ohio  
 Stanley Walton, M.D., D.P.H., London School of Hygiene and Tropical Medicine  
 Myron Wegman, M.D., M.P.H., Secretary General, Pan American Sanitary Bureau  
 Colin White, M.D., Associate Professor of Public Health (Biometry), Yale University  
 Samuel Wishik, M.D., Professor of Maternal and Child Health, University of Pittsburgh  
 School of Public Health  
 Alfred Yankauer, M.D., M.P.H., Director, Bureau of Maternal and Child Health, New York  
 State Health Department

### Special Lecturers in Hospital Administration, 1958-1960

Kenneth B. Babcock, M.D., Director, Joint Commission on Accreditation of Hospitals, Chi-  
 cago, Illinois  
 S. Steven Barron, M.D., Pathologist, Mt. Sinai Hospital, Minneapolis  
 George Bugbee, B.A., President, Health Information Foundation, New York, New York  
 Dean Conley, B.B.A., Executive Director, American College of Hospital Administrators,  
 Chicago, Illinois  
 Thomas Cook, B.S., Executive Secretary, Hennepin County Medical Society, Minneapolis  
 Edwin L. Crosby, M.D., D.P.H., Executive Director, American Hospital Association, Chi-  
 cago, Illinois  
 Paul M. Densen, D.Sc., Deputy Commissioner of Health, City of New York, New York  
 Winifred H. Erickson, B.A., Chief Dietitian, Ancker Hospital, St. Paul  
 Franz Goldmann, M.D., Director, Health Services Coordination Study, Council of Jewish  
 Federations and Welfare Funds, New York, New York  
 Mrs. Russell Hanson, President, Hospital Auxiliary, Benson  
 Warren B. Hempstead, Sales Manager, Physicians' and Hospitals' Supply Company, Inc.,  
 Minneapolis  
 Victor Johnson, M.D., Ph.D., Director, Mayo Foundation, Rochester  
 Ronald A. Jydstrup, M.H.A., Director, North Dakota Blue Cross, Fargo, North Dakota  
 Lucile P. Leone, M.A., L.H.D., Sc.D., Litt.D., Chief Nurse Officer, U. S. Public Health  
 Service, Washington, D. C.  
 Lee Loevinger, B.A., B.S.L., Attorney at Law, Minneapolis  
 John R. Mannix, Director, Cleveland Hospital Service Association, Cleveland, Ohio  
 J. P. Medelman, M.D., Radiologist, St. Paul  
 Andrew Pattullo, M.B.S., Director, Hospital Division, W. K. Kellogg Foundation, Battle  
 Creek, Michigan  
 John W. Poor, B.A., Director, Division of Public Assistance, Minnesota Department of  
 Welfare, St. Paul  
 Glen V. Taylor, B.A., Executive Secretary, Minnesota Hospital Association, Minneapolis  
 George G. Ulmer, Jr., President, Physicians' and Hospitals' Supply Company, Inc., Minne-  
 apolis  
 Howard M. Winholtz, M.H.A., Assistant Administrator, Rochester Methodist Hospital,  
 Rochester  
 Donald E. Wood, M.H.A., Executive Director, Twin City Regional Hospital Council,  
 St. Paul



# SCHOOL OF PUBLIC HEALTH - 18

## GENERAL INFORMATION - 12

The School of Public Health offers a wide selection of general and professional courses in the field of preventive medicine and public health. The general courses are designed for the student who desires some knowledge of personal health and an understanding of the community program that exists for the promotion of the public health. The professional courses are intended to furnish technical training for those who seek a career in public health work or who wish to use technical knowledge and procedures in their future work in allied fields.

**Development of the School**—Instruction in preventive medicine and public health has been conducted at the University of Minnesota for more than half a century. The course in public health nursing, one of the first in the country, was established in 1918. In 1922 a separate Department of Preventive Medicine and Public Health was established in response to the increasing demand for health education and for trained leaders in public health. Graduate courses in public health have been offered since that time. In 1935 the University of Minnesota was selected by the health officers of the adjacent states as the institution to which they desired to send personnel for public health training under provisions of the Social Security Act. Curriculums for training of health officers and public health engineers were established at that time. In 1944 the Board of Regents authorized expansion of the Department of Preventive Medicine and Public Health into a School of Public Health.

The School is accredited by the American Public Health Association for work leading to the degrees of master of public health and master of science (with major in health education). The program of study in public health nursing is accredited by the National League for Nursing.

The School occupies two and a half floors of the new Mayo Memorial building of the University of Minnesota Medical Center. Here are located teaching and research laboratories, classrooms, conference rooms, and the offices of the School. The Laboratory of Physiological Hygiene is separately situated at the Memorial Stadium only 3 blocks distant.

The teaching programs have been developed in close collaboration with other departments in the medical sciences and with departments dealing with collateral fields of knowledge, in particular with the biological sciences, dentistry, education, engineering, journalism, the social sciences, and veterinary medicine. Practical field experience and observation are provided through a close working relationship with many official and voluntary public health agencies. The Minnesota Department of Health maintains its offices and laboratories on the Minneapolis Campus, and its staff participates actively in teaching. The public health services of Minneapolis and St. Paul likewise share in teaching responsibilities. The City-County Health Unit at Rochester, Minnesota, has been developed with the assistance of the Kellogg Foundation as a field training area. Supervised field training is also available through co-operation of public health agencies elsewhere in Minnesota and in other states.

**Professional Programs in Public Health**—The School of Public Health provides programs of graduate study for health officers, public health engineers, public health nurses, public health educators, public health veterinarians, sanitarians, vital statisticians, and hospital administrators. Arrangements also can be made for other persons with professional training and public health experience, notably dentists and laboratory personnel.

The program of study emphasizes training of a co-ordinated team of professional workers, each member of which has some understanding and appreciation of the contributions which each of the disciplines makes to the broad field of public health. To this end, all students pursuing courses of study leading to a professional degree in public health are required to take the basic core course (PubH 100A, B, and C) and courses in epidemiology, health education, public health administration, public health nursing, sanitation, and statistics. To this nucleus of required courses, which so far as possible all advanced students take together, each of the professional groups adds courses from its respective field of special interest.

The programs of study are arranged as orderly sequences of courses extending over at least 1 academic year (3 University quarters) of postgraduate work. The programs in public health nursing and in health education extend 1 or 2 additional quarters, while students in the programs in public health engineering and sanitation are expected to begin during the second term of Summer Session preceding the academic year of study. Students wishing to pursue advanced work to acquire special competence in 1 of the fields of public health such as epidemiology, maternal and child health, or some aspect of environmental sanitation should plan 1 or more extra years beyond the Master's degree. In all cases the student should plan to begin work in a fall quarter, or at the beginning of the second term of Summer Session.

**Program in Hospital Administration**—A 2-year graduate program in hospital administration was established in the School in 1946 with the aid of the Kellogg Foundation. This program consists of a year of academic study, supplemented by a year of supervised practical experience. The academic year combines specialized instruction in hospital administration and basic courses in the fundamentals of public health. See page 24 for details.

**Program in Biostatistics**—Graduate study in statistical methodology and theory for application in medical, biological, and public health research is offered by the Biostatistics Division. These curriculums prepare the student for statistical positions in the fields of medical and public health research. The Division can currently offer a number of traineeships sponsored by the National Institutes of Health. Requirements for entering a graduate program leading to the degrees of master of science and doctor of philosophy in biostatistics can be found in the *Bulletin of the Graduate School*.

**Advanced Program in Epidemiology**—The School offers specialized training in epidemiology to qualified graduates in medicine, dentistry, and veterinary medicine. Other students with adequate background in biological or physical sciences or with demonstrated competence in investigative work may be admitted. Length of training may vary from 2-5 years dependent upon the student's background. Candidates for the Ph.D. degree must spend a minimum of 3 years of study and research. The acquisition of the M.P.H. degree in the course or its presentation on admission is highly desirable but not mandatory. Under a special continuing grant from the National Institutes of Health liberal stipends are available for a limited number of qualified students.

**Laboratory of Physiological Hygiene**—In 1937 the Laboratory of Physiological Hygiene was established at the University as a research and teaching unit and was made a division of the School of Public Health in 1946. The Laboratory offers unusual opportunities for advanced study in the fields of nutrition, epidemiology of heart disease, gerontology, physiology of exercise, performance, and problems of metabolism. Facilities and personnel are specialized for experimental studies on man. Programs of study are available which lead to the degree of master of science or doctor of philosophy in physiology, physiological chemistry, and in particularly well-qualified cases, physiological hygiene.

**Summer Session**—The Summer Session of the University of Minnesota consists of 2 terms, each of 5 weeks. In each of these terms certain courses are concentrated that during the regular year are spread over 1 or 2 quarters. It is not possible, however, for a student to complete the requirements for an advanced degree by attendance only at a series of summer sessions. Special workshops or intensive programs of study lasting 2 or 3 weeks are offered during the summer.

**In-Service Courses**—Noncredit, in-service courses are offered at the Center for Continuation Study through the co-operation of the School of Public Health and the Department of Continuation Medical Education. These courses vary in length from 2 days to 2 or 3 weeks and are offered to physicians, engineers, nurses, hospital administrators, educators, or other groups within the public health field. The faculty for these courses is recruited from the regular University staff, supplemented by special lecturers. The School likewise offers several courses through the Extension Division. Credits earned through Extension courses can be transferred to count toward degrees. No professional courses are offered by correspondence.

**Training Stipends**—Under Sections 306 and 307, Public Health Service Act, funds are available through the U. S. Public Health Service to provide a limited number of stipends for students in schools of public health who are preparing for public health employment. These cover tuition and university fees, travel to the school and a generous living allowance depending upon the number of dependents and the student's academic background or the degree for which the student is studying. Section 306 provides stipends for all types of public health personnel including nurses at the prebaccalaureate level but excluding nurses working for advanced degrees. Stipends under this section are calculated on the basis of \$400 a month for students with a Doctor's degree, \$300 a month for those with a Master's degree, \$250 a month for those with a Bachelor's degree, and \$200 a month at the pre-Bachelor level. Under Section 307, stipends are available to graduate nurses in the Master's program at \$250 a month regardless of previously earned degrees. All nursing stipends are awarded directly by the School. Stipends for other students are awarded either by the School or by the Public Health Service upon recommendation of the School. Students who are interested in applying for stipends should write to the School of Public Health, 1325 Mayo Memorial, University of Minnesota, Minneapolis 14.

**Special Stipends**—In addition to the foregoing, the School has been granted special stipends by the National Institutes of Health for training in epidemiology, biostatistics, mental health, and cardiovascular nursing. The amounts of such stipends vary with the field of study. Inquiries should be addressed directly to the School.

## Admission — 12 ✓

**Graduate Program**—Those who wish to become candidates for the degrees of master of public health or master of hospital administration should apply for admission to the School of Public Health. Application blanks will be furnished by the School upon request. A certified transcript attesting to the applicant's college record and his graduation must be submitted with the application. After the application and supporting papers have been received, applicants will be notified of action taken.

Detailed admission requirements and degree requirements for the several programs of study are listed under Programs of Study.

Candidates for the degree of doctor of philosophy or master of science should apply directly to the Graduate School.

**Undergraduate Program**—Students studying for the degree of bachelor of science with a major in public health nursing or for the certificate or basic program in public

health nursing should apply for admission to the School of Public Health but should request application blanks directly from the Office of Admissions and Records. (See page 19.)

**Special Students**—Those who do not present themselves immediately as candidates for degrees, but who wish to pursue studies centered in the School of Public Health, may be admitted as adult special students. Students from foreign countries other than Canada are always admitted as Adult Special students for their first quarter of residence and will be continued as such until accepted as candidates for degrees.

Credits earned as Adult Special students will count toward the appropriate degree when the student is transferred to degree candidacy. The academic record of each Adult Special student will be reviewed after the close of each quarter of residence to determine his eligibility for transfer to degree candidacy.

**Foreign Students**—Students from foreign countries are urged to begin their studies with the second term of the Summer Session. During this term, they will attend suitable professional classes to help them learn to understand classroom English so that they will be ready for formal instruction when classes begin in the fall quarter. The School will arrange a program of supervised field experience for the interval between Summer Session and the fall quarter.

**Transfer of Credits**—Transfer of not more than 9 credits earned at other universities may be approved for candidates for Masters' degrees, but this does not shorten the minimum residency requirements of 3 academic quarters.

**Student Orientation**—Those entering during the fall quarter are eligible to take advantage of New Students' Week Activities. The *Moccasin*, new students' handbook, may be secured from the Office of Admissions and Records. Students are particularly urged to attend the lectures on the library, tour of the library, and lectures on "How to Study." Students who have not been in school for several years are urged to take the course in Personal Orientation.

## Degrees and Certificates

**Doctor of Philosophy**—A program of study and research leading to the doctor of philosophy degree may be elected with a major in biostatistics, hospital administration, physiological hygiene, or public health. Entrance upon work for this degree with a major in public health will be limited to students who have already completed a Master's degree or the equivalent in public health or related fields. Students working for this degree with a public health major should be prepared to concentrate upon epidemiology or environmental sanitation. Those whose interest is in the field of maternal and child health should plan their work through the Department of Pediatrics of the Graduate Medical School. A major in biostatistics may be elected by those whose chief interests center in statistical theories and their application to biological fields. Similarly a major in physiological hygiene may be elected by qualified students in that field though many such students may prefer a major in physiological chemistry or physiology. The doctoral program in hospital administration provides a joint major with one of the fields of social science.

A program of at least 3 years of study and research is required. A minimum of 3 quarters must be spent in residence at the University of Minnesota. The general requirements are set forth in the *Bulletin of the Graduate School*.

The University of Minnesota does not grant the doctor of public health degree. With the exception of the professional degrees of M.D., D.D.S., and D.V.M., it is the policy of the University that the only doctoral degree offered is the Ph.D., regardless of the field of specialization.

**Master of Science**—This degree is available under two plans, the one involving preparation of a thesis plus a minimum of course work, and the other embracing more extended course work and the formulation of reports in place of a thesis. A minimum of 3 quarters of study in residence at the University of Minnesota is required under each plan. Students may major in public health (concentrating upon one of the component fields), or in biostatistics, or in physiological hygiene. For detailed information, see the *Bulletin of the Graduate School*.

**Master of Public Health**—This is an advanced professional degree, granted in recognition of scholastic attainment in public health to individuals with suitable previous professional education and experience. The University of Minnesota in its requirements for admission to candidacy for the master of public health degree is guided by the standards established by the American Public Health Association. The following are eligible for admission:

“a. Holders of the degree of M.D., D.D.S., or D.V.M., or equivalent degree from an acceptable institution; or

“b. Holders of the Bachelor’s Degree with adequate preparation in the sciences basic to public health, and also qualified in some professional capacity to pursue education in public health.

“The latter qualifications may normally be fulfilled either by

“x. professional academic qualifications in engineering, public health nursing, education, or some other field of public health representing the equivalent of at least one year of academic work in addition to the completion of a four years’ course leading to the Bachelor’s Degree;

“y. or experience (normally not less than three years) in some field of public health practice or in teaching of a type acceptable to the school.”

Those who do not meet the experience requirement outlined above are advised to become candidates for the master of science degree.

All candidates for the master of public health degree must complete a program of at least 3 quarters of approved study in residence at the University of Minnesota. This must include a *minimum* of 45 credits in courses of graduate grade offered by the University. The total program of training for each candidate should include PubH 100A, B, and C, and courses in epidemiology, health education, public health administration, public health nursing, sanitation, and statistics. The courses selected must have the approval of the student’s adviser. A grade average of not less than 2.5 (based on: A = 4, B = 3, C = 2, D = 1) must be attained, including a grade average of 2.5 in all public health courses so graded and in the foregoing required courses. Field work courses, even though required, are not counted in determining honor point averages. Papers of the quality, though not the scope, of a Master’s thesis must be prepared in courses totaling 9 credits, as determined by the student’s adviser. The student must also successfully pass a comprehensive examination at the end of the period of study.

**Master of Hospital Administration**—See page 24.

### **Bachelor’s Degree**

1. *Major in Public Health Nursing*—See page 19.

2. *Major in Biostatistics*—Registration for courses leading to the bachelor of arts degree with a major in biostatistics is in the College of Science, Literature, and the Arts (see bulletin of that college). The curriculum is of a broadly elective type and designed for a normal period of study covering 4 academic years.

## Expenses (1960-61)

(Subject to change in 1961-62)

1. Tuition fee per quarter (except for hospital administration)	
Resident (full schedule) .....	\$ 71.00
Nonresident (full schedule) .....	180.00
Resident, per credit hour .....	6.00
Nonresident, per credit hour .....	15.00
2. Tuition fee per quarter (hospital administration only)	
Resident (full schedule) .....	135.00
Nonresident (full schedule) .....	265.00
Resident, per credit hour .....	11.25
Nonresident, per credit hour .....	22.25
3. Matriculation deposit .....	5.00
4. Incidental fee per quarter .....	20.00
5. Summer Session (1960), per term	
Tuition .....	57.50
Incidental fee .....	9.50
6. Special course fees are charged as follows:	
PubH 169, 190 (in addition to the regular tuition) .....	100.00
PubH 230 (September field course—in lieu of tuition) .....	200.00
7. Graduation fee .....	10.00

If a student receives a stipend which provides for direct payment of tuition and fees, a statement authorizing the University to submit bills for such charges should be sent to the School of Public Health in advance of registration. The tuition amounts indicated are for registration in the School of Public Health. For tuition rates for other colleges, the *Bulletin of General Information* should be consulted.

The University year, extending from October to June, is divided into 3 terms called quarters. On the specified dates (see Calendar in *Bulletin of General Information*) 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.

## Residence Accommodations

Most out-of-town students live either in University-maintained residence halls or in private rooming houses. Information concerning residence halls may be obtained from the Director of Comstock Hall (for women), from the Director of Centennial Hall (for men), or from the Student Housing Bureau at 209 Eddy Hall.

Information about private rooming houses may be obtained from the Student Housing Bureau.

## Further Information

For further details regarding admission, expenses, housing facilities, health service, scholarships, etc., consult the *Bulletin of General Information* which may be obtained upon request. Address: Office of Admissions and Records, University of Minnesota, Minneapolis 14.

# PROGRAMS OF STUDY - 12

## I. Courses for Medical Health Officers - 14

Major Advisers: Gaylord W. Anderson, Leonard M. Schuman, Stewart C. Thomson

### Requirements for Admission ~ 10

1. The degree of doctor of medicine from an acceptable institution.
2. One year's experience as an intern in an approved hospital, or an acceptable substitute.

### Plan of Instruction

The course of study leading to the degree of master of public health covers a minimum of 3 academic quarters. These quarters should be taken in a single academic year and in all cases the student must plan to begin in a fall quarter. The course of study includes certain required courses supplemented by electives chosen in accordance with the student's special interests and needs. Among the courses of special interest and value are the following:

### Recommended Courses - 9

(Credits shown in parentheses; \*\* indicates required courses)

PubH 100A, B, C**—Elements of Public Health (5)	PubH 154—Control of Radiation Hazards (ar)
PubH 104,** 105—Epidemiology (6)	PubH 155—Introduction to Air Pollution Problems (3)
PubH 106,** 122—Public Health Administration (6)	PubH 191—Science of Human Nutrition (3)
PubH 107—Maternal and Child Health (3)	PubH 195—Public Health Aspects of Cardiovascular Disease (3)
PubH 114**—Environmental Sanitation Programs (3)	PubH 210—Seminar in Public Health (1)
PubH 125**—Public Health Education (2)	PubH 215—Maternal and Child Health (ar)
PubH 126—Occupational Health Programs (3)	PubH 241—Epidemiology of Noncommunicable Diseases (3)
PubH 132—Mental Health Program (1)	Anth 165—Culture and Personality (3)
PubH 133—Mental Health (3)	Pol 120-121—Municipal Functions and Administration (6)
PubH 140**—Vital Statistics I (3)	See page 10 for special program in epidemiology
PubH 141—Economic and Social Aspects of Medical Care (3)	

## 2. Courses for Public Health Engineers

Major Advisers: Herbert M. Bosch, Richard G. Bond, Theodore A. Olson, Harold J. Paulus

### Special Requirements for Admission

1. Degree in engineering, preferably civil, sanitary, chemical, or mechanical.
2. Adequate training in basic and applied sciences, including bacteriology.

### Plan of Instruction

The course of instruction leading to a Master's degree ordinarily requires 4 quarters of study. Students should plan to be in attendance for the second summer term preceding the regular academic year.

This program provides training in the general field of public health and, by the use of electives, specialized training in one or more of the separate fields of environmental health. The student may concentrate his electives in water supply and sewerage, food sanitation, radiological health, air pollution, or industrial health.

### Recommended Courses

(Credits shown in parentheses; \*\* indicates required courses)

- PubH 100A-B-C\*\*—Elements of Public Health (5)
- PubH 102\*\*—Environmental Sanitation (3)
- PubH 104—Epidemiology I (3)
- PubH 106\*\*—Public Health Administration (3)
- PubH 110-111—Biostatistics I and Biostatistics Laboratory (5) (may be substituted for 140)
- PubH 112A-B-C—Public Health Engineering: Plan Examinations (3)
- PubH 113A-B-C—Public Health Engineering: Field Investigations (6)
- PubH 115—Food Sanitation (3)
- PubH 116—Public Health Engineering Administration (2)
- PubH 117-118-119—Sanitary Biology (9)
- PubH 120-121, 130-131—Biostatistics II and III (10)
- PubH 123—Topics in Public Health (ar)
- PubH 125\*\*—Public Health Education (2)
- PubH 126—Occupational Health Programs (3)
- PubH 140\*\*—Vital Statistics I (3) (may be substituted by 110 and 111 or 180)
- PubH 152—Industrial Hygiene Engineering (3)
- PubH 154—Control of Radiation Hazards (3)
- PubH 155—Introduction to Air Pollution Problems (3)
- PubH 156—Air Pollution Surveys and Controls (3)
- PubH 170A\*\*—Public Health Nursing (1)
- PubH 180—Introduction to Biostatistics (5)
- PubH 191—Science of Human Nutrition (3)
- PubH 200—Research (ar)
- PubH 210—Seminar in Public Health (1)
- PubH 212—Seminar in Public Health Engineering and Sanitation (ar)
- PubH 230—Field Practice: Environmental Sanitation (ar)
- Aero 173—Introductory Meteorology (3)
- Aero 174—Applied Meteorology (4)
- AnCh 140—Water Analysis (3)
- Arch 104—City Planning (3)
- Bot 112—Aquatic Flowering Plants (4)
- CE 161—Hydrology (3)
- CE 170—Water Supply (3)
- CE 171—Sewerage and Sewage Treatment (3)
- CE 172—Sanitary Laboratory (3)
- CE 173—Sanitary Engineering Problems: Water (3)
- CE 174—Sanitary Engineering Problems: Sewage and Industrial Wastes (3)
- CE 175—Industrial Waste Disposal (3)
- CE 261—Water Plant Design (3-5)
- CE 262—Sewage Plant Design (3-5)
- ChEn 131-132—Chemical Reactor Analysis (6)
- ChEn 161-162-163—Nuclear Reactor Design (9)
- DyHu 109—Market Milk (3)
- DyHu 150—Dairy Bacteriology (3)
- DInd 102—Condensed Milk Products (3)
- FTec 101—Food Technology (3)
- FTec 102—Food Technology (3)
- FTec 105—Frozen Food Problems (3)
- Geog 133—Climatology (3)
- Geog 134—Advanced Climatology (3)
- IndE 182—Industrial Safety (3)
- ME 146—Fuels and Combustion (3)
- ME 160—Psychrometrics and Air Conditioning (3)
- ME 161—Heating, Air Conditioning Design (3)
- ME 163—Principles of Particle Technology (3)
- ME 169—Air Conditioning and Refrigeration Laboratory (2)
- Phys 121—Experimental Nuclear Physics (3)
- PoHu 154—Poultry Products (5)
- Pol 120-121—Municipal Functions and Administration (6)
- Soc 115—Social Aspects of Housing and Standards of Living (3)
- Zool 144—Medical Entomology (3)



### 3. Programs for Public Health Nurses - 14

Major Advisers: Marion Murphy, Kathryn Fritz, Ruth von Bergen, Eleanor Anderson,  
Clare Blanchard, Nora Cline, E. Barbara Stocking, Delphie Fredlund

#### Graduate Programs Leading to Master of Public Health or Master of Science Degree ) 12

##### Requirements for Admission ) 10

1. A baccalaureate degree from a program accredited by the National League for Nursing which prepares for professional nursing in all clinical areas including public health nursing. Individual consideration will be given to applicants whose basic nursing preparation varies from the above.
2. A grade point average of B in undergraduate course work.
3. Completion of admission tests which may be designated by the faculty.
4. Experience. Students desiring to become candidates for the master of public health degree should have experience in public health nursing (normally not less than 3 years). See page 13.

Students desiring to become candidates for the master of science degree may have less than 3 years of experience. Individual consideration will be given to recent graduates of baccalaureate programs in nursing accredited as above, who lack employment experience in the public health nursing field. See page 18, and also the *Bulletin of the Graduate School*.

#### Plan of Instruction

The purpose of these programs is to prepare selected public health nurses for positions as supervisors, administrators, consultants, and teachers. A *minimum of 4 quarters of study is required* although certain programs involve a longer period. Five quarters are required for those students who wish further preparation in the mental health area and for those interested in preparing for teaching positions. Additional information on the latter program is available from the School of Public Health.

See page 13 for information on required papers and the comprehensive examination which applies to all Master's level public health nursing students.

**Master of Public Health**—This is an advanced professional program in which students representing the various disciplines within the public health field pursue a common core of courses. Since nurses also are required to complete a block of theory and practice courses in the public health nursing area, the Master of Public Health curriculum allows almost no flexibility in the way of electives. In general, nurses whose main interest is in administration are advised to enter this program although others are not excluded.

##### Requirements for Nurses in Master of Public Health Curriculum ) 9

**PUBLIC HEALTH (21 credits)**

- PubH 100A, B, C—Elements of Public Health (5)
- PubH 102A—Environmental Sanitation (2)

- PubH 104—Epidemiology I (3)
- PubH 106—Public Health Administration (3)
- PubH 107—Maternal and Child Health (3)
- PubH 140—Vital Statistics I (3)
- PubH 125—Public Health Education (2)

**PUBLIC HEALTH NURSING AND OTHER**  
(34-37 credits)

- PubH 171-172—Studies in Public Health Nursing (6)  
 PubH 174A, B—Seminar in Administration, Supervision and Consultation (4)

- PubH 175-176-177—Advanced Practice in Public Health Nursing (9)  
 PubH 173—Advanced Field Practice: Functional Area (12 or ar)  
 Anth 165—Culture and Personality (3)  
 A course in nursing education (3 or audit)

**Requirements for Nurses in Master of Science Sequence—  
Public Health as Major Area**

See *Bulletin of the Graduate School*.

Nurses make application to the Graduate School and follow its policies in meeting degree requirements under Plan B. Applications are reviewed by appropriate faculty members in the School of Public Health and recommended to the dean of the Graduate School for approval and admission.

Nurses enrolled in the master of science sequence must enroll for PubH 100A, B, C, and courses in public health administration, epidemiology, and statistics. They follow the same sequence of "Public Health Nursing and Other" courses listed above for master of public health students with opportunity for further work in related fields such as nursing, education, or the social sciences.

**Additional Courses****ADMINISTRATION**

- PubH 105—Epidemiology II (3)  
 PubH 122—Public Health Administration Problems (3)  
 PubH 139—Advanced Field Practice in Public Health Nursing: Block Placement (ar)  
 Pub 181-182—Principles and Methods of Health Education (3-6)  
 SW 260—Principles of Administration in Social Work (3)  
 Pol 121—Municipal Administration (3)  
 (or) Pol 131—Public Administration (3)

**SUPERVISION**

- PubH 105—Epidemiology II (3)  
 PubH 139—Advanced Field Practice in Public Health Nursing: Block Placement (ar)

**TEACHING IN PUBLIC HEALTH NURSING**

Additional information concerning this program is available from the School of Public Health.

**Extended Program with Further Application of Mental Health  
Concepts in Field Practice**

The purpose of this 5-quarter program is to provide students with further depth in learning how to apply mental health concepts in supervision, administration, consultation, or teaching. In general, however, the main focus is the preparation of supervisors since it is the belief of the faculty that understanding and some skill in this area of professional practice are essential to success in other functional roles as well. Some experience in supervision under faculty guidance is a part of the program.

Students may pursue either the master of public health or master of science sequence during the first 3 quarters on campus. The remaining 2 quarters are devoted

- PubH 181-182—Principles and Methods of Health Education (3-6)  
 SW 271—Community Organization (3)  
 SW 275—Social Group Work (3)  
 Soc 120—Social Psychology (3)  
 EPsy 125—Group Dynamics (3)  
 NuAd 173—Fundamentals of Education in Nursing (3)

**CONSULTATION**

- PubH 105—Epidemiology II (3)  
 PubH 122—Public Health Administration Problems (3)  
 PubH 139—Advanced Field Practice in Public Health Nursing: Block Placement (ar)  
 SW 275—Social Group Work (3)  
 Additional content courses in specialized field (maternal and child health, chronic illness, etc.)

to field experience in Rochester, Minnesota, or other selected agencies under the supervision of the co-ordinator of the mental health program.

During the 2 quarters of field work, each student works intensively with 5 or 6 patients from a public health nursing caseload. The visits are discussed in group and individual conferences with the public health nurse co-ordinator of the program. Each student's work with one patient is supervised by a psychiatrist. In addition, a weekly psychiatric seminar helps students analyze their work with patients in the state hospital for the mentally ill. Opportunity for experiences with children in a nursery school is provided.

### **Traineeships**

Students who are preparing on a Master's level for leadership positions in public health nursing are eligible to apply for federal training funds under Section 307, Public Health Service Act. A student interested in the extended mental health sequence may apply for a traineeship under the National Institute of Mental Health of the National Institutes of Health.

In the case of either type of traineeship, students make application to the School of Public Health. However, no action is taken by the faculty until all admission materials have been processed and eligibility for admission to the program determined. Selection will be based upon individual credentials, considering such factors as demonstrated or potential leadership ability, academic and experience backgrounds, and references.

## ***Bachelor of Science Degree***

### **Requirements for Admission**

1. Ability to meet regular entrance requirements of the University in terms of graduation from an accredited high school with an acceptable record. (See *Bulletin of General Information*, obtainable from the Office of Admissions and Records.)

2. Graduation from an accredited school of nursing and registration as a professional nurse. If review of basic nursing record reveals a deficiency in any clinical area, this must be removed before admission is complete.

3. Completion of the National League for Nursing Graduate Nurse Qualifying Examination and other admission tests. Prospective students will receive instructions concerning taking these examinations.

4. Evidence of personal and professional qualifications as supplied by a reference letter and, if possible, an interview.

5. Admission status is considered provisional until the Graduate Nurse Qualifying Examination score is reviewed, any deficiencies are removed, and the student has demonstrated ability to do acceptable college level work on a full-time basis over a 2-quarter period.

*Advanced Standing* will be determined upon review of school of nursing record and transcripts of other college work submitted by applicant. Only courses with grades of C or higher are acceptable for transfer.

### **Plan of Instruction**

The undergraduate program in the School of Public Health prepares qualified nurses to become professional practitioners of nursing in official or voluntary public health agencies and in school nursing services when the latter provide nursing supervision for beginning staff.

Because of its location in a School of Public Health, the program emphasizes preparation of nurses for the public health field. The faculty believes, however, that any baccalaureate degree in nursing should represent breadth and depth of preparation so that its graduates are able to demonstrate a high quality of nursing care in any situation. Toward this end, experimental plans have been developed whereby School of Public Health students have hospital clinical experience in the care of chronic disease patients under faculty guidance.

The baccalaureate program consists of general foundation courses in the arts and sciences, and professional theory and practice courses in nursing and public health. The latter are built upon and related to understandings and skills gained from areas such as communications, and the biological and behavioral sciences. Academic electives, such as humanities or language courses, offer opportunity for the student to broaden her personal and cultural background. Students may enroll in any one of the four quarters.

A total of 180 credits in approved courses is required for the Bachelor's degree. Since the usual course load is 15 credits per quarter this means that the total time involved for the nurse with no previous college work is approximately 7-9 quarters. See *Advanced Standing*. Students are expected to follow a planned sequence, completing Lower Division general academic requirements in advance of professional course work. It is possible to continue with a few general elective courses on an Upper Division level.

Certain nurses may wish to make application for admission to the University of Minnesota but take the early part of the program in a college or university near their home or place of employment. Faculty counseling by mail or interview is available to such nurses. At least 3 quarters in residence at the University are required and at least 2 of these must be in the senior year. All courses in the major sequence must be taken at the University of Minnesota. *Baccalaureate students must complete all requirements for the degree within a maximum of 5 years from year of admission to the program.*

The student must maintain a satisfactory academic standing and may not graduate with less than a 2.0 grade average in all course work as well as a 2.5 (C+) average in the major sequence. For every 5 grade points in excess of 2 grade points per credit (A = 4, B = 3, C = 2, D = 1), the credit hours required for graduation are diminished by 1, but the student must complete all required courses.

In assigning course credits, it is assumed that the average student will spend 3 hours per week for each 1 credit. As an example, a 3-credit course might have 3 hours of lecture per week; it would be assumed that the student would spend another 6 hours per week in reading and other preparation. Laboratory and field courses which require more hours in class or field have a corresponding decrease in the amount of outside preparation.

**Preparation for School Nursing**—Students with special interest in this field of public health nursing must meet the same admission requirements and enroll for the baccalaureate program as outlined. However, 6 to 9 additional credit hours in selected education courses are substituted for part of the elective credit so that the graduate will have some understanding of the school setting and be better able to function as a member of the school community. A group of education courses suitable for this purpose has been cleared with the College of Education and senior students from the School of Public Health are admitted to them. Such courses usually satisfy special certification requirements for school nursing positions when these exist in certain states.

**Supplementary Preparation in Public Health Nursing for Nurses with a Previous Baccalaureate Degree**—Graduates of basic collegiate programs in nursing desiring

to complete preparation in public health nursing are admitted as special students. After review of previous transcripts, supplemental course work is planned on an individualized basis. Such preparation might involve 1 to 3 quarters.

A nurse with a baccalaureate degree whose nursing preparation was in a diploma school is also admitted as a special student. In such cases, a supplemental program is planned individually so as to approximate the baccalaureate program for nurses in the School of Public Health.

**Summer Session Program for Special Students**—During the Summer Session the School of Public Health makes available a group of public health nursing and related courses for nurses already working in the field of public health who wish to meet certain requirements for employment in various states and/or agencies. Unless a nurse who wishes to enroll in these courses has completed approximately 4 or 5 quarters of acceptable general academic credits she is admitted to the Summer Session as a special student and is not a candidate for a degree. If a nurse has a degree program as her goal, she should follow the sequence outlined previously.

*Requirements for Bachelor of Science Degree*

(Credits shown in parentheses)

**GENERAL REQUIREMENTS**

- English—The required sequence will depend upon results of the English Placement Test which should be taken prior to or during the first quarter (12-15)
- Spch 5—Fundamentals of Speech (5)  
(or) Spch 1-2—Fundamentals of Speech (6)
- Bact 53—General Bacteriology (5)
- Phsl 4—Human Physiology (4)
- Psy 1-2—General Psychology (6)
- CD 40—Child Training (3) or equivalent
- Soc 1—Introduction to Sociology (3)
- Soc 3—Social Problems (3)
- Soc 50—Theory, Practice of Social Work (5)
- Anth 1A—Introduction to Anthropology (5)  
(or) Anth 2A—Introduction to World Ethnology (5)
- Pol 1-2—American Government and Politics (6)  
(or) Pol 5—American Government and Politics (5)  
(or) Pol 25—World Politics (3)
- Education elective (3-9)

**MAJOR SEQUENCE** -bc

- PubH 53—Introduction to Public Health (5)
- PubH 58—Maternal and Child Health (3)
- PubH 62—Public Health Nursing I (3)
- PubH 63—Public Health Nursing II (2)
- PubH 64—Long-term Patient Care (6)
- PubH 65—Field Practice in Public Health Nursing (ar)
- PubH 69—The Nurse in School Health Programs (3)
- PubH 75—Introduction to Environmental Sanitation (3)
- PubH 95—Human Nutrition (3)  
(or) HE 76—Nutrition of the Family (4)
- PubH 133—Mental Health (3)
- Ed 81—Introduction to Education for Public Health Nurses (3)
- NuEd 69—Survey of Conditions and Trends in Nursing (3)
- NuAd 170—Foundations of Nursing Service Administration (3)
- General electives to be selected with guidance from adviser (12-26)
- Usual *Advanced Standing* for 3-year nursing program (45)
- Total credits required for degree (180)

**Traineeships**

Students may apply for training assistance under Section 306, Public Health Service Act (formerly Title I, Health Amendments Act of 1956) during enrollment in the major sequence which prepares for the practice of public health nursing, normally 3 quarters during the senior year. Preference is given to nurses under 35 years of age who are new to the field of public health or those with less than 2 years of experience in this field. Selection of candidates is based upon general aptitudes, references, availability for employment without geographic restriction, and expectation of working in the public health nursing field for at least 2 years following receipt of training funds.

## 4. Courses for Health Educators

Major Adviser: Ruth E. Groun

### Special Requirements for Admission

1. Bachelor's degree from an acceptable institution.
2. Satisfactory background in (a) basic health sciences, including bacteriology, nutrition, and human physiology; (b) education and educational psychology; and (c) social sciences, including political science and sociology.

### Plan of Instruction

The course of study leading to the Master's degree covers at least 4 academic quarters, one of which is devoted to field work in an approved training center.

### Recommended Courses

(Credits shown in parentheses; \*\* indicates required courses)

PubH 100A, B, C**—Elements of Public Health (5)	PubH 181-182-183**—Principles and Methods in Public Health Education (9)
PubH 102A**—Environmental Sanitation (2)	PubH 190**—Field Work in Public Health Education (ar)
PubH 104**—Epidemiology I (3)	PubH 210—Seminar in Public Health (1)
PubH 106**—Public Health Administration (3)	PubH 227—Problems in Public Health Education (ar)
PubH 107A—Maternal and Child Health Program (1)	EdCI 217—Seminar in School Health Education (3)
PubH 133—Mental Health (3)	
PubH 140**—Vital Statistics (3)	
PubH 170**—Public Health Nursing (2)	

### Elective Courses

In addition to the listed courses which have been found most useful, there is a large number of offerings in education, journalism, psychology, and sociology from which the student may select.

PubH 95—Human Nutrition (3)	Jour 150—Institutional Public Relations Service (2)
Anth 165—Culture and Personality (3)	Pol 120-121—Municipal Functions and Administration (6)
EdCI 105—Audio-Visual Aids Materials in Education (3)	Soc 120—Social Psychology (3)
EdCI 150—Supervision and Improvement of Instruction (3)	Soc 125—Opinion and Communication: Social Factors (3)
EdCI 215—Problems in School Health Education (ar)	Soc 161—Rural Community Analysis (3)
EdCI 252—Effective College Teaching (3)	Soc 162—Rural Social Institutions (3)
EPsy 193—Psychology of Human Learning (3)	SW 275—Social Group Work (3)
Jour 130—Public Opinion and Propaganda (3)	

## 5. Courses for Public Health Sanitarians

Major Advisers: Herbert M. Bosch, Theodore A. Olson, Harold J. Paulus

### Special Requirements for Admission

1. Bachelor's degree with a major in one of the natural sciences.
2. Adequate training in basic and applied science including bacteriology.

### Plan of Instruction

The course of instruction leading to a Master's degree ordinarily requires 11 months of study. Students must plan to be in attendance for the second summer term preceding the regular academic year, unless specifically exempted.

The program includes training in all phases of environmental sanitation and in other important branches of public health work. These courses are supplemented by electives from other departments of the University according to the special needs and interests of the student.

### Recommended Courses

(Credits shown in parentheses; \*\* indicates required courses)

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| PubH 100A, B, C**—Elements of Public Health (5)  | PubH 200—Research (ar)  |
| PubH 102**—Environmental Sanitation (3)  | PubH 210—Seminar in Public Health (1)                             |
| PubH 104**—Epidemiology I (3)  | PubH 212—Seminar in Public Health Engineering and Sanitation (ar) |
| PubH 106**—Public Health Administration (3)  | PubH 230—Field Practice: Environmental Sanitation (ar)            |
| PubH 110-111—Biostatistics I and Biostatistics Laboratory (5) (may be substituted for 140) | Aero 173—Introductory Meteorology (3)                             |
| PubH 115—Food Sanitation (3)   | Aero 174—Applied Meteorology (4)                                  |
| PubH 116—Public Health Engineering Administration (2)                                      | AnCh 140—Water Analysis (3)                                       |
| PubH 117-118-119—Sanitary Biology (9)  | Arch 104—City Planning (3)  |
| PubH 120-121, 130-131—Biostatistics II and III (10)  | Bot 112—Aquatic Flowering Plants (4)                              |
| PubH 123—Topics in Public Health (ar)  | DyHu 109—Market Milk (3)  |
| PubH 125**—Public Health Education (2)   | DyHu 150—Dairy Bacteriology (3)                                   |
| PubH 126—Occupational Health Programs (3)  | DInd 102—Condensed Milk Products (3)                              |
| PubH 140**—Vital Statistics I (3) (may be substituted by 110 and 111 or 180)               | FTec 101—Food Technology (3)                                      |
| PubH 152—Industrial Hygiene Engineering (3)  | FTec 102—Food Technology (3)                                      |
| PubH 154—Control of Radiation Hazards (ar)   | FTec 105—Frozen Food Problems (3)                                 |
| PubH 155—Introduction to Air Pollution Problems (3)  | Geog 133—Climatology (3)  |
| PubH 156—Air Pollution Surveys and Controls (3)  | Geog 134—Advanced Climatology (3)                                 |
| PubH 170A**—Public Health Nursing (1)  | IndE 182—Industrial Safety (3)                                    |
| PubH 180—Introduction to Biostatistics (5)   | ME 146—Fuels and Combustion (3)                                   |
| PubH 191—Science of Human Nutrition (3)  | Phys 121—Experimental Nuclear Physics (3)                         |
| PubH 194—Human Factors in Industry (3)   | PoHu 154—Poultry Products (5)                                     |
|  | Pol 120-121—Municipal Functions and Administration (6)            |
|  | Soc 115—Social Aspects of Housing and Standards of Living (3)     |
|  | Zool 144—Medical Entomology (3)                                   |

## 6. Courses for Public Health Veterinarians

Major Advisers: Gaylord W. Anderson and Robert K. Anderson

This program is offered in co-operation with the College of Veterinary Medicine located on the St. Paul Campus of the University.

### Special Requirements for Admission

1. Degree of doctor of veterinary medicine from an acceptable institution.
2. One or more years of experience in veterinary medical practice is desirable.

### Plan of Instruction

The program of study includes certain public health courses required of all candidates for a public health degree, supplemented by electives of special interest to the veterinarian. Special attention is given to offerings in veterinary medicine.

food technology, dairy husbandry, and bacteriology. Among the courses of special interest and value are the following:

### Recommended Courses

(Credits shown in parentheses; \*\* indicates required courses)

PubH 100A, B, C**—Elements of Public Health (5)	Bact 124—Virology and Animal Cell Culture (3)
PubH 103—Public Health Bacteriology (3)	DyHu 113—Technical Control of Dairy Products (3)
PubH 104,** 105—Epidemiology I and II (6)	DyHu 151—Advanced Dairy Bacteriology (3)
PubH 106,** 122—Public Health Administration (6)	FTec 101, 102—Food Technology (6)
PubH 114**—Environmental Sanitation (3)	Pol 120-121—Municipal Functions and Administration (6)
PubH 115—Food Sanitation (3)	VBac 128—Problems in Veterinary Bacteriology and Public Health (2)
PubH 125**—Public Health Education (2)	VBac 205—Advanced Veterinary Bacteriology (3)
PubH 126—Occupational Health Programs (3)	VBac 221—Advanced Veterinary Public Health (ar)
PubH 140**—Vital Statistics (3) (may be substituted by 108 or 110 and 111)	VPaP 201—Advanced Veterinary and Poultry Pathology (3)
PubH 154—Control of Radiation Hazards (ar)	VPaP 240—Advanced Veterinary Parasitology (3)
PubH 155—Introduction to Air Pollution Problems (3)	Zool 144-145-146—Animal Parasites and Parasitism (9)
PubH 170A**—Seminar in Public Health Nursing (1)	
PubH 241—Epidemiology of Noncommunicable Diseases (3)	
Bact 116—Immunology (4)	

## 7. Program for Hospital Administrators

Major Advisers: James A. Hamilton and James W. Stephan

### Special Requirements for Admission

1. Bachelor's degree as attested by certified transcript (submit two copies) of applicant's college record.
2. Course in elements and principles of accounting. May be taken during Summer Session prior to start of academic year.
3. Letter indicating applicant's previous work experience and reasons for selecting hospital administration.
4. Names of three references (preferably connected with hospital, health, or medical field).
5. Personal interview by person designated by the University.

Resources limit the number of students which can be accepted. Experience in hospital administration is valuable but not essential and does not in any way shorten the period of study. Only full-time students will be accepted as degree candidates. All correspondence regarding this program should be directed to Director, Program in Hospital Administration, School of Public Health, University of Minnesota, Minneapolis 14.

### Plan of Instruction

The objective of this program is to prepare the individual to assume, after requisite years of practical experience in responsible supervisory and managerial positions, the chief executive status of administrator or director of a hospital. This



program leads to the degree of master of hospital administration. The program is of approximately 21 months duration, including 1 academic year of 3 quarters in full-time residence, and 1 calendar year of supervised administrative residency. The residency is under University supervision and the School guides the student in the selection of the residency. During the residency the student must prepare and submit a research thesis. The curriculum draws upon other University facilities and upon facilities provided by hospitals within the region adjacent to the University. The program of study provides a central group of subjects pertaining directly to hospital operation and administration, with supplementary instruction in related fields including public health and medical care. All students must complete 60 credit hours of graduate work and maintain an average of not less than 2.5 based on A = 4, B = 3, C = 2, D = 1.

The following program of courses will be followed:

**FIRST YEAR** — 6

(Credits shown in parentheses)

- PubH 100A, B, C—Elements of Public Health (5)
- PubH 106—Public Health Administration (3)
- PubH 107A—Maternal and Child Health (1)
- PubH 108—Introduction to Biostatistics (2)
- PubH 109—Institutional Sanitation (3)
- PubH 125A—Public Health Education (1)
- PubH 132—Mental Health Program (1)
- PubH 141—Social and Economic Aspects of Medical Care (3)
- PubH 160—Principles of Administration in Hospitals (6)

- PubH 161—History and Development of Hospitals (3)
- PubH 162-163-164—Principles of Organization and Management in Hospitals (15)
- PubH 166—Hospital Clerkship (5)
- PubH 167—Management Problems in Hospital Administration (6)
- PubH 168—Orientation to Medical Sciences (3)
- PubH 170A—Public Health Nursing (1)
- PubH 210—Public Health Seminar (1)
- Spch 106—Public Speaking and Conference Leadership Technique (3)

**SECOND YEAR** — 6

- PubH 169—Administrative Residency (12)

## 8. Laboratory of Physiological Hygiene

Major Adviser: Ancel Keys

### Special Requirements for Admission

1. Bachelor's degree from an acceptable institution.
2. Evidences of satisfactory background in at least three of the following fields: biochemistry, physiology, psychology, physical education, physical anthropology, medicine, public health.
3. Acceptance of advisory responsibility by one of the graduate faculty members.

### Plan and Program of Study

In general, students wishing to emphasize work in physiological hygiene on a program leading to an advanced degree are advised to do so in connection with a major in physiology, physiological hygiene, or epidemiology. The course of study leading to the Master's degree covers at least 3 academic quarters but in most cases should be planned to cover at least a full calendar year. A large part of 2 or more quarters will ordinarily be required for thesis work. The actual program will be adjusted to the individual needs of the student but will be arranged in 1 of 3 directions of emphasis: physiological, biochemical, or psychological. In general, the following courses, or their equivalents, will be required for the Master's degree.

**Required Courses**

(Credits shown in parentheses)

PubH 100A, B, C—Elements of Public Health (5)	PubH 192—Physiology of Exercise (2)
PubH 110—Biostatistics I (3)	PubH 195—Public Health Aspects of Cardiovascular Disease (3)
PubH 111—Biostatistics Laboratory (2)	PubH 290—Research in Physiological Hygiene (6)
PubH 152—Industrial Hygiene Engineering (3)	Phsl 106—Physiology (15)
PubH 154—Control of Radiation Hazards (ar)	Graduate level courses in Psychology (4)
PubH 155—Introduction to Air Pollution Problems (3)	Physiological chemistry or agricultural biochemistry, graduate level courses (7)
PubH 191—Human Nutrition (3)	

**9. Courses for Vital Statisticians**

Major Advisers: Jacob E. Bearman, Richard B. McHugh, I. Richard Savage, Byron W. Brown, Jr.

**Special Requirements for Admission**

1. Bachelor's degree from an approved institution.
2. Broad training in natural sciences, particularly in biology.
3. Evidence of aptitude for quantitative reasoning.

**Plan of Instruction**

Program leading to the master of public health degree must include basic courses in public health, supplemented by advanced courses in statistics and such other studies as seem best suited to give the student a well-balanced background for work in vital statistics. Study of procedures in state and city offices for vital statistics will be arranged as needed.

**Recommended Courses**

(Credits shown in parentheses; °° indicates required courses)

PubH 100A, B, C°°—Elements of Public Health (5)	PubH 141—Social and Economic Aspects of Medical Care (3)
PubH 102A°°—Environmental Sanitation (2)	PubH 168—Orientation to Medical Sciences (3)
PubH 104°°-105—Epidemiology I and II (6)	PubH 210—Seminar in Public Health (1)
PubH 106°°—Public Health Administration (3)	Jour 150—Public Relations in Community Services (2)
PubH 110, 111—Biostatistics I and Biostatistics Laboratory (5)	Math 121-122-123—Mathematical Theory of Statistics (9)
PubH 120-121, 130-131—Biostatistics and Laboratory II and III (10)	Pol 120-121—Municipal Functions and Administration (6)
PubH 125°°—Public Health Education (2)	Psy 299—Tabulating Equipment Laboratory (1)
PubH 170°°—Seminar in Public Health Nursing (2)	Soc 111—Population Trends (3)
PubH 140,°° 150—Vital Statistics (6)	Soc 112—World Population Problems (3)

## DESCRIPTION OF COURSES - 12

**Course Numbering**—A course is designated by a prefix (departmental abbreviation) and number, and a letter. It will have the same number regardless of the quarter in which it is offered.

The course number, unless otherwise noted, indicates class standing requirements as follows: 1 to 49 for freshmen and sophomores; 50 to 99 for juniors and seniors; 100 to 199 for juniors, seniors, and graduate students; 200 and over graduate students only.

A course sequence separated by hyphens (1-2-3) must be taken *in the order listed* unless there is a ‡ mark indicating that a student may enter the sequence in any quarter.

**Room Schedules**—These will be posted at the School of Public Health office.

**Symbols**—The following symbols are used throughout the course descriptions and will carry no page footnotes:

§ No credit is given if credit has been received for equivalent course listed after section mark.

¶ Means "concurrent registration in" (i.e., must be taken simultaneously).

# A sharp sign means "consent of instructor."

**Abbreviations**—The following abbreviations are used throughout the course descriptions:

Ar	To be arranged or assigned	Lect	Lecture
Cr	Credits	Prereq	Prerequisite
Equiv	Equivalent	Qtr	Quarter
Lab	Laboratory	Rec	Recitation

A parenthetical statement after the description of each course gives the following information: the number of credits the course carries, and the courses or special class standing prerequisite to it. *Abbreviated statement:* (5 cr; prereq sr, 6). *Expanded statement:* This course carries 5 credits, is open to seniors or above only, and has as prerequisite course 6 in the same department as the course being described.

### Subcollegiate Courses in School of Agriculture - 12

- A1. **Personal Health.** Methods of promotion of health and prevention of disease; fundamentals of healthful living; individual and community activities against spread of disease. (1 cr) Bates
- A4. **Rural Sanitation.** Disposal of excreta, sewage, and other waste; location, construction, and operation of rural water supplies; sanitary production, handling, processing, and serving of food; control of animals and insects involved in spread of disease; ventilation and air conditioning; farm and home safety. (3 cr; prereq food technician and practical nursing students or #) Stauffer

### Public Health (PubH)

- 2.°° **Personal and Public Health.** Individual and community activities for promotion of health and safety. (2 cr, §3, 50) Reiter

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°° No credit is granted for this course in major sequence in public health nursing curriculum.

- 3.\*\* **Personal Health.** Normal body function; causes and prevention of disease. (2 cr, §2, 50) Thomson
- 4.\*\* **Health Problems of the Community.** Prevention of disease in family and community. (2 cr; not open to students exempted from 2, 3, 3A or 3B on basis of military service; prereq 3, 3A) Thomson
- 5.\*\* **Individual and Public Health.** Basic concept of cause and prevention of disease in family and community. (3 cr, §2, 3, 3A, 3B, 4, 50, 51) Thomson
- 50.\*\* **Personal and Community Health.** Fundamental principles of health conservation and disease prevention. (3 cr, §2, 3, 3A, 3B, 4, 5, 51, 52) Thomson
- 51.\*\* **Community Hygiene.** Community programs for disease control. (3 cr, §4, 5, 50, 100; not open to students exempted from 3 on basis of military service; prereq 3, 3A) Cowan, Schuman
- 52.\*\* **Home Nursing and Family Care.** Nursing care and observation of patient; equipment of sick room; care of mother and baby. (1 cr; prereq home economics students, 50 or #) Simons
53. **Introduction to Public Health.** Basic concepts of disease prevention and control through community programs. (5 cr; prereq nurses or nursing students only, 3 or 50 or equiv and a course in bacteriology) G Anderson, Thomson, Schuman
- 57.\*\* **Health of Infant and Child.** Maternal health; child health including growth and development of child, care of infants and preschool children, accident prevention. (2 cr; prereq 4, or 50, or 51, or 52) Stocking
58. **Maternal and Child Health.** Maternal health; health of the infant and preschool child; care of handicapped children. (3 cr; prereq nurses, 53, 133, or ¶53, ¶133) Stocking, Hall
- 59.\*\* **Health of the School Child.** Health problems; health appraisal; dental health, nutrition; disease control; school environment; accident prevention; handicapped children. (2 cr; prereq 3 and 4, or 3 and 51, or 50, or 52, or 5)
62. **Public Health Nursing I.** Introduction to public health nursing; analysis of students' case material as means of understanding ways in which public health nursing services are given to patients and families in the community. (3 cr; prereq nurses, 53, 58, 95, 133, Soc 50, ¶65 or ¶Nurs 87) von Bergen and faculty
- 62A. **Public Health Nursing I.** (Summer Session only) Introduction to public health nursing; emphasis on understanding ways in which public health nursing services are given to patients and families in the community. (2 cr; prereq #, 58, 69, 133, or ¶58, ¶69, ¶133) Cline and faculty
63. **Public Health Nursing II.** Analysis of contribution of public health nursing services in control of certain communicable diseases (tuberculosis, staphylococcal and streptococcal infections, venereal disease); orientation to occupational nursing, organization and administration of public health nursing services. (2 cr; prereq nurses, 62, 65, or #) Murphy and associates
- 63A. **Public Health Nursing II.** (Summer Session only) Continuation of PubH 62A. Public Health nursing services to adults; emphasis on chronic illness and rehabilitation; organization and administration of services. (4 cr; prereq 58, 69, 62A, 133, ¶53) Murphy, E Anderson
64. **Long-term Patient Care.** Field experience and seminar; assignment to chronic disease unit in hospital under supervision of faculty; rehabilitation techniques; application to public health nursing situations. (6 cr; prereq nurses, 53, 58, 95, 133, Soc 50) E Anderson and associates
65. **Field Practice in Public Health Nursing.** Practical experience in selected public health agencies; relationship of theory to practice. (Cr ar; prereq 53, 58, 95, 133, Soc 50, ¶62, C average) Murphy and staff

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\*\* No credit is granted for this course in major sequence in public health nursing curriculum.

69. **The Nurse in the School.** Organization and administration of school health programs; health in school curriculum; nursing functions. (3 cr; prereq nurses, 53, 58, 62, 95, 133, or #) Stocking
75. **Introduction to Environmental Sanitation.** Principles of urban and rural sanitation relating to water, food, wastes, housing, air, insects, rodents. (3 cr; prereq 3 cr in public health) Bond
76. **Introduction to Public Health for Dental Students.** (1 cr; fr, soph, jr dental students only) Jordan
77. **Dental Public Health.** Application of public health measures to field of dentistry. (2 cr; prereq sr dental students only, 76) Jordan
90. **Medical Statistics I.** Frequency proportions and probability; rates, measured variables; chance variation and judgment of significance; association. (2 cr; prereq medical students, # for others) Bearman, Thornton
- 91.\*\* **Physiological Hygiene.** Basic physiological principles and facts. (4 cr; prereq 8 cr in chemistry and 4 cr in human anatomy or equiv) Taylor
- 92.\*\* **Physiological Hygiene.** Effects of exercise, nutrition, environment, and age on performance and health. (4 cr; primarily for students in physical education and public health; prereq 91 or equiv) Taylor
95. **Human Nutrition.** Nutritional values of foods, food utilization and requirements, food management, nutrition education, application to public health. (3 cr; prereq courses in chemistry and biology, or #) J Anderson, Stief
100. **Elements of Preventive Medicine and Public Health.** Occurrence and prevention of communicable, degenerative, and industrial diseases; protection of food, water, and milk; maternal and child health. (6 cr; prereq medical students only) G Anderson, Thomson, Schuman
- 100A. **Elements of Public Health I.** Occurrence and prevention of communicable, degenerative, and industrial diseases; protection of food, water, and milk; maternal and child health. (3 cr; prereq 3, 3A, or 50 and a course in bacteriology) G Anderson, Thomson, Schuman
- 100B. **Elements of Public Health II.** Group work in evaluation and solution of representative community health problems. (1 cr; prereq 100A)
- 100C. **Elements of Public Health III.** Continuation of group work in evaluation and solution of representative community health problems. (1 cr; prereq 100B)
101. **Public Health Administration and Field Work.** Field trips to acquaint students with community health programs. (2 cr; prereq sr medical students only) Thomson
102. **Environmental Sanitation.** Methods for promoting man's health and comfort by controlling environment. (3 cr; prereq sr, 100A or ¶100A and #) Bosch, Olson
- 102A. **Environmental Sanitation.** General principles of urban and rural sanitation; problems encountered by official health agencies. (2 cr; prereq 100A or ¶100A and #) Bosch, others
103. **Public Health Bacteriology.** Bacteriologic and serologic diagnosis, public health laboratory administration and methods. (Cr ar; prereq grad, Bact 101-102, 116 and #) Bauer
104. **Epidemiology I.** Basic epidemiologic principles applicable to infectious and noninfectious disease; host-agent-environment complex; factors underlying spread of infectious disease; laboratory applications of statistical and epidemiologic methods. (3 cr; prereq 100A, 140 or 110-111) Schuman, Klimt
105. **Epidemiology II.** Extension of epidemiologic principles to detailed study of selected diseases. (3 cr; prereq 104) Schuman, Klimt

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\*\* Both 91 and 92 must be completed to receive credit except with special permission of instructor.

- 106. Public Health Administration.** Structure, basic functions, and activities of public health agencies. (3 cr; prereq 100A) G Anderson, Hamilton
- 107. Maternal and Child Health.** Health needs and services for mothers and children in public health programs. (3 cr, §107A; prereq physicians, dentists, and nurses, or #, ¶100A) Stocking
- 107A. Maternal and Child Health Program.** Community programs for major maternal and child health problems. (1 cr, §107; prereq 106 or #)
- 108. Introduction to Biostatistics and Statistical Decision.** Variation, frequency distribution; probability; significance tests; estimation; trends. Statistical approach to rational administrative decision making. Lectures and laboratory exercises. (2 cr) Bearman, Weckwerth
- 109. Institutional Sanitation.** Sanitation practices in hospitals and other institutions. (3 cr; prereq hospital administrators or #, 100A) Bosch, Bond
- 110. Biostatistics I.** Role of statistics in research; estimation; sampling distribution; tests of significance; power; regression; correlation; other measures of association; standard distributions including normal,  $t$ ,  $\chi^2$ ,  $F$ , binomial, Poisson; special distributions arising from nonparametric procedures. (3 cr; prereq ¶111, Math 10 or #) Brown
- 111. Biostatistics Laboratory.** Presentation of data; descriptive statistics; practice in practical application of principles and methods covered in 110. (2 cr; prereq ¶110) Knatterud, Meinert
- 112. Public Health Engineering: Plan Examinations.** (Prereq engineering degree and 102 and #)
- 112A. Water Supplies. (1 cr, §114) Bosch
- 112B. Waste Disposal Systems. (1 cr, §114) Bosch
- 112C. Swimming Pools and Plumbing. (1 cr, §114) Bosch
- 113. Public Health Engineering: Field Investigations.** (Prereq engineering degree and 102 and #)
- 113A. Water Supplies. (2 cr, §114) Bosch
- 113B. Waste Disposal. (2 cr, §114) Bosch
- 113C. Swimming Pools and Plumbing. (2 cr, §114) Bosch
- 114. Environmental Sanitation Programs.** Public health supervision of activities in urban and rural sanitation. (3 cr, §112, 113, or 116; prereq 100A and #) Bosch
- 115. Food Sanitation.** Sanitary problems in production, processing, and distribution of milk, meat, shellfish, and other foods; methods of public health supervision. (3 cr; prereq 100A or #) Olson
- 116. Public Health Engineering Administration.** Administrative organization of environmental sanitation activities. (2 cr, §114; prereq #) Bosch
- 117-118-119. Sanitary Biology.** Plant and animal forms important in environmental sanitation, with special reference to disease vectors. (3 cr per qtr; prereq 100A or ¶100A or #) Olson
- 120. Biostatistics II.** Continuation of 110. (3 cr; prereq 110 with grade not lower than C, ¶121) Brown
- 121. Biostatistics Laboratory II.** Practice in application of principles and methods covered in 120. (2 cr; prereq ¶120) Knatterud, Meinert
- 122. Public Health Administration Problems.** Budgeting; program planning; appraisal of public health procedures. (3 cr; prereq 106) G Anderson
- 123. Topics in Public Health.** Selected readings in public health with discussion based on these readings. (Cr ar; prereq #) Staff
- 124. Medical Statistics II.** Selected statistical techniques in continuation of course 90, including analysis of data resulting from follow-up studies. (2 cr; prereq 90 or #; offered when demand warrants) Staff

125. **Public Health Education.** Planning educational aspects of community health programs; group procedures; public relations; selection, development, and use of mass media. (2 cr; prereq #) Grout
- 125A. **Public Health Education.** Purposes; scope; methods and materials; planning, with special emphasis on hospitals. (1 cr; hospital administrators only) Grout
126. **Occupational Health Programs.** Professional, social, economic, and legal aspects; organization; technical aspects of specific health hazards. (3 cr; prereq 100A or ¶100A, InCh 4-5 or equiv, or #) Foker
127. **Occupational Health Programs: Nursing Aspects.** Organization and administration of nursing service in industrial health programs. (1 cr; prereq ¶126) Gaddy
130. **Biostatistics III.** Principles and methods of analysis of components of variance and effects in surveys and experiments; 1-way, 2-way, and higher nested, crossed, or mixed classifications; simple and multiple analysis of covariance. (3 cr; prereq 120 with grade not lower than C, ¶131) Brown
131. **Biostatistics Laboratory III.** Practical exercises associated with 130. (2 cr; prereq ¶130) Knatterud, Meinert
132. **Mental Health Program.** Community program for promotion of mental health and care of mentally ill persons. (1 cr; prereq 106 or #) Williams
133. **Mental Health.** Emotional factors underlying wholesome family relations or interfering with successful adjustment in family and community. (3 cr; prereq #) Cline, Williams
135. **Conservation of Hearing.** Detection, prevention, and amelioration of hearing impairments. (1 cr; prereq 62 or 62A) Boies and associates
137. **Dental Health.** Conditions resulting in tooth decay and loss; preventive and corrective measures; mouth hygiene; community programs for dental health. (1 cr; prereq 62 or 62A) Jordan
139. **Advanced Field Practice in Public Health Nursing: Block Placement.** Opportunity for concentration of public health nursing field practice under supervision of co-ordinator of mental health program. (Cr ar; prereq #) von Bergen
140. **Vital Statistics I.** Official sources; population changes; rates; trends; significant differences. (3 cr) Bearman, Thornton
141. **Social and Economic Aspects of Medical Care.** Social and economic forces affecting administration and financing of medical care; sickness insurance, group hospitalization; concern of government in provision of medical care. (3 cr; prereq #) Ar
142. **Medical Economics.** Economic problems of medical and hospital care for community; programs for medical care and health and hospital insurance. (2 cr; sr medical students only) Ar
150. **Vital Statistics II.** Life table techniques and follow-up studies. Elementary life table techniques; follow-up study techniques; survivorship curves; problem of bias and selection connected with retrospective studies. (3 cr; prereq #) Johnson
152. **Industrial Hygiene Engineering.** Field and laboratory methods used by industrial hygiene engineers in study and control of occupational health hazards. (3 cr; prereq #) Michaelsen
153. **The Hospital and the Community.** Functions and classifications of hospitals; organization and relation to health care and to public health agencies. (1 cr; prereq #) Stephan, Hamilton
154. **Control of Radiation Hazards.** Methods used in study and control of radiation hazards in laboratories, hospitals, and industrial plants. (Cr ar; prereq #) Staff
155. **Introduction to Air Pollution Problems.** Introduction to public health problems associated with air pollution. (3 cr; prereq #) Paulus
156. **Air Pollution Surveys.** Public health engineering phases of air pollution surveys. (2 cr; prereq 155 and #) Paulus

159. **Chemical Laboratory Safety.** Principles of accident and fire prevention in chemical laboratories. (1 cr; prereq #) Scheffler
160. **Principles of Administration in Hospitals.** Lectures, seminars, and field trips in hospital administrative principles; top management and board of trustees, personnel policy formation, human relations, research in administration. (6 cr) Hamilton, Stephan, Lentz
161. **History and Development of Hospitals.** Functions; ownership and control; promoting and building new hospitals; integrated service; national associations and foundations. (3 cr) Hamilton, Stephan, Kincaid, Dunn
- 162-163. **Principles of Organization and Management of Hospitals.** Departmental structures and functions; organizational principles and practice. (3 cr [f], 6 cr [w]) Stephan, Hamilton, Dunn, Bieter
164. **Principles of Organization and Management of Hospitals.** Personnel department; legal liability; reports; budgeting and insurance problems. (6 cr; prereq 162, 163) Stephan, Hamilton, Dunn
166. **Hospital Clerkship.** Assignment to local hospital for survey or solution of special problem. (5 cr) Stephan, Bieter, Hoche
167. **Management Problems in Hospital Administration.** Assignment and solution of specific managerial problems. (6 cr; prereq 162, 163, ¶164) Hamilton
168. **Orientation to Medical Sciences.** Medical terminology, applied anatomy and physiology. (3 cr; prereq #) Thomson
169. **Administrative Residency.** Field work of 1 calendar year's duration in approved hospital; weighted rotation through departments, solution of special problems and preparation of an acceptable formal report. (Cr ar) Hamilton, Lentz, Stephan
170. **Seminar in Public Health Nursing.** Interpretation of background and trends in public health nursing; analysis of staff and supervisory practice. (2 cr, §170A; prereq health officers, others #) Murphy, Fritz
- 170A. **Public Health Nursing.** Scope of public health nursing; relationship to other aspects of public health. (1 cr, §170; prereq #) Murphy, Fritz
- 171-172. **Studies in Public Health Nursing.** Application of scientific method to selected topics; preparation of a study. (3 cr per qtr; prereq public health nurses only) Murphy
173. **Advanced Field Practice in Public Health Nursing; Functional Area.** Opportunity for field placement in suitable functional area including administration, supervision, consultation, or teaching under guidance of faculty members. (Cr ar; prereq public health nurses only, 174, 177, or #) Murphy, von Bergen, Cline
- 174A-174B. **Seminar in Administration, Supervision, and Consultation.** Analysis of selected aspects of administrative, supervisory, and consultant process in public health nursing situations. (2 cr per qtr; prereq public health nurses only, 171, 175, or #) Murphy, Blanchard
- 175-176-177. **Advanced Practice in Public Health Nursing.** Dynamics of human behavior; application to public health nursing practice on staff, supervisory, administrative, consultant levels through analysis of case material. (3 cr per qtr; prereq #) Williams, von Bergen, Cline
178. **Seminar in Mental Health.** Opportunity for pursuit of special topics of interest to individual students or to groups. (Cr ar; prereq #) Williams
180. **Introduction to Biostatistics.** Variation; frequency distribution; probability; estimation; significance tests; binomial, normal, Poisson distributions; serial dilutions; most probable number. (5 cr; prereq sanitation and sanitary engineering students only, others #) Bearman
- 181-182-183. **Principles and Methods in Public Health Education.** Role of public health educator; group procedures; communication theory; mass media; program planning and evaluation. (3 cr per qtr; prereq #) Grout



- 190. Field Work in Public Health Education.** Three months of supervised field experience. (Cr ar; prereq 183, 227) Grout and associates
- 191. Science of Human Nutrition.** Surveys; nutritional status; undernutrition; malnutrition; dietetics in social relief and medical practice. (3 cr; prereq #) J Anderson, Keys
- 192. Physiology of Exercise.** Muscular efficiency, training, deconditioning, effects of exercise on metabolism and physiological systems. (Cr ar; prereq Phsl 106, 107 or equiv and #) Taylor
- 195. Public Health Aspects of Cardiovascular Disease.** Etiology, incidence; problems of control and relationship to mode of life. (3 cr; prereq #) Keys, Grande
- 196. Public Health Nursing in Cardiovascular Disease.** Public health nursing services for cardiovascular disease nursing patients. (3 cr; prereq #) Murphy
- 200. Research.** Opportunities will be offered by the School and by various co-operating organizations for qualified students to pursue research work. (Cr ar) Staff
- 201. Topics in Biometry.** Studies in special topics for advanced students. (Cr ar; prereq 120, 130 and #) Bearman and staff
- 202. Seminar in Physiological Hygiene.** Nutrition, tests and measurements of human physical fitness; gerontology; adaptation in health and disease; body composition; circulatory dynamics and related topics. (1 cr) Staff
- 203-205-207. Research Design in Biometry.** Methodology of design of experiments and sample surveys in behavioral and biological sciences; randomized blocks. Latin-squares, factorials, incomplete blocks, long-term experiments and analysis of groups of experiments; simple random, stratified, multistage, and multiphase sampling designs. (3 cr per qtr; prereq 130 or #) McHugh
- 204-206-208. Theory of Research Design in Biometry.** Theory of linear estimation and general linear hypothesis; analysis of multiple classifications; components of variance; randomization theory of designs. (2 cr per qtr; prereq calculus and ¶203-205-207) McHugh
- 210. Seminar in Public Health.** (Cr ar) Staff
- 211. Seminar in Biometry.** (Cr ar) Staff
- 212. Seminar in Public Health Engineering and Sanitation.** (Cr ar; prereq #) Bosch
- 213. Seminar in Epidemiology.** Discussion of selected current epidemiologic problems. (Cr ar) Schuman
- 214. School Health Programs.** Review of major health problems among school children, methods of providing and evaluating school health services. (2 cr; prereq 107 or #) Ar
- 215. Maternal and Child Health.** Administration of well-child and antepartum conferences; psychosomatic problems of children. (Cr ar; prereq physicians only, #) Ar
- 216-218. Biomedical Measurement Problems, Assays.** Qualitative and quantitative response-surface assays, density determination by plate counts and serial dilution, source and magnitude of variation associated with advanced measurement techniques. (3 cr per qtr; prereq 120) Johnson
- 217-219. Theory of Biomedical Measurement Problems, Assays.** (2 cr per qtr; prereq ¶216-218) Johnson
- 220. Readings in Problems of Physiological Hygiene.** (Cr ar; prereq #) Keys and staff
- 227. Problems in Public Health Education.** Independent study and experimentation in health education. (Cr ar; prereq #) Grout
- 230. Field Practice in Environmental Sanitation.** (Cr ar; prereq #) Bosch

241. **Epidemiology of Noncommunicable Diseases.** Application of basic epidemiologic principles to noncommunicable diseases and to trauma; selected disease examples. (3 cr; prereq 104) Schuman, Klint
- 250-251-252. **Foundations of Biometry.** Measurement models, theories of probability, logic of induction, alternative theories of inference. (2 cr per qtr; prereq 208, 219 or #) Staff
290. **Research in Physiological Hygiene and Related Areas.** (Cr ar) Staff

24/60

# *School of Dentistry*

1960-1962



Dentistry



Dental  
Hygiene



Dental  
Assisting

## **Bulletin**

*of the UNIVERSITY of MINNESOTA*

# UNIVERSITY OF MINNESOTA

## Board of Regents

The Board of Regents is composed of The Honorable Ray J. Quinlivan, St. Cloud, First Vice President and Chairman; The Honorable Charles W. Mayo, M.D., Rochester, Second Vice President; The Honorable James F. Bell, Minneapolis; The Honorable Edward B. Cosgrove, Le Sueur; The Honorable Daniel C. Gaaney, Owatonna; The Honorable Richard L. Griggs, Duluth; The Honorable Robert E. Hess, White Bear Lake; The Honorable Marjorie J. Howard (Mrs. C. Edward), Excelsior; The Honorable A. I. Johnson, Benson; The Honorable Lester A. Malkerson, Minneapolis; The Honorable A. J. Olson, Renville; and The Honorable Herman F. Skyberg, Fisher.

## Administrative Officers

O. Meredith Wilson, Ph.D., President  
Malcolm M. Willey, Ph.D., L.H.D., LL.D., Vice President, Academic Administration  
Laurence R. Lunden, B.A., LL.D., Vice President, Business Administration  
Stanley J. Wenberg, M.A., Vice President and Administrative Assistant  
Robert Edward Summers, M.S.(Ch.E.), M.E., Dean of Admissions and Records  
Edmund G. Williamson, Ph.D., Dean of Students

## SCHOOL OF DENTISTRY

### Administration

William H. Crawford, D.D.S., Dean and Professor  
Mellor R. Holland, D.D.S., M.S.D., Assistant Dean and Professor

# SCHOOL OF DENTISTRY

## GENERAL INFORMATION

The School of Dentistry is located in Owre Hall at Washington Avenue and Union Street Southeast, on the Minneapolis Campus of the University of Minnesota. Its students enjoy all the advantages which come from participation in the activities of a university composed of academic, scientific, and professional schools and colleges.

Owre Hall is unsurpassed in its arrangement and facilities for the teaching of dentistry. The lecture rooms, laboratories, and clinics are furnished with the most modern equipment that has been developed for the teaching of the science and practice of dentistry.

These facilities and the highly specialized teaching staff in the basic medical science subjects and in dentistry enable the student to study dentistry under very favorable conditions. Instruction is given by lectures, laboratory courses, demonstrations, and clinical practice in the dental clinic. Throughout the entire program the teaching is integrated closely with the basic medical sciences laboratories and the clinical and hospital facilities of the Medical School.

The 4-year program in dentistry leading to the degree of doctor of dental surgery (D.D.S.) is open to both men and women. A prerequisite course of 2 years of acceptable collegiate education in arts and sciences lays the foundation for the required professional education. A freshman class in dentistry is admitted only once a year, in the fall, although students planning on entering dental school can begin their liberal arts education at any time.

## Requirements for Admission

**General**—A minimum of 90 quarter credits (60 semester credits) from an accredited liberal arts college is required. Quality credits may not be used to decrease this requirement. The minimum scholastic average which may be considered is C, but acceptance is on a competitive basis and an average above C is usually necessary in order to achieve admission. Courses must include at least 12 quarter credits of English, 10 quarter credits of zoology or biology, 12 quarter credits of physics, 12 quarter credits of inorganic chemistry including semimicro qualitative analysis, and 8 quarter credits of organic chemistry to include both the aliphatic and aromatic series. Science courses must include both lecture and laboratory instruction. ROTC credits are acceptable, but credits in physical education, human anatomy, physiology, histology, and bacteriology are not acceptable as part of the 90 quarter credits required for admission.

At the University of Minnesota the requirements for admission to the School of Dentistry are met by the following 2-year course of study, provided algebra and plane geometry were taken previously in high school:

1. Engl 1B-2B-3B (12 qtr cr); or Comm 1-2-3 (12 qtr cr); or Engl A-B-C (15 qtr cr)
2. Zool 1-2-3 (10 qtr cr); or Biol 1-2-3 (10 qtr cr)
3. InCh 4-5, 11 (12 qtr cr)
4. OrCh 61-62 (8 qtr cr)
5. Phys 1-2-3 and 1A-2A-3A (12 qtr cr)
6. Especially recommended as electives, and listed in order of significance, are OrCh 63-64; Math 10-40; AnCh 57; Zool 22, 59, 83; PCh 107-108; Art 20; and Clas 24.
7. It is recommended strongly that at least 15 credits be taken in such liberal arts courses as anthropology, classics, economics, history, humanities, languages, philosophy, political science, psychology, and sociology.

The Committee on Admissions will give preference to those applicants who have high scholastic records in college; who make satisfactory scores on the dental apti-

tude test; who will have completed all course requirements by the end of the usual academic year previous to the desired date of admission; who, after having been granted a provisional acceptance, maintain an academic record of quality at least as good as the record at the time of the provisional acceptance; and who, in all other respects, give promise of becoming successful students and dentists of high standing.

**Dental Aptitude Test**—All applicants are required to take the Dental Aptitude Test. It is given three times each academic year, the last time being in April. A good time to take the test is during the first quarter of the sophomore year, or as soon as the courses in zoology and inorganic chemistry have been completed. Many of the questions are specific and detailed, thus a careful course review prior to taking the test is advised. An application form and a brochure describing the test and listing the testing dates are available from the Office of Admissions and Records, 105 Administration Building, University of Minnesota, Minneapolis 14.

**Residence Requirements**—First choice is given to Minnesota residents, second choice to residents of neighboring states that do not have dental schools, and third choice to other nonresidents who have acceptable reasons for attending the University of Minnesota School of Dentistry. Nonresidents are accepted only if their scholarship has been outstanding and if their other qualifications indicate unusual promise for the study of dentistry and a career in science.

### Application Procedures

**General**—Application blanks can be secured from the Office of Admissions and Records, 105 Administration Building, University of Minnesota, Minneapolis 14. Applications should be filed between October 1 and April 15 of the academic year prior to the fall quarter the applicant desires to enroll in the School of Dentistry. While the closing date for application is April 15, early filing is encouraged since late application may be to the student's disadvantage. Applicants may be required to appear for a personal interview at the discretion of the Committee on Admissions.

Nonresidents are required to pay a \$5 credentials examination fee. This fee should accompany the application, and it should be in the form of a check, money order, or a bank draft made out to the University of Minnesota.

#### Students Now Attending the University of Minnesota—

1. Fill out an Admission Application (typewritten or in ink) and bring it to the Office of Admissions and Records.
2. Apply for a change of college at the College Transfer Window in the Office of Admissions and Records.
3. If you have attended any other colleges or universities before entering the University of Minnesota, *two* copies of complete transcripts from each institution attended previously must be attached to your application and filed with it. It is also the responsibility of the applicant to see to it that one copy of any transcripts from the University of Minnesota is on file in the office of the School of Dentistry at the time of application, and that supplemental transcripts are brought to the School of Dentistry at the termination of each quarter. Unless these instructions are followed implicitly, delays in processing an application will ensue.

#### Students Now Attending Other Colleges and Universities—

1. Fill out an Admissions Application (typewritten or in ink) as well as an Application for Admission with Advanced Standing.
2. Mail these applications, together with *two* official transcripts from each institution previously attended, to the Office of Admissions and Records, 105 Administration Building.

3. Following the completion of each semester's or quarter's course work two official transcripts of your grades must be forwarded to the Office of Admissions and Records, 105 Administration Building.

### **Seven-Year Program in Arts and Dentistry Leading to the Degrees of Bachelor of Arts and Doctor of Dental Surgery**

During the first 3 years of this program, the student pursues an academic course in the College of Science, Literature, and the Arts, subject to the regulations of that college, and must secure at least 135 credits, with a scholarship average of C. At least 30 credits must be in Upper Division courses. The requirements for admission to the Upper Division (see *Bulletin of the College of Science, Literature, and the Arts*) as well as the work in chemistry, physics, and zoology prescribed for admission to the School of Dentistry must be completed. Students transferring from other colleges must spend at least 1 year in the College of Science, Literature, and the Arts, earning a minimum of 45 quarter credits.

During the third year, the student elects courses in the Arts College, subject to the approval of the assistant dean for the Upper Division. The courses of the freshman and sophomore years in the School of Dentistry, exclusive of technical and practical work, when completed according to the standards required by that School count as the equivalent of the fourth year (45 credits of the Arts course). The student is then eligible for the B.A. degree, and he becomes eligible for the D.D.S. degree in 2 more years.

### **Bachelor of Science in Dentistry**

The bachelor of science degree will be granted to all students in the School of Dentistry who have satisfactorily completed 2 years of pre-dental work and 2 years of dentistry. This degree is optional on the part of the student.

### **Admission with Advanced Standing in Dentistry**

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 transcripts covering both prerequisite and dental studies. Such credentials must show that the student has completed the required prerequisite 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 divisions in conference with the class committee. Subject credit (but not legal time credit) may be given for studies pursued in schools other than dental schools.

Students desiring advanced standing in dentistry should contact the School of Dentistry, 136 Owre Hall. The faculty has decided upon the following procedure which applies to any person desirous of entering this School with advanced standing:

1. Students applying for advanced standing must meet the equivalent of the prerequisite education required of our own students.
2. They must present formal credentials for their entire educational record. There is a fee of \$5 payable in advance to have these credentials evaluated.
3. They must take the University of Minnesota School of Dentistry placement tests which include written, oral, laboratory, and practical examinations in all of the basic medical sciences as well as in dental technology.

4. There must be a personal interview.
5. Under no circumstances will advanced standing be granted beyond the beginning of the junior year.
6. Transfer students from other dental schools must provide a letter of recommendation from the dean of that school stating that the applicant is in good standing and is eligible for promotion to the next class.

### Requirements for Graduation

A candidate for the degree of doctor of dental surgery, after satisfying all the requirements for admission to the School of Dentistry, must have complied with all the rules and regulations and completed the required curriculum and must have been recommended by the faculty of the School of Dentistry for the degree of doctor of dental surgery.

### Fees

Tuition fee (per quarter)		
Residents of Minnesota .....		\$130.00
Nonresidents .....		255.00
Credit hour tuition fee (unclassified students, auditors, and others carrying less than full work):		
Residents of Minnesota .....		11.00
Nonresidents .....		21.25
Matriculation deposit (first quarter only) .....		5.00
(For locker rent, library penalties, laboratory breakage, etc. 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.)		
Incidental fee (per quarter) .....		20.00
(For privileges such as the Coffman Memorial Union, the Health Service, and the Minnesota <i>Daily</i> .)		
Graduation fee .....		10.00
Special fees:		
Credentia examination fee (applicable to nonresidents) .....		5.00
Examination on subjects taken out of class. Such an examination may be taken only upon approval of the appropriate committee. (No fee for such examination on first entering the University, if taken within the first quarter) .....		5.00

**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.

### Dental Equipment and Books

Students are required to provide themselves with the instruments and textbooks specified in the Official List which will be mailed to new students in July. 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 other nearby bookstores.

The approximate costs of dental instruments and books are as follows:

	Instruments	Books	Materials	Laboratory Fees
Freshman Year .....	\$533.00	\$ 66.50	.....	\$ 8.00
Sophomore Year .....	708.70	100.35	\$69.65	12.00
Junior Year .....	259.00	103.30	.....	3.00
Senior Year .....	43.00	11.55	.....	.....



## Loans and Scholarships

The University of Minnesota has numerous loan funds. They are restricted in their distribution to individuals meeting certain requirements. A loan or scholarship usually cannot be obtained before 2 quarters of attendance at the University, during which time the student will have the opportunity to demonstrate his ability and integrity. The only security for loans to students is the character of the applicant and his ability to do college work. Application for loans or scholarships may be made to the Bureau of Student Loans and Scholarships located in Eddy Hall.

There are also a few scholarships and grants-in-aid available to capable students who serve part time as research assistants in the School of Dentistry.

## Self-Support

The University Employment Bureau assists students who find it necessary to earn part or all of their expenses. However, the program in dentistry is a full one, and students find it difficult to devote many hours a week to outside employment.

## University Health Service

Through the University Health Service the University makes available medical care, medical examinations, and health consultations. General service is provided free of charge, but special fees are charged for services which are specialized and individual in character, such as dentistry, X ray, board and laundry in the student hospital, out-patient calls, minor surgery, etc. No student, however, will be denied service because of inability to pay these fees. Major surgical operations or prolonged medical care ordinarily is secured through private physicians selected by the students or their families, but if necessary, operations may be arranged through the University Health Service upon an established basis.

## Housing

Most out-of-town students live either in University-maintained residence halls or in private rooming houses. All such students must live in University-approved residences under substantially the same obligations. Information concerning residence halls, private rooming houses, and facilities for married couples with or without children can be obtained from the Student Housing Bureau, 209 Eddy Hall. Application should be made early for accommodations. Final acceptance by the University is not necessary before applying. Cancellations may be made without penalty if the Student Housing Bureau is notified immediately following nonacceptance by the University.

## Library

The University of Minnesota Library is one of the finest libraries in existence today. It includes nearly 1,900,000 volumes as well as 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 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

## FOUR-YEAR PROGRAM IN DENTISTRY

	Fall Qtr		Winter Qtr		Spring Qtr		Total	
	Cr	Hrs	Cr	Hrs	Cr	Hrs	Cr	Hrs
<b>Freshman Year</b>								
Dent 50-51-52—Dental Anatomy .....	2	40	3	70	3	70	8	180
Dent 55—Development of Occlusion .....			2	20			2	20
Dent 60-61-62—Dental Prosthetics .....	4	100	4	100	3	70	11	270
Anat 59—Systematic Anatomy .....	6	120					6	120
Anat 102—Anatomy of the Head and Neck.....					6	120	6	120
Bact 100—Bacteriology for Dental Students.....					6	120	6	120
Met 159—Dental Physical Metallurgy .....			2	20			2	20
PhCh 104-105—Physiological Chemistry .....	5	50	6	100			11	150
PubH 76—Introduction to Public Health for Dental Students .....					1	10	1	10
	17	310	17	310	19	390	53	1010
<b>Sophomore Year</b>								
Dent 70—Dental Prosthetics .....	3	70					3	70
Dent 72C—Dental Prosthetics Clinic .....					2	40	2	40
Dent 75-76-77—Crown and Bridge Technic .....	4	100	4	100	4	100	12	300
Dent 80—Oral Diagnosis .....					1	10	1	10
Dent 81—Radiodontics .....					1	10	1	10
Dent 85-86—Operative Technic .....			4	100	4	100	8	200
Dent 90—Anesthesia .....					1	10	1	10
Anat 105—Microscopic Anatomy .....	8	140					8	140
Path 100—Pathology for Dental Students .....					8	130	8	130
Phsl 101—Human Physiology .....			10	120			10	120
	15	310	18	320	21	400	54	1030
<b>Junior Year</b>								
Dent 110-111—Dental Prosthetics .....	1	10	1	10			2	20
Dent 110C-111C-112C—Dental Prosthetics Clinic .....	3	90	2	60	2	60	7	210
Dent 120-122—Crown and Bridge .....	1	10			1	10	2	20
Dent 120C-121C-122C—Crown and Bridge Clinic .....	2	60	2	60	2	60	6	180
Dent 132C—Radiodontics Clerkship .....	1	10			1	36	1	36
Dent 140-142—Operative Dentistry .....	1	10			2	20	3	30
Dent 140C-141C-142C—Operative Clinic.....	3	90	3	90	3	90	9	270
Dent 144—Endodontics .....	1	10					1	10
Dent 150—Exodontics .....					1	10	1	10
Dent 160-161—Oral Pathology and Histology .....	4	60	1	10			5	70
Dent 170-171—Pedodontics .....	1	10	1	10			2	20
Dent 172C—Pedodontics Clinic .....					1	30	1	30
Dent 181-182—Periodontics .....			1	10	1	10	2	20
Dent 181C-182C—Periodontics Clinic .....			1	30	1	30	2	60
Phcl 101—Introduction to Pharmacology .....	3	30					3	30
Phcl 105—General and Experimental Pharma- cology .....			6	100			6	100
Phcl 106—General Pharmacology .....					2	20	2	20
Phcl 108—Prescription Writing .....					1	10	1	10
	20	380	18	380	18	386	56	1146
<b>Senior Year</b>								
Dent 105—Orthodontics .....	3	30					3	30
Dent 115C-116C-117C—Dental Prosthetics Clinic .....	2	60	2	60	2	60	6	180
Dent 118—Restorative Dentistry Seminar .....					1	10	1	10
Dent 128—Restorative Dentistry Seminar .....	1	10					1	10
Dent 125C-126C-127C—Crown and Bridge Clinic .....	2	60	2	60	2	60	6	180
Dent 135-136—Oral Medicine .....			1	10	1	10	2	20
Dent 137C—Oral Diagnosis Clinic .....					1	30	1	30
Dent 145C-146C-147C—Clinical Operative Dentistry .....	2	60	3	90	2	60	7	210
Dent 148—Restorative Dentistry Seminar.....			1	10			1	10
Dent 149—The Management of Mass Cas- ualties and First Aid .....			2	20			2	20
Dent 155-156—Oral Surgery .....	2	20	2	20			4	40
Dent 157C—Oral Surgery and Hospital Clinics .....					3	90	3	90
Dent 176C—Pedodontics Clinic .....			3	90			3	90
Dent 177C—Pedodontics Adolescent Clinic.....					1	10	1	10
Dent 185—Pedodontics .....	1	10					1	10
Dent 185C-186C—Periodontics Clinic .....	1	30	1	30			2	60
Dent 195-198—Dental Jurisprudence .....	2	20	1	10			3	30
Dent 196—Practice Management .....					1	10	1	10
Dent 197—Professional Orientation .....					1	10	1	10
PubH 77—Dental Public Health .....			2	20			2	20
	16	300	20	420	15	350	51	1070

library facilities offer the student an excellent opportunity to secure a knowledge of the science and practice of dentistry.

Also, reference books and periodicals for the use of students are located in Owre Hall in connection with the offices of the various divisions adjacent to lecture rooms, laboratories, and the clinic of the School of Dentistry.

### Coffman Memorial Union

The Coffman Memorial Union places Minnesota in the forefront of American universities as to the recreational facilities which it offers to students. The cafeterias and lunchrooms, 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 ballrooms are among the features that make the building the popular center of campus life.

### 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. Not more than 12 per cent of the class is eligible.

### Continuation Study Program

The School of Dentistry regularly offers a series of continuation courses in various phases of dentistry and dental hygiene. These courses are intended to meet the needs of the profession for special material not covered in the undergraduate curriculum and in new developments in research and clinical procedures. Sessions usually are 3 days to 1 week in duration, and in many areas clinical practice is included. Special brochures listing courses, dates, and costs are available to those requesting that their names be placed on the mailing list. Inquiries should be mailed to the Center for Continuation Study, University of Minnesota, Minneapolis 14.

## DESCRIPTION OF COURSES

### DENTISTRY

#### Division of Crown and Bridge

##### Professor

Douglas H. Yock, D.D.S., M.S., *chairman*  
Hubert H. Serr, M.A., D.D.S.

##### Clinical Assistant Professor

Lee C. Hermann, D.D.S.  
Melvin C. Humbert, D.D.S.  
Rad M. Jevric, D.D.S.  
Davey E. Lieb, D.D.S.  
George D. MacGibbon, D.D.S.  
Charles B. McAllister, D.D.S.

##### Professorial Lecturer

Herman A. Garmers, D.D.S.

##### Clinical Instructor

Thomas A. Aldritt, D.D.S.  
Dean R. Olson, D.D.S.

**75-76-77. Crown and Bridge Technic.** Lectures, demonstrations and laboratory work, including exercises in casting, free-hand and investment soldering and the construction of a lower hygienic bridge, an upper posterior bridge, an upper anterior bridge, and a porcelain jacket crown. Weekly lectures cover laboratory technics, fundamental principles, and the science of dental materials in regard to metals, waxes, investments, cements, etc. An illustrated syllabus aids students in carrying out each project. (12 cr; 300 lab and lect hrs) Serr and staff

- 120. Crown and Bridge.** History of crown and bridge work, interpretations and objectives of the course, definitions and nomenclature, aims of the service, diagnosis, a consideration of types of abutment, retainers, and pontics. (1 cr; 10 lect hrs) Yock
- 122. Crown and Bridge.** Ceramics and acrylic resins as related to aesthetics in clinical restorative dentistry. Illustrated lectures covering the physical and chemical properties, the indications for use and the manipulation of porcelain and plastics in their practical application. (1 cr; 10 lect hrs) Yock and staff
- 120C-121C-122C. Crown and Bridge Clinic.** Demonstrations and clinical practice designed to orient the student in the Dental Clinic. Instruction is given in the diagnosis, designing, and construction of the simpler cases. (6 cr; 180 clin hrs) Yock and staff
- 125C-126C-127C. Crown and Bridge Clinic.** An advanced clinical course. Demonstrations and clinical practice. Includes the use of porcelain and acrylic resins in crown and bridge prosthetics together with instruction in the diagnosis, designing, and construction of more complicated cases. (6 cr; 180 clin hrs) Yock and staff
- 128. Restorative Dentistry Seminar.** Correlated series of lectures on the clinical approach to crown and bridge, operative, and prosthetic dentistry which overlap in technical procedures and biological concepts. (1 cr; 10 lect hrs) Staff

### Division of Dental Anatomy

#### Professor

Ambert B. Hall, D.D.S., *chairman*

#### Clinical Associate Professor

Robert N. Nelson, D.D.S.

#### Assistant Professor

Anna T. Hampel, D.D.S., M.S.D.

#### Clinical Instructor

Irving A. Borkon, D.D.S.

Anders K. Finnvoid, D.D.S.

Cory H. Kruckenberg, D.D.S.

- 50-51-52. Dental Anatomy.** *Lectures:* dental nomenclature with special attention to the etymology and application of terms used in the various divisions of dentistry; detailed study of all deciduous and permanent teeth, including calcification, eruption, decalcification and shedding; tooth form, function, stresses, all phases of occlusion; surrounding and investing tissues; pulp cavities and anomalies. *Laboratory:* projects include outline drawing, plasticine modeling, wax carvings individually and as an anatomical unit, and sectioning of teeth. (8 cr; 210 lab and lect hrs) Hall and staff

### Division of Dental Prosthetics

#### Professor

A. Theodore Morstad, D.D.S., M.S., *chairman*

Ambert B. Hall, D.D.S.

#### Clinical Professor

Roy M. Jernall, D.D.S.

#### Clinical Associate Professor

Harold C. Hillman, D.D.S.

Clarence N. Reiersen, D.D.S.

#### Assistant Professor

Edward E. Anderson, D.D.S., M.S.

#### Clinical Assistant Professor

Rudolph B. Delton, D.D.S.

Thomas J. Emond, D.D.S.

Robert J. Jacobsen, D.D.S.

#### Clinical Instructor

John F. Erickson, D.D.S.

Maurice W. Meyer, M.S.

Imants R. Niels, D.D.S.

- 60-61-62. Dental Prosthetics.** Lectures, demonstrations, and laboratory instruction covering the various phases of complete and partial denture prosthetics, materials used, their properties and manipulations; fundamental principles of denture construction including retention, occlusion, and aesthetics; instruments and terminology used in dental prosthetics. (11 cr; 270 lab and lect hrs) Hall and staff
- 70. Dental Prosthetics.** Laboratory instruction includes the construction and cast removable partial dentures on models. The lecture series presents an introduction and designing of partial dentures by co-ordinating the laboratory instruction with the knowledge the student is acquiring in the basic science courses. (3 cr; 70 lect and lab hrs) Morstad and staff

- 72C. Dental Prosthetics Clinic.** Clinical demonstrations in complete denture prosthetics and practice by students in the taking of impressions and making casts in various types of materials. (2 cr; 40 hrs) Staff
- 110-111. Dental Prosthetics.** Lectures on complete and partial denture prosthesis correlating the student's accumulated knowledge in the fundamental sciences and dental techniques to enable him to carry out procedures and solve problems associated with practical denture service. (2 cr; 20 lect hrs) Staff
- 110C-111C-112C. Dental Prosthetics Clinic.** Clinical practice in the various types of removable denture prosthesis. An integral part of the program is to teach the proper and efficient use of auxiliary dental personnel such as the laboratory technician. (7 cr; 180 clin and lab hrs) Staff
- 115C-116C-117C. Dental Prosthetics Clinic.** Clinical practice in removable denture prosthesis continuing the work of the junior year. In addition, completion of immediate denture prosthesis is required. Practice in precision attachment partials and prosthesis for abnormal mouth conditions is offered but not required. (6 cr; 180 clin and lab hrs) Staff
- 118. Restorative Dentistry Seminar.** Correlated series of lectures on the clinical approach to crown and bridge, operative, and prosthetic dentistry which overlap in technical procedures and biological concepts. (1 cr; 10 lect hrs) Staff

### Division of Operative Dentistry

#### Professor

James R. Jensen, D.D.S., M.S.D., *chairman*

#### Associate Professor

John W. Wakely, D.D.S., M.S.

#### Clinical Associate Professor

William F. Braasch, D.D.S.

Blanchard K. Braum, D.D.S.

Herbert A. Carlson, D.D.S.

#### Assistant Professor

Anna T. Hampel, D.D.S., M.S.D.

#### Clinical Assistant Professor

Herman T. Aeziman, D.D.S.

Peter S. Gregus, D.D.S.

Miles B. Hirschey, D.D.S.

Kenji Horita, D.D.S.

#### Clinical Instructor

David R. Bernard, D.D.S.

Kenneth J. Buechele, D.D.S.

Donald J. Casey, D.D.S.

Arthur R. Johnson, D.D.S.

Gerald A. Rosdahl, D.D.S.

Arthur R. Schmidt, D.D.S.

Hugo M. Wolf, D.D.S.

- 85-86. Operative Dentistry.** Introduction to the nomenclature of operative dentistry, principles of cavity preparation, manipulation of restorative materials and related instrumentation. (8 cr; 220 lect hrs) Staff
- 140. Operative Dentistry.** Introduction to clinical practice with emphasis on diagnosis and treatment planning. (1 cr; 10 lect hrs) Jensen and staff
- 142. Operative Dentistry.** Advanced clinical technics with special concepts and modifications in cavity design, biological considerations in the application of operative dentistry, and technical information on the use of materials adjunctive to restorative technics. (2 cr; 20 lect hrs) Jensen and staff
- 140C-141C-142C. Operative Dentistry Clinic.** Preliminary indoctrination to clinical procedures, consisting of small group clinics demonstrating operative procedures on patients. During the remainder of junior year students practice operative dentistry on assigned patients under close supervision of staff. (9 cr; 270 hrs) Jensen and staff
- 144. Endodontics.** Diagnosis and treatment of pulp and periapically involved teeth supplemented with demonstrations on clinical cases. (1 cr; 10 lect) Jensen and staff
- 145C-146C-147C. Clinical Operative Dentistry.** Upon evidence of satisfactory orientation into the operative clinic, the senior student engages in a clinical practice in which requirements for graduation are both qualitative and quantitative. Under direction of the staff, emphasis is placed upon efficiency and finesse in operating. Practical examinations are held during final week of each quarter to determine progress. (7 cr; 210 hrs) Jensen and staff
- 148. Restorative Dentistry Seminar.** Correlated series of lectures on the clinical approach to crown and bridge, operative and prosthetic dentistry which overlap in technical procedures and biological concepts. (1 cr; 10 lect hrs) Staff

149. **The Management of Mass Casualties and First Aid.** The place of the dentist in the medical team in the event of natural or man-made disaster. Instruction in civil defense planning, sorting of casualties, first aid treatment of shock, hemorrhage control, maintenance of the airway, burns, fractures, wounds and sanitation, and radiation aspects of mass casualty situations. (2 cr; 20 lect hrs) Jensen and staff

### Division of Oral Diagnosis, Medicine and Radiodontics

#### Professor

Wendell L. Bartholdi, Ph.D., D.D.S., *chairman*

#### Assistant Professor

Eugene E. Petersen, D.D.S., M.S.D.

#### Clinical Associate Professor

William Branstad, D.D.S.

#### Clinical Instructor

Harold J. Panuska, D.D.S., M.S.D.

80. **Oral Diagnosis.** Oral examinations, methods of investigation, and recording of clinical data. (1 cr; 10 lect hrs) Bartholdi
81. **Radiodontics.** Lectures and demonstrations on the application of Roentgen rays for dental diagnostic purposes. Includes the electrophysics of the apparatus, positioning of the films, angulation of the machine, processing, and interpretation. (1 cr; 10 lect hrs) Bartholdi, Petersen
- 132C. **Radiodontics Clerkship.** Students serve regular clerkships in Division of Radiodontics—taking, processing, and mounting dental X-rays. Concurrent with the clerkship, conference sections are arranged for small groups of students in which radiographs of clinical patients are read and interpreted. (1 cr; 36 clin hrs) Bartholdi, Petersen
- 135-136. **Oral Medicine.** Oral manifestations of systemic and local diseases. Small group conferences on laboratory procedure for diagnostic purposes are arranged. (2 cr; 20 lect hrs) Bartholdi, Panuska
- 137C. **Oral Diagnosis Clinic.** Students serve as admissions clerks in the Division of Oral Diagnosis. (1 cr; 30 clin hrs) Bartholdi

### Division of Oral Histology and Pathology

#### Professor

Robert J. Gorlin, D.D.S., M.S., *chairman*  
Anand P. Chaudhry, B.D.S., M.S., Ph.D.

- 160-161. **Oral Pathology and Histology.** Lectures and laboratory work covering the histology of the teeth and related oral tissues including embryologic considerations. Special pathology of the oral region as well as the relation of local pathologic findings to systemic conditions and to general pathology are emphasized. (5 cr; 44 lect hrs) Gorlin

### Division of Oral Surgery

#### Professor

Henry B. Clark, Jr., M.D., D.D.S., *chairman*  
Mellor R. Holland, D.D.S., M.S.D.  
Norman O. Holte, D.D.S., M.S.D.

#### Clinical Assistant Professor

William J. Dresser, D.D.S., M.S.D.  
Angus R. Stoesz, D.D.S., M.S.D.

90. **Anesthesia.** Lecture course on local and general anesthesia. (1 cr; 10 lect hrs) Holland, Holte
150. **Exodontics.** Introductory principles and practice of minor oral surgery. Indications for tooth removal, operative technique, precautions against accident, and postoperative care. (1 cr; 10 lect hrs) Holland and staff
155. **Oral Surgery.** Technique of removal of unerupted teeth, alveolectomy, tooth removals in children and in patients with systemic disease. Procedure for working in the hospital operating room is discussed. Consideration is given to the correlation of the basic sciences of anatomy, pathology, and physiology to oral surgery in the matters of examinations, diagnosis, and the treatment of jaw infections and injuries. (2 cr; 20 lect hrs) Clark and staff

- 156. Oral Surgery.** (Continuation of 155) The following special conditions are discussed and illustrated by lantern slides and motion pictures: wounds of soft tissues, fractures of the jaws, cysts and benign tumors, diseases of the maxillary sinus, deformities of the mouth and jaws, special infections, and affections of the nerves of the oral cavity and adjacent regions. (2 cr; 20 lect hrs) Clark and staff
- 157C. Oral Surgery and Hospital Clinics.** In junior year, 5 periods are spent in observation and assisting in the Oral Surgery Clinic. In senior year, 20 periods are devoted to the actual practice of tooth removal, alveolectomy, taking of biopsies, and other commonly encountered oral surgical conditions. Experience with unerupted teeth, cysts, fractures, maxillary sinus infections, and other more complicated conditions is gained by assisting and observation. Ten periods are devoted to demonstrations, observation, clinics, and conferences in the University Hospitals. (3 cr; 90 clin hrs) Clark and staff

### Division of Orthodontics

#### Clinical Professor

Sherwood R. Steadman, D.D.S., M.S.D.,  
*acting chairman*

#### Clinical Associate Professor

Walter M. Jacobsen, D.D.S., M.S.

#### Clinical Assistant Professor

Theodore T. Edblom, D.D.S., M.S.D.  
Robert R. Etem, D.D.S., M.S.D.  
James W. Monson, D.D.S., M.S.D.  
Lloyd E. Pearson, D.D.S., M.S.D.  
Charles D. Simpson, D.D.S., M.S.D.

- 55. Development of Occlusion.** Introduction to the postnatal growth of the dentofacial complex. (2 cr; 20 lect hrs) Staff
- 55C-84C-95C-105C. Serial Study of Transition from Deciduous to Permanent Dentition.** (Freshman, Sophomore, Junior, Senior students) One-half day per year observing the same patient. Annual cephalometric x-rays, records, casts taken on the same 50 patients. Jacobsen
- 105. Orthodontics.** Principles and procedures in preventive and corrective orthodontics. Analysis of cases and treatment planning. (3 cr; 30 lect hrs) Staff

### Division of Pedodontics

#### Professor

Harold C. Wittich, D.D.S., *chairman*

#### Clinical Assistant Professor

Kenneth C. Erickson, D.D.S.  
Walter G. Iverson, D.D.S.

#### Clinical Instructor

William D. Ostergren, D.D.S.  
Roger R. Severinson, D.D.S.  
Russell H. Solsvig, D.D.S.  
Douglas V. Streed, D.D.S.  
William M. Trygstad, D.D.S.  
Marion R. White, D.D.S.

- 170. Pedodontics.** Value and aim of pedodontics, management of child patient, diagnosis, treatment planning, principles of cavity preparation for deciduous teeth, comparative anatomy of deciduous and permanent teeth, filling materials, use of stainless steel crowns. (1 cr; 10 lect hrs) Wittich
- 171. Pedodontics.** Treatment of pulps of deciduous teeth, restoration of fractured permanent anterior teeth, space maintainers, dental guidance for adolescent children, topical application of fluorides, construction of partial and full dentures for children, and caries prevention. (1 cr; 10 lect hrs) Wittich
- 172C. Pedodontics Clinic.** Special group demonstrations to students. Clinical course in cavity preparation and insertion of fillings in deciduous and permanent teeth, use of stainless steel crowns. (1 cr; 30 clin hrs) Wittich and staff
- 176C. Pedodontics Clinic.** Clinical experience in filling deciduous and permanent teeth, treatment of pulps of deciduous teeth, restoration of fractured permanent anterior teeth, construction of space maintainers, use of stainless steel crowns, and topical application of fluorides. (3 cr; 90 clin hrs) Wittich and staff
- 177C. Pedodontics Adolescent Clinic.** Special clinical experience in multiple cavity preparation and fillings for adolescent children. (1 cr; 10 clin hrs) Wittich and staff

### Division of Periodontics

#### Clinical Professor

Erwin M. Schaffer, D.D.S., M.S.D., *acting chairman*

#### Clinical Instructor

William L. Hartwick, D.D.S.  
Gregory R. Stende, D.D.S.

#### Clinical Associate Professor

Marmion W. Houghlum, D.D.S., M.S.D.  
George C. Lawther, D.D.S., M.S.D.

- 181-182. Periodontics.** Histology and pathology of the structures involved in periodontal disease. Etiology, diagnosis, treatment, and prevention of periodontal disease are included. (2 cr; 20 hrs) Schaffer and staff
- 181C-182C. Periodontics Clinic.** Clinical practices in the treatment of diseases affecting the investing tissues of the teeth. (2 cr; 60 clin hrs) Schaffer and staff
- 185. Periodontics.** Continuation of previous lectures with emphasis on the occlusal factors and surgical therapy. (1 cr; 10 lect hrs) Schaffer and staff
- 185C-186C. Periodontics Clinic.** Clinical treatment of periodontal disease. (2 cr; 60 clin hrs) Schaffer and staff

### Nondivisional Courses

#### Dean and Professor

William H. Crawford, D.D.S.

#### Visiting Lecturer

Rueben N. Albinson, D.D.S.  
William Von Bank, D.D.S.

#### Professorial Lecturer

Irving R. Brand, LL.B.  
Ainsley T. Thorson, D.D.S.

- 195-198. Dental Jurisprudence.** Legal problems and obligations in the practice of dentistry; state dental laws, contracts, torts, malpractice; and dentists as expert witnesses. (3 cr) Brand
- 196. Practice Management.** Establishing a practice, office location, arrangement, equipment, and personnel; dentist-patient relationships, records, fees, credit and collections; office accounting, professional insurance, investments, and taxes; purchasing supplies. (1 cr) Thorson
- 197. Professional Orientation.** General history of dentistry and of the University of Minnesota School of Dentistry; growth and importance of dental societies and organizations; significant social, economic, and health legislation; the code of ethics of the A.D.A.; social and professional obligations of the dentist. (1 cr) Crawford and staff

### CONTRIBUTING DEPARTMENTS

#### Anatomy

#### Professor

Arnold Lazarow, M.D., Ph.D., *chairman*  
J. Francis Hartmann, Ph.D.  
Charles H. Morgan, Ph.D.  
Lemen J. Wells, Ph.D.

#### Associate Professor

Anna Mary Carpenter, Ph.D., M.D.  
R. Dorothy Sundberg, Ph.D., M.D.

#### Assistant Professor

Joseph Davidson, Ph.D.  
William J. L. Felts, Ph.D.

- 59. Systematic Anatomy.** Comprehensive treatment of the various organ systems of the human body. Lectures, recitations, and laboratory work. (6 cr; 120 hrs) Anatomy staff
- 102. Anatomy of the Head and Neck.** Detailed dissection of the human head and neck with correlative treatment of the upper extremity. (6 cr; 120 hrs) Anatomy staff
- 105. Microscopic Anatomy.** Minute structure and development of the tissues and organs of the body including the nervous system, with special emphasis upon the teeth and digestive tract. Lectures, recitations, and laboratory work. (8 cr; 140 hrs; microscope required; use of microscope may be obtained by purchasing two \$3 microscope cards from bursar) Anatomy staff



## Bacteriology and Immunology

### Professor

Jerome T. Syverton, M.D., *chairman*  
 Herman C. Lichstein, D.Sc.  
 William F. Scherer, M.D.  
 Dennis W. Watson, Ph.D.

### Associate Professor

S. Caylen Bradley, Ph.D.  
 Leroy C. McLaren, Ph.D.  
 Edwin L. Schmidt, Ph.D.

### Assistant Professor

Gerhard Brand, M.D.  
 Garabed Garabedian, Ph.D.  
 John J. Holland, Ph.D.  
 John D. Krafchuk, M.D.  
 John D. Ross, Ph.D.

### Instructor

Richard L. Crowell, Ph.D.  
 Samuel J. Deal, Ph.D.  
 Sidney E. Grossberg, M.D.  
 James T. Prince, B.S.  
 Richard E. Shope, Jr., D.V.M.  
 Robert W. Tankersley, Ph.D.  
 John E. Verna, Ph.D.

- 100. Bacteriology for Dental Students.** Lectures and laboratory exercises comprise a survey of microbiology including fundamental aspects of bacterial physiology, immunology, mycology, and virology. Role of microorganisms as etiologic agents of dental disease receives special attention. (6 cr; 132 hrs; microscope required; use of microscope may be obtained by purchasing \$3 microscope card from bursar) Staff

## Pathology

### Professor

James R. Dawson, M.D., *chairman*  
 Robert Hebbel, M.D., Ph.D.

### Associate Professor

Paul H. Lober, M.D., Ph.D.  
 Lee W. Wattenberg, M.D.

- 100. Pathology for Dental Students.** Circulatory disturbances, metabolic change in cells and tissues, pigment deposits, inflammations and tumors. Pathology of selected diseases, tumors, and lesions affecting the mouth and dental structures. Exercise in gross and microscopic diagnosis. (8 cr; 130 hrs; microscope required; use of microscope may be obtained by purchasing \$6 microscope card from bursar) Dawson and assistants

## Pharmacology

### Professor

Raymond N. Bieter, M.D., Ph.D., *chairman*  
 Norman O. Holte, D.D.S., M.S.D.  
 Harold N. G. Wright, Ph.D.

### Assistant Professor

Elizabeth M. Cranston, Ph.D.

- 101. Introduction to Pharmacology.** (3 cr; 30 hrs) Bieter, Wright, and staff
- 105. General and Experimental Pharmacology.** Detailed lecture and laboratory study of important drugs. (6 cr; 100 hrs) Bieter, Wright, and staff
- 106. General Pharmacology.** Lecture continuation of 105. (2 cr; 20 hrs) Bieter, Wright, and staff
- 108. Prescription Writing.** (1 cr; 10 hrs) Wright

## Physical Metallurgy

### Professor

Morris E. Nicholson, Ph.D., *chairman*

### Associate Professor

Henry S. Jerabek, Ph.D.

- 159. Dental Physical Metallurgy.** Basic course for dental students involving theory of metals and alloys, constitution diagrams, heat treatment, properties and applications of metals and alloys used in dentistry. (2 cr; 20 hrs) Jerabek

## Physiological Chemistry

### Professor

Wallace D. Armstrong, Ph.D., M.D., *chairman*  
 Cyrus P. Barnum, Jr., Ph.D.  
 Paul D. Boyer, Ph.D.  
 David Glick, Ph.D.

### Associate Professor

Leon Singer, Ph.D.  
 Frank Ungar, Ph.D.

### Assistant Professor

Charles W. Carr, Ph.D.  
 John F. Van Pilsum, Ph.D.

### Instructor

Curtis Carlson, M.D.

104. **Physiological Chemistry.** (5 cr; 50 hrs) Singer, Carlson, Van Pilsum
105. **Physiological Chemistry.** (6 cr; 100 hrs; a \$5 physiological chemistry card must be purchased from bursar; laboratory desks will not be assigned until this card is presented; cost of special chemicals, nonreturnable equipment, and breakage will be charged against the deposit) Singer, Carr, Carlson

## Physiology

### Professor

Maurice B. Visscher, M.D., Ph.D., *chairman*  
 Ernest B. Brown, Jr., Ph.D.  
 Joseph T. King, M.D., Ph.D.  
 Nathan Lifson, M.D., Ph.D.  
 Carlos Martinez, M.D., Ph.D.  
 Carlo A. Terzuolo, M.D.

### Associate Professor

H. Meade Cavert, M.D., Ph.D.  
 Eugene D. Grim, Ph.D.  
 John A. Johnson, Ph.D., M.D.

### Assistant Professor

Lerner B. Hinshaw, Ph.D.  
 Robert E. Swanson, Ph.D.

### Clinical Instructor

Maurice W. Meyer, M.S.

101. **Human Physiology.** Principles of physiology for dental students and others. Physiology of cells, muscle, nerve, central nervous system, senses, blood, circulation, respiration, digestion, metabolism, endocrines, excretion. (10 cr; 120 hrs) Staff

## Public Health

### Lecturer

William A. Jordan, D.D.S., M.P.H.

76. **Introduction to Public Health for Dental Students.** Designed to orient the dental student to public health. Furnishes a background of information of those public health measures which will enable the dentist to understand better his role in the health of his community. Public health administration and health agencies involved will be outlined briefly. (1 cr; 10 hrs) Jordan
77. **Dental Public Health.** Designed to demonstrate the application of various dental practices and dental preventive and control measures to the field of public health. Knowledge of methods of organizing and evaluating community dental health programs will assist the private dental practitioner to fulfill better his professional status in his community. (2 cr; 20 hrs) Jordan

# Graduate Education in Dentistry

## GENERAL INFORMATION

Graduate work in dentistry is offered to meet the need in two areas. The first concerns the preparation of qualified teachers and investigators in the various branches of dentistry. The second concerns the preparation of fully trained specialists for the various fields of dentistry. The course of study leads to the degree of M.S. in dentistry, a combination of the conventional work for the master of science degree plus the achievement of proficiency in some phase of clinical dentistry. Hence, the course requires 2 academic years, but most students will require a minimum of 3 years.

### Requirements for Enrollment in the Graduate School

**Eligibility**—To be eligible for enrollment in this program the applicant must be a graduate of an accredited school of dentistry and must have achieved in both pre dental and dental requirements a superior scholastic record, which shall be demonstrated by a standing in the top fourth of his graduating class, or by an average of B or better.

**Application for Enrollment**—Application to pursue the course of graduate study should be initiated by a letter to the dean of the Graduate School, requesting an application form and the appropriate bulletin. This form, completely filled out, should be submitted to the dean of the Graduate School for evaluation.

**Notification of Acceptance**—Acceptance for graduate study is contingent upon the applicant's qualifications, facilities available for the course of study requested, and upon vacancies in the area indicated. Notification of acceptance or rejection will come from the Graduate School office.

**Registration**—Each student will choose an adviser, normally that faculty member whose scholastic and research interests most closely parallel his own. He will secure registration forms in the Graduate School office each quarter during the periods scheduled for registration, will have them signed by his adviser, and will present them at the Graduate School office for the approval of the dean of the Graduate School. Following initial registration in the Graduate School, an advisory committee will be appointed for each student.

**Tuition**—The tuition fee for graduate work in dentistry is \$130 per quarter for residents and \$255 per quarter for nonresidents. For students who are majoring in the fundamental sciences, the tuition fee is \$71 per quarter for residents and \$180 per quarter for nonresidents.

### Requirements for Admission to Candidacy

**Period of Trial**—The first period of study by a graduate student is a period of trial. Advancement toward the Master's degree will not be officially authorized until the student has completed 1 quarter of residence and has demonstrated competence in not less than 9 quarter credits of graduate work.

**Filing of Application**—After the completion of 9 credits of graduate work, an Application for Candidacy form must be obtained from the Graduate School office,

completed, and returned to that office. The student will be duly notified of the result of this action. He will then proceed to meet with his advisory committee for the purpose of outlining the balance of his course of study.

### Requirements for the Degree of Master of Science in Dentistry

**Program of Study**—Upon enrollment in the Graduate School, the student and his adviser will outline a tentative course of study, which must form a consistent plan of work pursued with a definite aim. Following admission to candidacy, a definite plan of study for the entire course must be formulated by the student and his advisory committee.

**Major**—The aim of the program of study is to achieve mastery of a specific field of knowledge. This field is designated the major subject. Not less than 18 credits of the study program will be in the major subject. The minimum acceptable quality in these courses is indicated by a grade of B.

**Minor**—Each student must select an area of study in the basic sciences which is logically related to his major subject and his research project. Not less than 9 credits of the study program will be in the minor subject. The minimum acceptable quality in these courses is indicated by a grade of C.

**Research and Thesis**—The M.S. in dentistry is offered under Plan A, the plan which requires a thesis. Each candidate must submit a thesis. The thesis shall present evidence of ability and accomplishment in the planning and the prosecution of scientific research by the candidate and should demonstrate significant accomplishment on the part of the candidate in applying the scientific method. It is especially to be noted that the tabulation of data confirming earlier established observations is not acceptable. Statistical studies of clinical material may, however, be appropriate if through such studies new discoveries are made. The distinction between the Master's and the doctoral dissertation shall be in the importance and extent of the studies in question. Both shall represent contributions to knowledge made by the candidate. The candidate shall, except in unusual cases where the problem would not permit, himself make the majority of the original observations upon which the thesis is based.

After approval of candidacy and before the final quarter the title must be filed with the dean of the Graduate School on a form which may be secured in the Graduate School office. The thesis title must be approved by the student's adviser and by the Committee on Dental Graduate Education and Research.

No material which has been published prior to its approval by the thesis committee may be used to meet the thesis requirement for any advanced degree. Candidates contemplating publication of any materials which they expect to present for a thesis should therefore arrange through the Graduate School office to obtain such approval.

The Master's thesis must be typewritten in quadruplicate, 2 copies on a special form of red-bordered paper, the other 2 on lighter weight bond. Samples of paper required should be examined in the Graduate School office. Ample margin should be left for binding purposes. The body of the thesis should be double spaced, but footnotes may be single spaced. The 4 copies of the thesis, certified by the adviser as complete, must be registered in the dean's office of the Graduate School not later than 8 weeks before graduation. The thesis will be examined by a committee appointed by the dean on recommendation of the Committee on Dental Education and Research at the time the thesis subject is submitted. Unanimous approval by the thesis committee is necessary for the acceptance of the thesis. If the thesis is accepted, the candidate must deposit with the Office of Admissions and Records, at least 5 weeks before commencement, a fee for binding 2 copies of the thesis, which will be catalogued and deposited in the University Library. The third copy will be placed in the major department, the fourth copy reverting to the student.

**Final Examinations—**

*Written Examination*—In addition to the usual course examinations in all subjects where such are given, the candidate for the Master's degree will be required to pass a final written examination in the field of his major. No special final examination is required in the minor. The final written examination will be held prior to the oral examination. It is given by the members of the graduate faculty in the major department, the adviser acting as chairman. This examination shall cover all the work done in the major, and may include any work fundamental thereto.

*Oral Examination*—The final oral examination will be held not less than 5 weeks before commencement. This examination will be administered by the student's thesis committee.

The final oral examination will cover all the work offered for the degree, and may include other work fundamental thereto. At the close of the examination, the committee will vote upon the candidate, taking into account all of his work. A majority vote is required for approval.

*Recommendation by the Faculty*—The dean of the Graduate School will report to the Executive Committee of the graduate faculty the names of those who have completed the requirements for the degree, and those duly approved will be recommended by the faculty to the Board of Regents of the University. Unless excused by the dean of the Graduate School on the basis of a petition to receive the degree *in absentia*, all candidates are required to be present at commencement when the degrees are conferred.

**Areas in Which Graduate Courses Are Offered**

At present, graduate courses in dentistry are offered in the major fields of oral pathology, oral surgery, orthodontics, restorative dentistry, oral medicine, and periodontia.

*Standards*—Graduate work in the field of dentistry follows the same general policies and methods established for graduate work in other sciences. This work requires high standards of admission, qualified advisers to graduate students, adequate laboratories and clinical equipment, courses and examinations in residence, and evidence of the power of productive research on the part of the student.

*Method of Study*—The plan of graduate study at the University of Minnesota implies an entirely different level of educational discipline from undergraduate course work. In the former, each student pursues his individual problem. While there will be ample consultation and guidance, the individual student's special interest in selection of subjects will be the basis for outlining the courses. The general principle of application of basic science to clinical problems is emphasized throughout.

**Programs for Doctor of Philosophy**

The Ph.D. degree, related to dentistry, may be secured at the University by two general procedures.

One is through a program in which the student selects a major field of study in one of the basic medical sciences and a minor in a second basic science. Information regarding this program can be obtained by inquiry to the dean of the Graduate School.

The other procedure, only recently established, is one in which the student selects one of the basic medical sciences for the major field and the minor in dentistry. This program has been designed to meet the special needs of teachers and research workers in dentistry.

Further information regarding this program may be secured by inquiry from the School of Dentistry or the Graduate School.

## DESCRIPTION OF GRADUATE COURSES

## Oral Medicine

- 230f,w,s,su. **Advanced Oral Diagnosis.** Survey of the basic principles of oral examinations, differential clinical diagnostic techniques, and treatment planning. Topics dealing with oral manifestations of systemic disease and systemic manifestations of oral disease are assigned for collateral reading. (Cr and hrs ar) Bartholdi
- 231f,w,s,su. **Advanced Clinical Oral Diagnosis.** Practical work in the clinic taking and recording case histories, making oral examinations, and setting up a detailed treatment plan. (Cr and hrs ar) Bartholdi
- 232f,w,s,su. **Research Problems in Oral Medicine.** (Cr and hrs ar) Bartholdi
- 261f,w,s,su. **Advanced Dental Radiographic Technique.** (Formerly 260) Systematic consideration of the basic factors governing X radiation, emphasizing recent advances in biophysics with special reference to the technique and material used. Demonstration and practice. (Cr and hrs ar) Petersen

## Oral Pathology

- 260f. **Oral Pathology and Histology.** Lectures and laboratory work covering the histology of the teeth and related oral tissues including embryologic considerations. Special pathology of the oral region as well as the relation of local pathologic findings to systemic conditions and to general pathology are emphasized. Graduate students participate as laboratory assistants and fulfill some additional requirements. (3 cr) Gorlin and staff
- 262f,w,s,su. **Research in Oral Pathology.** (Cr and hrs ar) Gorlin
- 263f,w,s. **Oral Pathology Seminar.** (1 cr) Gorlin
- 266s. **Advanced Oral Pathology.** Salivary gland development and pathology; dental organ pathology; bone physiology and pathology; radiation pathology; dermatopathology; lymph node and/or reticuloendothelial pathology; soft tissue pathology; pertaining to the head and neck. (1 cr; limited to 8 students; offered alt yrs) Gorlin and Chaudhry

## Oral Surgery

- 250f,w,s,su. **Advanced Oral Surgery.** Includes assigned clinics in University Hospitals such as Tumor, Plastic, and Hospital Dental Clinic in addition to the regular periods in the Dental School. (Cr and hrs ar) Clark and staff
- 251f,w,s,su. **Oral Surgery Seminar.** (1 cr) Clark
- 252f,w,s,su. **Research in Oral Surgery.** (Cr and hrs ar) Clark and staff
- 253f,w,s,su. **Problems in Oral Surgery.** (Cr and hrs ar) Clark and staff

## Orthodontics

- 200f,w,s,su. **Advanced Orthodontic Techniques.** (Cr and hrs ar) Steadman, Simpson, and staff
- 201f,w,s,su. **Treatment Procedures in Orthodontics.** (Cr and hrs ar) Steadman, Simpson, and staff
- 202f,w,s,su. **Case Analysis.** (Cr and hrs ar) Steadman and Simpson
- 203f,w,s,su. **Treatment Planning.** (Cr and hrs ar) Steadman, Simpson, and staff
- 204f,w,s,su. **Advanced Clinical Orthodontics.** (Cr and hrs ar) Steadman, Simpson, and staff
- 205f,w,s,su. **Osteology and Myology of the Head.** (Cr and hrs ar) Steadman
- 206f,w,s,su. **Growth of the Head.** (Cr and hrs ar) Steadman
- 207f,w,s,su. **Comparative Odontology.** (Cr and hrs ar) Steadman
- 208f,w,s,su. **Seminar in Orthodontics.** (Cr and hrs ar) Steadman, Simpson, and staff

- 209f,w,s,su. **Problems and Research in Orthodontics.** (Cr and hrs ar) Steadman
- 210f,w,s,su. **Principles of Orthodontic Retention.** (Cr and hrs ar) Steadman and Simpson
- 211f,w,s,su. **Advanced Clinical Orthodontic Retention.** (Cr and hrs ar) Steadman, Simpson, and staff
- 212f,w,s,su. **Principles of Orthodontic Prognosis.** (Cr and hrs ar) Steadman and Simpson
- 213f,w,s,su. **Advanced Clinical Orthodontic Prognosis.** (Cr and hrs ar) Steadman, Simpson, and staff
- 214f,w,s,su. **Advanced Orthodontic Seminar.** (Cr and hrs ar) Steadman

### Periodontics

- 280f,w,s,su. **Advanced Periodontics Clinic.** Practical work in the clinic in examination, diagnosis, treatment planning, and various phases of treatment of patients with periodontal disease. Includes the practice of curettage, gingival resection, splinting of teeth, and balancing the occlusion. (Cr and hrs ar) Schaffer and staff
- 281f,w,s,su. **Advanced Periodontics Lectures.** Consideration of the tissues involved in periodontal disease. Etiology and treatment of periodontal disease. (2 cr) Schaffer and staff
- 282f,w,s,su. **Research in Periodontics.** Opportunity to take part in the many phases of periodontal research that are under way in the laboratory set up for periodontal research. (Cr and hrs ar) Schaffer and staff
- 283f,w,s,su. **Seminar in Periodontics.** Etiology of periodontal disease, histopathology of periodontal symptoms, treatment of periodontal disease, research in periodontics. (1 cr) Schaffer and staff
- 284f,w,s,su. **Supporting Structures of the Teeth.** The histology, pathology, and physiology of the gingival tissues, the cementum, the periodontal membrane, and the alveolar bone will be covered in lectures. Associated problems will be studied on a set of microscopic slides. (3 cr) Schaffer and staff

### Restorative Dentistry

- 220f,w,s,su. **Advanced Dental Anatomy.** Under supervision, student assists in teaching and participates in the activities of the Division of Dental Anatomy. He also is assigned special problems in the division. (Cr and hrs ar) Hall
- 240f,w,s,su. **Advanced Technical Restorative Dentistry.** Teaching experience is integrated with technical solution of problems involving application of the theories of indeterminate stresses to the more complex problems of tooth morphology. (Cr and hrs ar) Jensen, Wittich, Yock
- 243f,w,s,su. **Advanced Clinical Restorative Dentistry.** Detailed application of clinical techniques provides comprehensive training in restorative dentistry through studies on clinical material, collateral reading, and conferences. Research methods and evaluation of data emphasized. (Cr and hrs ar) Jensen, Wittich, Yock
- 247f,w,s,su. **Research Problems in Restorative Dentistry.** Arranged with individual students upon application after a critical review of the current and historical literature pertaining to the problem. (Cr and hrs ar) Crawford, Jensen, Wittich, Yock

# Program in Dental Hygiene

## GENERAL INFORMATION

The Program in Dental Hygiene was established to fill the need for workers in the public schools, health departments, hospitals, industrial institutions, and dental offices to do dental prophylactic work and to teach hygiene of the mouth as well as dental health education. This type of preventive work is recognized as being one of the great physical needs of our modern times. A scientific training and cultural background, as thorough as possible in the 2-year program, are aimed to give the student a professional education and point of view to work in the semi-independent capacity the nature of her work demands. The program also includes training in dental assisting and laboratory work, and should make the graduate easily adaptable to the general duties of the private dental office should that be the field of work selected.

The program requires 2 academic years of study and leads to the degree of graduate dental hygienist (G.D.H.). The incorporation of this work in the University makes it possible to teach all of the subjects of the curriculum in the appropriate departments, thus assuring the student of a University contact and instructions under the best auspices.

The first year's work deals with preliminary science courses and dental technique. In many respects it corresponds to an academic student program. The second year is designed to prepare the student for prophylactic service in dental offices, hospitals, and clinics, and for the teaching of mouth hygiene in health departments and schools. The dental hygienist must be able to take an active part in dental education and public dental health activities.

After graduation a dental hygienist secures a license to practice by passing the dental hygiene examination required by the state in which she desires to locate. In all instances she practices under the supervision of a licensed dentist or director of a public health program.

## Admission

Students are admitted to the Program in Dental Hygiene only at the beginning of each fall term.

**Special Requirements**—Applicants for admission to this program must be young women between 18 and 35 years of age. They must be able to pass a satisfactory physical examination given by the University Health Service. One year of high school chemistry is required for entrance and 1 year of high school typing is advantageous.

## Advanced Standing

Students with advanced standing, who enter the Program in Dental Hygiene, should consult the advisers in dental hygiene when planning their programs. A minimum load of 15 credits each quarter is required.

Two academic years in residence are required for completing the Program in Dental Hygiene.

## Arts and Dental Hygiene

A program leading to the degrees of graduate dental hygienist and bachelor of arts may be arranged by consulting the dean of the College of Science, Literature, and the Arts. This may be done either before entering or after completing the



Program in Dental Hygiene. Liberal arts courses taken while in the School of Dentistry or elsewhere may be applied toward these graduation requirements. Usually, 2 or 3 additional years of work are required.

### Application Procedure

All inquiries, credentials, and applications for admission to the undergraduate colleges should be addressed to the Office of Admissions and Records, University of Minnesota, Minneapolis 14.

Application blanks may be obtained at any Minnesota high school or from the Office of Admissions and Records at the University of Minnesota. All applications should be filed as soon as possible. The closing date for applications is September 1 prior to the fall quarter in which the applicant expects to enroll. Applicants may be required to appear for a personal interview at the discretion of the admissions committee.

An admission certificate will be mailed to each student who has met the requirements. In addition, students entering from other colleges or universities will receive a statement of advanced standing. Instructions for the orientation-registration period will be enclosed with the admission certificate or will be mailed later—about 1 month before the opening of the quarter. Students must present their admission certificates when they report for registration.

### Fees

Tuition fee (per quarter)	
Residents of Minnesota .....	\$ 71.00
Nonresidents .....	180.00
Matriculation deposit (first quarter only) .....	5.00
Incidental fee (per quarter) .....	20.00
(For privileges such as the Coffman Memorial Union, the Health Service, and the Minnesota <i>Daily</i> .)	
Graduation fee .....	10.00
Special fees:	
Examination for credit (after first quarter in residence) .....	5.00
Special examination .....	5.00
(May be taken only upon approval of the appropriate committee.)	

**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.

**Part-Time Fees**—Students not registered for the full course will be charged tuition at the rate of \$6 per credit for residents, \$15 for nonresidents.

### Equipment

The University will furnish the larger pieces of equipment needed for the work in clinic and laboratories, but the student must furnish her own uniforms, caps, white shoes, laboratory and operating instruments, textbooks, and supplies. These instruments and supplies will be needed during the first year and will cost approximately \$75. Lists of the required materials for new students will be available during registration periods.

### Awards

**Louise C. Ball Scholarship and Prize Fund**—Annual scholarship assistance is made available to a qualified graduating senior of the Program in Dental Hygiene, or a graduate dental hygienist of the University of Minnesota, who wishes to further her education in some other department within the University.

**Sigma Phi Alpha**—National Dental Hygiene Honor Society is represented at Minnesota by Eta Chapter. This society recognizes and honors scholarship, service, and character among dental hygiene students. Not more than 10 per cent of the graduating class is eligible.

## TWO-YEAR PROGRAM IN DENTAL HYGIENE

	Fall Qtr		Winter Qtr		Spring Qtr		Total	
	Cr	Hrs	Cr	Hrs	Cr	Hrs	Cr	Hrs
First Year								
Anat 3—Elementary Anatomy .....	4	55					4	55
Bact 1—Elementary Bacteriology .....			4	66			4	66
Engl 1B-2B-3B—Freshman English .....	4	44	4	44	4	44	12	132
DH 7-8-9—Dental Anatomy .....	2	44	2	44	2	44	6	132
DH 21-22—Dental Prophylaxis .....			2	44	2	66	4	110
PEW 25—First Aid .....			2	22			2	22
PhCh 50—Elements of Physiological Chemistry .....					4	44	4	44
Phsl 4—Human Physiology .....					4	44	4	44
Physical education .....	1½	33	1	22			2½	55
PubH 3—Personal Health .....	2	22					2	22
Biol 1-2-3—General Biology .....	3	66	3	66	4	66	10	198
	16½	264	18	308	20	308	54½	880
Second Year								
DH 40-41-42—Dental Health Education .....	2	55	2	55	2	55	6	165
DH 45-46-47—Dental Assisting .....	2	66	2	66	2	66	6	198
DH 53-54-55—Dental Prophylaxis .....	2	66	2	66	2	66	6	198
DH 56—General Pathology .....			1	11			1	11
DH 57-58-59—Prosthetic Dentistry and Lab .....	2	44	2	44	3	66	7	154
DH 60—Oral Pathology and Histology .....			2	22			2	22
DH 62—Dental Radiology .....					2	33	2	33
Econ 16A—Bookkeeping and Accounting Lab .....			3	44			3	44
Psy 2A—Psychology in Modern Society .....					5	55	5	55
PubH 51—Community Hygiene .....			3	33			3	33
PubH 95—Principles of Nutrition .....	3	33					3	33
Soc 1—Introduction to Sociology .....			3	33			3	33
Spch 5—Fundamentals of Speech .....	5	55					5	55
	16	319	20	374	16	341	52	1034

## DESCRIPTION OF COURSES

### Dental Hygiene (DH)

#### Associate Professor

Ione M. Jackson, G.D.H., B.A., *director*

#### Clinical Instructor

Elizabeth M. Schendel, G.D.H., B.S.

- 7-8-9. Dental Anatomy.** *Lectures:* dental nomenclature; special attention to definition, spelling, combining and application of terms used in the various divisions of dentistry; detailed study of all deciduous and permanent teeth including calcification, eruption, decalcification, and shedding; tooth form, function, stress, occlusion; surrounding and investing tissues; anomalies. *Laboratory:* each student is required to make 5 drawings of each permanent tooth, 10 plasticine carvings, 7 wax carvings, and a didactic and wax carving final. (6 cr; 1 lect hr and 3 lab hrs a wk for 3 qtrs) Hall and staff
- 21-22 Dental Prophylaxis.** Lectures, demonstrations, and practice in scaling and polishing teeth; teaching of oral hygiene and home care of the mouth to patients. Work is introduced by practice on manikins followed by practice on patients in the dental clinic. (4 cr; 1 lect hr, 3 lab hrs, and 6 clin hrs a week per qtr) Jackson, Schendel
- 40-41-42. Dental Health Education.** Lecture and recitation course in the preparation and presentation of oral hygiene material for various ages, groups, and occasions. Includes critical analysis of dental literature, audio-visual aids, display and unit projects, and field work in the public schools and community programs. (6 cr; 1 lect a wk; 6 field visits, project laboratories each qtr for 3 qtrs) Schendel

- 45-46-47. **Dental Assisting.** Lectures, demonstrations, and practical experience in surgical and dental assisting in operative dentistry, pedodontics, orthodontics, endodontics, periodontics, denture prosthetics, crown and bridge work, X-ray, and patient admissions. (6 hrs a wk for 3 qtrs) Staff
- 53-54-55. **Dental Prophylaxis.** (Continuation of 21-22) Patient recall, and topical fluoride technique. Teaching of oral hygiene is emphasized. Approximately 180 hours of actual practice on all types of cases must be completed. (6 cr; 6 hrs a wk for 3 qtrs) Jackson, Schendel
56. **General Pathology.** Elementary discussion of general pathology including circulatory disturbances, inflammation, and tumors. Special consideration of selected diseases with reference to those affecting the oral cavity. (1 cr; 10 lect) Gorlin and staff
- 57-58-59. **Prosthetic Dentistry and Dental Laboratory.** *Prosthetic Dentistry:* Lectures: instruments and materials used in dental prosthetics; impression materials and their manipulation; cast construction; art base construction; and assisting in denture construction. Laboratory: assisting in impression taking; pouring impressions and making casts and models; construction of art bases. *Dental Laboratory:* Lectures: instruments and materials used in the various branches of dentistry; assistant's laboratory duties in such areas as crown and bridge, operative dentistry, orthodontia, etc.; manipulation of waxes, investments, metals, plastics, porcelains and cements; soldering. Laboratory: construction of indirect dies from various materials; wax patterns and castings made for all types of cavity preparations; manipulation of porcelain and plastics; soldering of contact; manipulation of synthetic porcelain and dental cements. (7 cr; prereq 7-8-9; 1 lect a week for 3 qtrs, 120 lab hrs) Hall and staff
60. **Oral Pathology and Histology.** Résumé of histology of teeth and oral tissues to provide a background for a more detailed discussion of the special pathology of these tissues. Topics include: facial embryology, dental and periodontal development, dental caries, periodontal diseases, endodontics, and introduction to tumors of dental origin. (2 cr; 16 lect and 6 lab hrs) Gorlin and staff
62. **Dental Radiology.** Series of lectures and demonstrations on the application of Roentgen rays for dental diagnostic purposes. Includes the electro-physics of the apparatus, positioning of the films, angulation of the machine, and processing. (2 cr; 1 lect hr and 2 lab hrs a wk) Petersen

### Anatomy (Anat)

3. **Elementary Anatomy.** Human gross anatomy including a brief introduction to histology, followed by a more detailed study of the head and neck with special emphasis on the teeth and their investing structures. Lectures, laboratory studies, and demonstrations. (4 cr; 3 lect hrs and 2 lab hrs a wk) Anatomy staff

### Bacteriology (Bact)

1. **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. (4 cr; 3 lect and lab hrs a wk for 1 qtr) Deal

### Biology (Biol)

- 1-2-3. **General Biology.** Introduction to living things, both plant and animal, and to major biological concepts. Structure, function, classification, evolution of organisms. (10 cr; 2 lect hrs and 4 lab hrs a wk for 3 qtrs) Staff

### Business Studies

- GC 16A. **Bookkeeping and Accounting Laboratory.** Instruction in dental office routine and methods; keeping patient records and accounts; ordering supplies; banking; monthly statements and general bookkeeping procedures. (3 cr; 2 lect hrs and 2 lab hrs a wk) Donnelly

- BA 32. Beginning Typewriting.** For students who have had less than 1 year of training. Exemption by passing test. Proper techniques of operating a typewriter; practice in typing letters; manuscript writing; etc. (1 cr; 5 hrs a wk) Peterson

### English (Engl)

- 1B-2B-3B. Freshman English.** Three hours a week of composition and one of literature. Nine themes of exposition a quarter; analysis of readings; training in use of library; selection and use of source materials. One novel and 3 or 4 short stories first quarter; 3 plays and some essays in the second; and a selection of poetry in the third. Lectures, class discussions, recordings, forums, and dramatizations of some plays. (12 cr; 4 hrs a wk for 3 qtrs) Staff

### Physical Education (PEW)

Instruction is given in a wide variety of seasonal sports, dance, aquatic, and body conditioning activities. The basis of selection is determined by the "Activity Rating" given by the Health Service and also by the interest of the student. Courses meeting 2 days a week carry 1 credit while those meeting 3 days a week carry 1½ credits. Staff

### Physiology (Phsl)

- 4. Human Physiology.** Covers the following subjects from the standpoint of function of the human: circulation, respiration, digestion, excretion, metabolism and nutrition, special senses, nervous system, and endocrines. (4 cr; 3 lect hrs and 1 dem hr a wk; prereq 1 qtr zoology, 1 qtr chemistry) Staff

### Physiological Chemistry (PhCh)

- 50. Elements of Physiological Chemistry.** (a) Brief study of the physical and chemical laws of the composition of matter, chemical compounds, chemical and energy changes; of the ionic theory; of gases, and solutions. (b) 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. (4 cr; 4 lect hrs a wk) Caster, Carlson, and staff

### Psychology (Psy)

- 1-2. General Psychology.** A general introduction to the study of human behavior with emphasis on the development of the individual. This course is advised, in place of 2A, for those who are considering a Bachelor's degree. (6 cr; 3 lect hrs a wk for 2 qtrs) Staff
- 2A. Psychology in Modern Society.** Introduction to the science of human behavior. Examines the research methods which the psychologist uses in observing and drawing conclusions about behavior. Topics include the origin and development of behavior, an analysis of human motives, the place of emotion and conflict in human adjustment, how man learns from his environment, and how individuals differ in their psychological makeup. (5 cr; 5 lect a wk for 1 qtr) Staff

### Public Health (PubH)

- 3. Personal Health.** Normal body function; causes and prevention of disease. (2 cr; not open to students who have taken GC 10C) Thomson
- 51. Community Hygiene.** Elementary concepts of development, spread, and prevention of preventable diseases, community programs for their control. (3 cr; not open to students who have taken 4, 50, 52, or 100; prereq 3, or GC 10C) Schuman
- 95. Human Nutrition.** Particular reference to public health. Nutritional values of foods, food utilization and requirements, food management, nutrition education. (3 cr; prereq courses in chemistry and biology or consent of instructor) J Anderson

**Sociology (Soc)**

1. **Instruction to Sociology.** Characteristics of human group life. Analysis of factors associated with development of human group life and man's social environment; structure of the social environment and its influence upon the individual's behavior. (3 cr; 3 lect hrs a wk) Martindale

**Speech and Theater Arts (Spch)**

5. **Fundamentals of Speech.** Development of basic skills in speech; voice and action, oral reading, discussion, extemporaneous speaking. (5 cr; 5 lect hrs a wk) Staff

# Program in Dental Assisting

## GENERAL INFORMATION

This program, offered jointly by the School of Dentistry and General College, prepares a young woman to perform a variety of duties as a dental assistant. The student's courses will prepare her to be a receptionist, make appointments, keep books, and assist the dentist at his chair. This program permits a student to accomplish 3 major objectives all in 1 year: (a) a general education, (b) supervised clinical experience, (c) a dental assistant certificate.

Credits earned during this year may also be applied toward requirements for the 2-year associate in arts (A.A.) degree. The additional year of work may be taken either before or after the year in dental assisting. Since the need for trained dental assistants is great, the graduate of this program will find many and varied job opportunities.

### Admission

Applicants for this program will register in General College. Application blanks may be obtained from the local high school or from the Office of Admissions and Records, 105 Administration Building, University of Minnesota, Minneapolis 14. Applicants must be young women between 18 and 35 years of age, and must be able to pass a physical examination given by the University Health Service. One year of high school typing and 1 year of high school biology or general science is advantageous for admission.

## COURSE OF STUDY IN DENTAL ASSISTING

### FALL QUARTER

	Cr	Hrs
DA 1X—Oral Anatomy .....	2	33
DA 2X—Chairside Assisting .....	3	33
DA 3X—Clinic I .....	3	99
GC 2A—Psychology in Modern Society .....	5	55
GC 10A—Human Biology .....	3	33
GC 31A—Writing Laboratory .....	3	44
	<u>19</u>	<u>297</u>

### WINTER QUARTER

DA 4X—Bacteriology .....	1	10
DA 5X—Pathology, Pharmacology, and Anesthetics .....	1	10
DA 6X—Prosthetics .....	2	60
DA 7X—Clinic II .....	4	120
GC 10B—Human Biology .....	3	30
GC 16A—Bookkeeping and Accounting Laboratory .....	3	40
GC 31B—Writing Laboratory .....	3	40
	<u>17</u>	<u>310</u>

### SPRING QUARTER

DA 8X—Health Care .....	1	11
DA 9X—Dental Radiography .....	1	25
DA 10X—Office Management .....	1	11
DA 11X—Clinic III .....	5	165
DA 12X—Laboratory Procedures .....	1	11
GC 10C—Human Biology .....	3	33
GC 31D—Writing Laboratory .....	3	44
GC 32A—Principles of Oral Communication .....	3	33
	<u>18</u>	<u>333</u>
	<u>54</u>	<u>940</u>

## COURSE DESCRIPTIONS

## Dental Assisting (DA)

## Professorial Lecturer

Ainsley T. Thorson, D.D.S., *director*

## Instructor

Helen M. Tuchner

- 1X. **Oral Anatomy.** Maxilla, mandible, masticatory muscles, and salivary glands. Identification, development, arrangement, and anatomical description of teeth. Causes and classification of malocclusion. Drawings from models. (2 cr; 1 lect and 1 lab a wk) Staff
- 2X. **Chairside Assisting.** Professional ethics, care of the office, and operating room equipment. Psychology of dealing with children and adult patients, preparation of the patient for operation. Identification, uses, and care of dental instruments, methods of assisting in operative procedures, mixing filling materials. (3 cr) Thorson, Tuchner
- 3X. **Clinic I.** (3 cr) Staff
- 4X. **Bacteriology.** Morphology, cultural characteristics, and laboratory differentiation of cocci, bacilli, spirilla bacteria. Types and uses of sterilizing agents, methods of sterilization. (1 cr) Thorson
- 5X. **Pathology, Pharmacology, and Anesthetics.** Oral and dental anomalies, and classification of cavities. Diseases of the oral mucosa and periodontal tissue. Oral pathology and physiology of deciduous teeth. Sources, preparation, administration, and classification of drugs. Weights, measures, and prescriptions. (1 cr) Thorson
- 6X. **Prosthetics.** Properties and uses of impression materials. Preparation of plaster, modeling compound, waxes, alginate, colloid, hydrocolloid, and other materials. Treatment of impressions and model making. (2 cr) Staff
- 7X. **Clinic II.** (4 cr) Staff
- 8X. **Health Care.** Oral hygiene and preventive methods in dentistry. General health, diet, and nutrition. First aid. (1 cr) Staff
- 9X. **Dental Radiography.** Indications and preparation of X-ray examinations. Types of machines and techniques of operation. Types, sizes, uses, and processing of films. (1 cr) Petersen
- 10X. **Office Management.** Reception of patients, use of the telephone, arranging appointments, keeping office records, fees and collections, purchasing supplies, bookkeeping, inventories, and tax reports. (1 cr) Thorson
- 11X. **Clinic III.** (5 cr) Staff
- 12X. **Laboratory Procedures.** Classification and uses of investing and casting materials. Technics of investment and casting. (1 cr) Staff

## General College Courses (GC)

- 2A. **Psychology in Modern Society.** Introduction to the science of human behavior. Examines the research methods which the psychologist uses in observing and drawing conclusions about behavior. Topics include the origin and development of behavior, an analysis of human motives, the place of emotion and conflict in human adjustment, how man learns from his environment, and how individuals differ in their psychological makeup. (5 cr)
- 10A. **Human Biology: Fundamental Similarities in the Living World.** A study of the variety and relationship of living organisms serves to illustrate the general principles of biology. Special emphasis is given to man's place in the world of living organisms. Man's embryonic development, heredity, racial characteristics, and evolution are considered. Films and demonstration laboratories supplement the lectures. (3 cr)
- 10B. **Human Biology: How the Living Machinery in Man Works.** Operational mechanisms of cells, glands, organs, and systems are integrated in the functioning of man's body as a dynamically balanced whole. (3 cr; prereq 10A)

- 10C. Human Biology: Healthful Living.** Preservation and improvement of health is emphasized. Such topics as cause and prevention of disease, dieting, care of skin and hair, pregnancy, mental health, leading causes of death, and public health are considered. (3 cr)
- 16A. Bookkeeping and Accounting Laboratory.** Instruction in dental office routine and methods; keeping patient records and accounts; ordering supplies; banking; monthly statements and general bookkeeping procedures. (3 cr; 2 lect hrs and 2 lab hrs a wk)  
Donnelly
- 31A. Writing Laboratory: Personal Writing.** To see why and how he uses language, the student studies its history and development, levels of usage and style, and becomes familiar with the dictionary's resources. To enrich his awareness of himself and of his relations with his friends and members of his family, the student will read and write descriptions, character sketches, incidents, autobiographies, friendly letters, and business letters. (3 cr)
- 31B. Writing Laboratory: Organizing Ideas.** In developing skills of reading and writing commonly demanded in university classes, reading material will be taken largely from textbooks and periodicals. Emphasis will be upon detecting central ideas, discovering supporting details, interpreting charts and graphs, and generally developing vocabulary and comprehension. Students will study and write summaries, outlines, and expositions ranging from the instructional or process type to the essay type required in many examinations. (3 cr; prereq 31A)
- 31D. Writing Laboratory: Business Writing.** Not only is the student given practice in writing the kinds of letters necessary for ordinary business transactions but he is asked to write a long business report. Letters of inquiry, order, complaint or adjustment, and application, and the business report are included. There is opportunity for discussion of business ethics and routine office procedure. *Final drafts of letters and reports must be typed.* (3 cr; prereq 31B)
- 32A. Principles of Oral Communication.** Work is planned to aid the student in developing confidence in speech situations. Through observation, study, personality analysis, and participation in various speech activities, the student is shown the close relationship between personality and speech behavior. (3 cr)