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University of Minnesota Bulletin

1981-83

Technical College, Waseca



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"THIS PLACE IS FOR STUDENTS"



Technical College, Waseca

UNIVERSITY OF MINNESOTA



Equal Opportunity

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, creed, color, sex, national origin, or handicap. In adhering to this policy, the University abides by the requirements of Title IX of the Education Amendments of 1972, by Sections 503 and 504 of the Rehabilitation Act of 1973, and by other applicable statutes and regulations relating to equality of opportunity.

Inquiries regarding compliance may be directed to Lillian H. Williams, Director, Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall, 100 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455, (612) 373-7969, or to the Director of the Office of Civil Rights, Department of Education, Washington, D.C. 20202, or to the Director of the Office of Federal Contract Compliance Programs, Department of Labor, Washington, D.C. 20210.

UMW ACADEMIC CALENDAR 1981-82¹

Fall Quarter

September 24-25	New student orientation
September 26-October 2	Welcome Week
September 28	Fall quarter classes begin
September 30	Last day to pay fees without penalty
October 9	Last day to add classes
November 4	Second half physical education classes begin
November 6	Last day to drop classes with "W"
November 26-27	Thanksgiving holidays; classes excused
December 11	End of fall quarter

Winter Quarter

January 4	Winter quarter classes begin
January 6	Last day to pay fees without penalty
January 15	Last day to add classes
February 8	Second half physical education classes begin
February 12	Last day to drop classes with "W"
February 15	Presidents' Day holiday; classes excused
March 12	End of winter quarter

Spring Quarter

March 25	Spring quarter classes begin
March 29	Last day to pay fees without penalty
April 9	Last day to add classes
April 28	Second half physical education classes begin
May 7	Last day to drop classes with "W"
May 31	Memorial Day holiday; classes excused
June 3	End of spring quarter
June 4	Commencement

Summer Quarter

June 25-27	New student orientation
June 28	Summer quarter classes begin
June 30	Last day to pay fees without penalty
July 5	Independence Day holiday; classes excused
July 9	Last day to add classes
August 4	Second half physical education classes begin
August 13	Last day to drop classes with "W"
September 6	Labor Day holiday; classes excused
September 10	End of summer quarter

¹The 1982-83 UMW academic calendar was not finalized at the time of printing this bulletin, but is expected to closely follow the 1981-82 calendar.

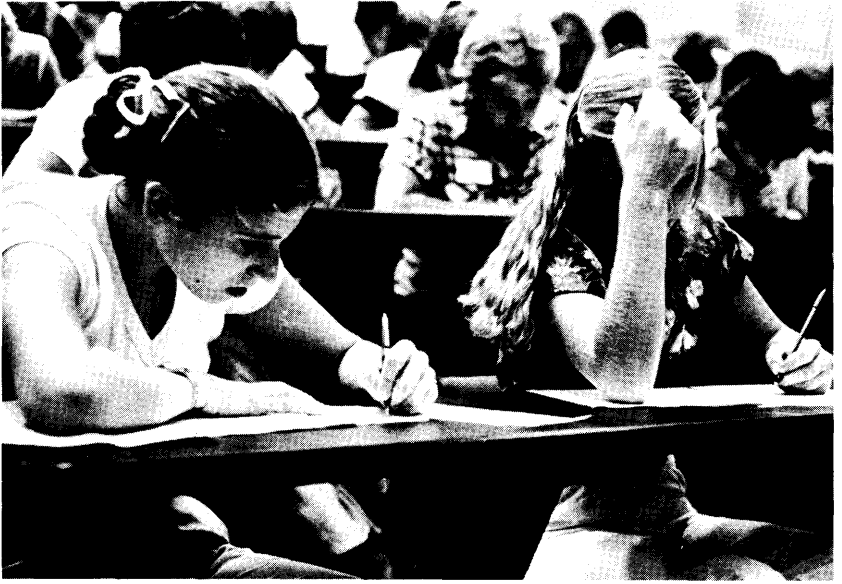


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To Prospective Students . . .

Graduates of the University of Minnesota Technical College, Waseca (UMW) do not have to hunt long or far for jobs. The agricultural field has grown tremendously and continues to grow with new technological advances. Opportunities for UMW graduates have grown at the same pace.

At UMW, we put our future in agriculture, for successful agriculture helps assure the quality of life for all. Agriculture includes the total food and fiber industry, that is, the input industries of feed, seed, fertilizers, buildings, machinery, veterinary care, and farming, as well as the output industries of food marketing, processing, and distributing.

We are a highly specialized college—maybe the most specialized in the country. Every program is related to agriculture or rural life. Our only mission as a college is to prepare students for jobs related to agriculture, rural homes, and rural services. That has given us the chance to develop expertise in specialized program areas.

Student interest in our programs continues to be very strong. Students recognize the fine educational experience available at UMW, which comes from a dedicated faculty and staff committed to agriculture and to education. Training includes a combination of classroom and laboratory work to provide valuable hands-on learning experience. About one-third of your course work will be completed in such areas as communications, social science, mathematics, and basic sciences; the remainder will be concentrated in an area of specialization appropriate to your career objectives. The associate in applied science degree will be granted upon satisfactory completion of your course of study.

We look forward to helping you reach your goals through one of the seven program areas at UMW. If you have any questions after reading this bulletin, feel free to contact the Office of Admissions and Records for more information.

Sincerely,

A handwritten signature in cursive script that reads "Edward C. Frederick".

Edward C. Frederick
Provost

University of Minnesota Technical College, Waseca

I. GENERAL INFORMATION

The College

The University of Minnesota Technical College, Waseca (UMW) is accredited by the North Central Association of Colleges and Secondary Schools. UMW offers an exciting approach to agricultural education in Minnesota—the technical college approach. Representatives of the agricultural industry in Minnesota are saying that individuals with technical college training are “right for the times.”

UMW began as a technical college for agriculture in 1971. Its purpose is to prepare students to earn a living as semiprofessional, midmanagement personnel in the broad fields related to agriculture as well as in services to rural homes and communities. Agriculture is the number one industry in Minnesota. Today its complex technology offers men and women a wide scope of challenges and opportunities—from private enterprise as farm or agribusiness owners to solar power research and its application. Many of the job demands of the industry are now being met, but there is still a strong demand for agricultural technicians.

The college offers majors in seven academic divisions: agricultural business, agricultural industries and services, agricultural production, animal health technology, food industry and technology, home and family services, and horticultural technology. These programs are all two or more and fewer than four years in length and lead to an associate in applied science (A.A.S.) degree. The programs all share the following educational objectives:

1. to help students attain competence in a specific area defined by the college and required for employment in the industry;
2. to help students broaden their base of understanding so they may live fully, deeply, and usefully;
3. to help students understand the fundamentals of the biological, physical, and social sciences important to agriculture today;
4. to provide an education of such quantity and quality that those interested in further studies will be prepared to continue their training at other institutions of higher education.

Many students have chosen to continue their education upon completion of the associate in applied science degree at UMW. The experience to date indicates that most of these students have earned their bachelor's degree in agricultural education. They have found themselves especially well prepared in any field where the practical applications of agricultural technology are important. Students who intend to transfer to another college to continue their education should make their plans known to their instructor-counselor at UMW as soon as possible so they can obtain advice about which courses normally transfer as elective or required courses; however, decisions regarding acceptance of transfer work are always made by the receiving institution.

The college operates on a four-quarter, year-round educational system. The quarters are approximately 11 weeks in length. Students may start during any quarter and may attend continuously or intermittently.

General Information

For additional information about the college, contact the Office of Admissions and Records, University of Minnesota Technical College, Waseca, Waseca, Minnesota 56093; telephone (507) 835-1000.

The Community

Waseca is situated in the heartland of one of the richest farming regions in Minnesota. With a strong agricultural and solid industrial base, this city of 8,200 residents is a thriving and proud Minnesota community. Waseca is situated on the shores of two lakes—Loon Lake and Clear Lake—and is located at the intersection of U.S. Highway 14 and Minnesota Highway 13, just 65 miles south of Minneapolis-St. Paul and 14 miles west of Interstate 35.

The community offers excellent medical care with a new 35-bed hospital, and a medical clinic. Waseca also has an AM-FM radio station, a daily newspaper, cable TV service, and a municipal airport.

Waseca and adjacent areas of southern Minnesota offer many leisure time opportunities. Fishing, swimming, boating, and hunting are popular activities in the area. Other leisure time pursuits are possible through an extensive community recreation/education program; at nearby city, county, and state parks; and at public tennis courts. Student membership in a private 18-hole golf course and other facilities are available. A summer weekend celebration centers on the water activities of the community. The annual Sleigh and Cutter Parade in February is sponsored by the college saddle club.

Facilities for Instruction

Highly specialized laboratories are the key to the instructional program offered by the college. They provide the hands-on learning experience that is vital to a technical education in agriculture. Highly specialized laboratories provide a wide range of educational opportunities to enhance the offerings of each division.

Outdoor laboratories are heavily utilized by the college. The programs in production agriculture (crops and livestock) and horticulture extensively use these resources. All of the college's programs also use laboratories from nearby industry and farming operations.

The University of Minnesota has 840 acres of land at Waseca, 120 acres of which are devoted to campus buildings and outdoor laboratories. The University's Southern Experiment Station uses the remainder of this land for agricultural research. Insofar as possible, the crop and livestock research efforts are used in the education program of the college.

Facilities to support each of the programs of study are available on the campus, as are physical education and recreational sports facilities and residence halls and apartments for students.

Admission

Requirements

Admission to the University of Minnesota Technical College, Waseca is granted to students who have graduated from high school or its equivalent. Each applicant is considered on an individual basis using such criteria as aptitude, interest, and ability to profit from the programs offered.

The college maintains an open door admission policy. Students are accepted on a first come, first served basis, except in the animal health technology program, in which applicants are accepted only during a six-week period from October 15 to December 1. Applicants are notified of their status if immediate acceptance is not possible.

Application to the college may be made by obtaining a copy of the Minnesota College Admissions form from either a high school principal or counselor or the Office of

Admissions and Records, University of Minnesota Technical College, Waseca, Minnesota 56093. The completed form should be sent to the Office of Admissions and Records. Each application submitted must be accompanied by a nonrefundable credentials examination fee of \$10¹, payable by check or money order to the University of Minnesota Technical College, Waseca.

All students are requested to take the examination offered by the American College Testing Program (ACT), the Preliminary Scholastic Aptitude Test (PSAT), or the School and College Ability Test (SCAT). The test scores are used as an aid in program planning and not for determining admission.

Questions concerning admission with advanced standing should be directed to the Office of Admissions and Records.

Nonresidents

Students from outside the state of Minnesota will be considered for admission. Nonresidents must follow the same application procedures as residents (see above).

Nonresident tuition fees will be charged to all students whose permanent homes are outside the state of Minnesota, or who have not established residency in Minnesota for at least a calendar year prior to their initial registration at UMW. Residency status requires the establishment of a permanent family home in Minnesota for purposes other than attending college. A nonresident may be reclassified as a resident when the student meets Minnesota residency requirements.

North Dakota, South Dakota, and Wisconsin residents are eligible to pay resident fees under reciprocity agreements established between Minnesota and these states. Necessary application forms can be obtained by writing the appropriate commission in the state of residence (see addresses below) or the UMW Office of Admissions, Records, and Financial Aids.

North Dakota Residents — Obtain application forms from and return them to: Reciprocity Program, North Dakota State Board of Higher Education, 10th Floor, State Capitol Building, Bismarck, North Dakota 58501.

South Dakota Residents — Obtain application forms from and return them to: Reciprocity Program, South Dakota Board of Regents, Box 41, Brookings, South Dakota 57007.

Wisconsin Residents — Obtain application forms from and return them to: Reciprocity Program, State of Wisconsin Higher Educational Aids Board, 115 West Wilson Street, Madison, Wisconsin 53702.

International Students

International students must have completed secondary school work that is equivalent to graduation from the twelfth grade in the United States. As complete a record of previous education as possible, written in English, must be sent directly from the applicant's school to the international student adviser at UMW for evaluation. The same procedure should be followed if the applicant has completed any college or university work.

Proof of satisfactory performance on the Test of English as a Foreign Language (TOEFL) or of English language proficiency must be submitted with the application. For information about and dates and locations for the TOEFL examination write to: TOEFL, 1755 Massachusetts Avenue N.W., Washington, D.C. 22036.

To be considered for admission, international students must submit:

1. A completed application form for undergraduate international students.
2. A declaration and certification of finances.

¹This fee is scheduled to increase to \$15 for students applying for fall quarter 1982 and thereafter.

General Information

3. Two letters from character references.
4. A \$10¹ nonrefundable credentials examination fee in United States currency.
5. Official records of secondary school education and any college education.
6. TOEFL scores or proof of English language proficiency.

The forms for application and certification of finances may be obtained by writing to the Office of Admissions and Records, University of Minnesota Technical College, Waseca, Minnesota 56093.

When all of the required materials are received, the application will be reviewed and a notice of acceptance or denial sent. In the case of acceptance, an I-20 Immigration and Naturalization Service form will be issued for securing a student visa.

Adult Special Students

An individual who wishes to enroll for individual courses or groups of courses to meet special needs may be considered for admission as an adult special student. This procedure is followed by those not seeking a degree from UMW. Adult special students who later decide to apply for degree candidacy may obtain change of status information from the Office of Admissions and Records.

Part-time Students

Individuals enrolled on a part-time basis, as adult special or as degree-seeking students, are encouraged to use any campus services and to participate in all campus activities. The part-time student coordinator serves as the instructor-counselor for part-time students and offers academic counseling.

Part-time students may wish to enroll in regular courses and minicourses. Minicourses are segments of regular courses offered in units of one-half credit or more and designed to fit the schedules and needs of the part-time student. Interested persons should contact the Office of Admissions and Records each quarter for a schedule of minicourse offerings. Each year courses also are offered off campus in several locations, for the convenience of the part-time student.

Financial aid is available to eligible part-time students. Those interested are encouraged to contact the Office of Financial Aids.

Veterans

The courses and programs offered by UMW meet the requirements for veterans eligible for educational benefits under Chapter 34 of the G.I. Bill. Veterans should contact their local Veterans Administration, where they may obtain application forms, determine eligibility and entitlement, and obtain counseling.

The VA-sponsored Farm Coop Program is open to veterans at UMW. Veterans may receive credit for the course work taken through this program, and these credits may be applied toward an associate in applied science degree.

Senior Citizens

Minnesota residents 62 years or older may enroll in University of Minnesota classes at a minimal cost when space is available after all tuition-paying students have been accommodated, provided they have completed specified prerequisites. Those taking a course without credit pay no fees unless materials or other special charges are involved. Those taking a course for credit pay \$6 per credit plus any special fees. Eligible persons should check with the Office of Admissions and Records for further information.

¹This fee is scheduled to increase to \$15 for students applying for fall quarter 1982 and thereafter.

Preadmission Counseling

A member of the staff of UMW will establish personal contact with each applicant. An attempt will be made to visit the applicant's home. If this is not possible, the applicant will be asked to visit the campus for an interview or be interviewed by phone prior to the beginning of classes.

The purpose of this contact is to discuss the educational objectives of the applicant and how they can be met by the program offerings of UMW.

Orientation

A major objective of the orientation program at UMW is to enable students to become acquainted with faculty members, staff members, and student leaders. Discussion groups, workshops, and other events, planned and conducted by students and staff members, familiarize students with procedures, facilities, and regulations of the college. Opportunities for becoming acquainted with the Waseca community are also a part of the program. Evidence indicates that students attending orientation experience a smoother transition and adjust more satisfactorily to college.

New students receive invitations specifying the dates and time of orientation activities. The orientation fee includes meals, housing, and materials.

Registration

New students complete registration during the orientation days. All new students will be notified of the dates and times they are to appear on campus in order to complete registration.

Course selection may be discussed during the preadmission counseling session, but students do not officially register until they arrive on campus for the designated registration day.

Expenses

The following fees are in effect for the 1981-82 academic year and are *subject to change by the Board of Regents*.

Fees

Tuition—For full-time students taking 12 credits or more per quarter:

Resident	\$343.00
Nonresident	938.00

Per-Credit Fee — For part-time students taking fewer than 12 credits per quarter:

Resident	\$28.60
Nonresident	78.20

Student Services Fee — For students taking 7 credits or more per quarter:

Resident	\$39.90
Nonresident	39.90

General Information

Special Fees

Graduation Fee (payable prior to graduation)

Including small diploma	\$12.50
Including large diploma	20.00

Late Fees—Students are subject to charges for late registration or late payment of fees according to the following schedule:

Late registration

First ten class days	\$10
Eleventh class day and thereafter	20

Late payment of fees

If paid after due date (specified on fee statement provided at time of registration)	20
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Board and Room—Per Quarter

Residence Halls

5-day contract, 15 meals

double room	\$685
single room	707

5-day contract, 10 meals

double room	609
single room	631

Apartment Complex

Room	\$401
Board (5-day, 5 meals) (optional)	158

Single rooms are available only if space allows.

Estimated Expenditures

The basic estimated quarterly expenses for the average student living on campus are illustrated in the following table. Students should plan for personal expenses, such as clothing, entertainment, and travel, which are not included in this estimate.

	<i>Resident</i>	<i>Nonresident</i>
Tuition	\$343.00	\$938.00
Student services fee	39.90	39.90
Board and room	609.00	609.00
Books and supplies	<u>65.00</u>	<u>65.00</u>
	\$1,056.90	\$1,651.90

Refunds

Students who cancel their registration before the end of the sixth week of a quarter are entitled to a refund of tuition and incidental and course fees. Students who do not attend classes at all will receive a full refund provided they apply before the end of the first week of the quarter. Students who have attended classes are granted refunds on the following basis:

First week	90%
Second week	80%
Third week	70%
Fourth week	60%
Fifth week	50%
Sixth week	40%

Refunds are not granted after the sixth week.

Financial Aids

Application Procedure

Students who demonstrate need may apply for financial assistance. Those applying for aid must complete the Family Financial Statement (FFS) form of the American College Testing Service and the Pell Grant application. The University of Minnesota Financial Aid form will be sent to the applicant. This form must be completed and returned to the Office of Financial Aids, University of Minnesota Technical College, Waseca, Waseca, Minnesota 56093. Students will be notified by mail of their financial awards.

School counselors or principals will have copies of the FFS and Pell Grant forms. The University of Minnesota Technical College, Waseca should be identified as the student's educational institution on the FFS form.

The financial awards made to students will be determined by the Office of Financial Aids at UMW. Any questions regarding the awards should be directed to this office.

University Aid

Financial aid sources that are available include:

1. All-University Scholarships
2. Educational Opportunity Grants
3. Pell Grant
4. College Work-Study Program
5. Bob Hodgson Student Loan Fund, Inc., of Waseca
6. National Direct Student Loans
7. Student employment on campus or in the Waseca community

Other Sources

Students are also encouraged to seek financial aid on their own through such sources as local lending agencies through the federal guaranteed loan program; family loans through the Production Credit Association and similar lending agencies; scholarships through the statewide Minnesota Scholarship Program; veterans benefits through the G.I. Bill; and aid through the Social Security plan, if eligible.



II. STUDENT AFFAIRS

Student Services

The Office of Student Affairs offers a variety of services designed to enrich the experience of students during their attendance at UMW. These services are designed to help meet the individual needs of students. The college staff recognizes that cocurricular experiences are as important as time spent in class and that the total education of a student involves both in-class and out-of-class activities. For this reason, the services of the Office of Student Affairs are considered an important part of the total educational environment of the college.

Housing

Students who desire assistance in securing housing should contact the Housing Office. Those wishing to reside on campus should ask for a room reservation form. If off-campus housing is desired, the Housing Office will assist in locating appropriate accommodations in the Waseca area.

UMW's apartment complexes and residence halls are considered to be "living-learning centers." They are a viable part of the total college environment. Many special programs, seminars, and events are sponsored by the Housing Office and the Office of Student Development.

The on-campus housing facilities consist of 312 beds in traditional residence halls and 188 beds in college apartment buildings. Students are generally assigned two to a room in the residence halls and four to a unit in the apartment buildings. The apartments are assigned to students who have built up seniority in the residence halls.

Students are encouraged to consider on-campus housing in order to take advantage of the many activities and experiences available to them. For further information and a brochure on housing, contact the Housing Office.

Food Service

The UMW Food Service consists of full dining service at the Dining Hall and short order service at the Ram Shack.

The Ram Shack is located in the basement directly below the Dining Hall. The Ram Shack provides short order meals and beverages daily. Vending machines are located in this area as well as television and a lounge.

Various meal plans are available at the Dining Hall to those living on campus. The cost of food, which is a portion of the total board and room fee, is based on an absentee factor that has been established based on years of experience.

Students not living on campus may pay cash for individual meals at the Dining Hall or Ram Shack.

Health Services

College health services and facilities offer students basic medical care. The Health Service is equipped with a consultation room, a medical examining room, and an infirmary. A nurse is available weekdays to aid students needing medical assistance and is on call for after-hours emergencies. The Health Service coordinates the care of students with emergencies or illnesses requiring a doctor's treatment. Extended health care is available through the Waseca Medical Clinic and the Waseca Memorial Hospital.

Students are encouraged to purchase adequate hospital insurance for themselves. A low-cost group hospitalization plan is available to students through Blue Cross.

All students accepted for enrollment at UMW are required to submit a completed health history form before registration is completed.

Learning Resources Center

The Library, Audiovisual Department, Graphic/Duplication Department, Mail Department, and Computer Center are all located in the Learning Resources Center. The purpose of this center is to support the resource needs of the curriculum, faculty, and students. The main objective of the Learning Resources Center is to serve its users. The facility is open daily, except Saturday. Hours are varied to accommodate student needs.

The Library collection contains books, periodicals, newsletters, government documents, microforms, pamphlets, filmstrips, loop films, audiocassettes, records, slides, audio and video tapes, transparencies, and the equipment necessary to use these items.

The Audiovisual Department loans equipment and provides instruction in its operation. The student-managed radio station, KUMW, and the television studio are also part of the facilities.

The Graphic/Duplication Department serves the class-related needs of students as well as the needs of student clubs.

The Mail Department receives all incoming U. S. mail as well as intercampus mail, and sorts and distributes all mail to the individual units of the college. The student mail area, located in the Ram Shack, consists of more than 1,000 combination lock mailboxes.

The Computer Center facilities and staff are available to acquaint students with the use of computers as tools in the area of agriculture. Numerous programs that require minimal previous computer experience are available to demonstrate the computer uses. Students may use the college's computer to work on class-related projects or individual research pertaining to agriculture.

College Bookstore

A college bookstore sells textbooks, school supplies, and miscellaneous items used by students.

Instructor-Counselors

To assure a positive experience in contact between faculty and students, an instructor-counselor advising program has been established. Each student is assigned to a faculty member who provides guidance in program planning and course selection and is concerned with the total progress of the individual. Students are encouraged to establish a close working relationship with their instructor-counselor during their stay at UMW.

Counseling Services

In the personal growth and development of each person certain needs arise that are of a very important and personal nature. The Counseling Office is available to assist students when these needs arise. Individual consultation and evaluation is available to help students with social, emotional, educational, and occupational concerns. A variety of tests are available to assess students' learning potential, emotional and social development, and occupational preferences. Appropriate group counseling experiences are offered. Developmental counseling experiences are offered each quarter. Students are encouraged to use the various counseling services whenever a need arises.

Learning Skills

The learning skills program provides academic support services to UMW students as they pursue their personal and vocational goals. These services include assistance from peer tutors; opportunities to arrange a personal development program; and course work

designed to increase math and reading efficiency, improve writing skills, and acquire helpful study techniques in such areas as listening, note-taking, time management, concentration, memory, and test-taking.

Handicap Concerns

UMW is committed to providing equal access to its educational programs and services. All reasonable accommodation requests from handicapped persons will be honored.

Immediately upon acceptance, new students should request any needed accommodations. Students should contact the Director of Counseling Services, University of Minnesota Technical College, Waseca, Waseca, Minnesota 56093; telephone (507) 835-1000.

Most campus buildings, including residence halls, are interconnected at grade. Elevator passkeys are available. Tutors and readers are provided when needed. Program accommodations are made routinely. A Handicap Concerns Committee regularly monitors campus access problems.

Career Resource Center

The Career Resource Center provides interest and ability inventories, career development workshops, career information, and use of the computerized guidance system. Individual assistance is provided to students who are making personal career decisions.

Placement Center

The Placement Center assists graduating students and alumni in developing career goals and in finding employment situations best suited to their interests and abilities. The center offers training seminars and occupational counseling, prepares credentials of graduates, and coordinates contacts between students and prospective employers.

Students are encouraged to register with the Placement Center early in their college experience. Materials available in the Placement Center provide occupational information for career planning and decisions. Job opening listings, career information, and appointments for interviews with representatives of private, industrial, and governmental employers are provided to students registered with this office.

Additional information about placement services may be obtained from the Placement Center, University of Minnesota Technical College, Waseca, Waseca, Minnesota 56093.

Student Activities

Cocurricular Activities

A variety of student-conducted cocurricular activities and organizations are available at UMW. Opportunities exist for participation in student government, religious activities, the honor society, clubs, recreational sports, musical activities, and various other events and groups. Students make a direct contribution to policy and procedural decision making through the Student Senate, student representation on the Board of Regents, student lobbying with the legislature, and student membership on UMW college committees. The Student Activities Committee arranges presentations of films, dance groups, and performing artists as well as other activities of interest to students. A student governing board directs the operation of the student union, the Udder Place. Student committees also plan and conduct all-campus events such as Welcome Week, Snow Week, and Homecoming. Twenty student organizations, representing a wide variety of special interests, are active on the UMW campus. A committee of students and staff members plans concerts, lectures, and other cultural programs.

Student Affairs

Participation in out-of-class activities can be a very important part of a student's collegiate life. Valuable leadership skills, self-confidence, and social skills can be gained through participation in these activities.

Student Development Transcript

In an attempt to reflect the total educational experience gained by students through participation in the involvement curriculum (out-of-classroom activities) and the academic curriculum (class and laboratory studies), a student development transcript is developed for each student. The purpose of this transcript is to document the many positive experiences in which students become involved while attending UMW.

Student Union Recreation Center

A snack bar and recreational facility is located in the student union. Recreational facility includes equipment to play foosball, pool, ping-pong, pinball, cards, and table games. Items such as pizzas, hot sandwiches, hot popcorn, candy, and beverages are available from the snack bar.

Intercollegiate Athletics

UMW is represented in men's intercollegiate athletic competition in football, basketball, wrestling, cross-country, track, and golf. Women's athletic competition is sponsored in cross-country, volleyball, basketball, softball, track, and golf.

The college is a member of the Minnesota Community College Athletic Association and the National Junior College Athletic Association, and participates in Region 13 athletic activities. Region 13 includes community, junior, and university two-year colleges in Minnesota, North Dakota, upper Michigan, and Wisconsin.

Recreational Sports

The campus recreational sports program offers all students opportunities to pursue leisure time activities and to acquire a positive outlook toward recreational participation. This voluntary program consists of more than 20 activities for men and women students. The majority of activities are held in the evenings on campus.

Community Service

The college is anxious to be of service to people of the area and responds to requests in a variety of ways. UMW annually hosts a variety of FFA judging contests and 4-H activities. Many groups and organizations use college facilities for meetings and training programs. College faculty and staff members are available as speakers through the Speaker's Bureau. Schools and other groups can arrange tours of the campus, outdoor laboratories (production agriculture and horticulture), and specialized instructional facilities. The Learning Resources Center (library and related services) is available for use by any Minnesota citizen. Arrangements to use any of these or other services should be made through the Office of University Relations.

Alumni Association

Membership in the UMW Alumni Association is open to graduates and former students. The association sponsors a spring event, a summer event, and an annual meeting/reunion at homecoming each year, and provides information for a quarterly college newsletter. Membership is encouraged in order to foster postgraduate relationships with fellow classmates and UMW.

III. ACADEMIC POLICIES AND PROCEDURES

Academic Program

The academic program developed by the student with his or her official instructor-counselor (adviser), if consistent with current college policies in effect at time of entry into the college as prescribed in the college bulletin, or subsequent official action, is the official agreement between the college and student with regard to requirements for the associate in applied science degree. The University of Minnesota reserves the right to change its academic programs, including dropping courses from its curriculum, when deemed appropriate.

Special Programs

The instructor-counselor has the prerogative, after consultation with and approval of the division offering the student's selected program, to designate specific course work appropriate to the special needs and interests of the student. Such programs must receive approval prior to the completion of 54 credits at UMW.

Southeastern Minnesota Education Center (Rochester Consortium)

UMW participates in the Minnesota Higher Education Coordinating Board's consortium of postsecondary institutions in southeastern Minnesota. The "Rochester Consortium" fosters the coordination of courses, course scheduling, and degree programs for the Rochester and southeastern Minnesota area.

Agricultural Transfer Program at Rochester Community College

UMW offers a series of six or more agriculture courses over a two-year period at the Rochester Community College (RCC). These courses can be completed by RCC students as part of an agricultural transfer program at RCC, or by UMW students enrolled at UMW on a full- or part-time basis. Arrangements are made through the part-time student coordinator at UMW.

Agriculture/Missions Minor

Through an arrangement with Northwestern College, Roseville, Minnesota, it is possible to complete an agriculture/missions minor at that institution by earning 17 credits at UMW. For further information, contact UMW's Office of Admissions and Records.

Academic Credit

Credit System

UMW uses the quarter credit system. The quarter credit is the equivalent of two-thirds of a semester credit. A unit of credit is normally awarded for each class hour a week per quarter; laboratory work usually requires two or more class hours per week for each credit.

Credit Load

The normal credit load for each quarter of registration is 16. A credit requires an average of 3 hours per week in lecture, laboratory, recitation, and/or preparation. Students who wish to carry more than 19 credits per quarter must obtain permission to do so by having their registration forms signed by their instructor-counselor and division chairman before the registration will be recorded; if they do not receive this permission, they may appeal the decision to the Admissions and Scholastic Committee.

Course Credit Through Proficiency Examination

Students are encouraged to take challenge examinations for courses for which they feel adequately prepared and competent. There is no charge for examinations taken during the first quarter of attendance. A fee of \$10 is charged for each examination taken after the first quarter.

Students must secure the Proficiency Test Request form from the registrar and then make arrangements with the instructor of the course to take the test. A paid test fees statement must accompany this request form before the instructor will administer the test. If the student demonstrates competence, the instructor assigns a grade of S. If the student does not demonstrate competence, the instructor assigns a grade of N. Information about the grade assigned is forwarded to the Office of Admissions and Records. Not all courses are offered for credit through proficiency examination.

Transfer Credits

Students who are admitted with advanced standing will have their previously earned credits evaluated for transfer by the Admissions and Scholastic Committee. Credits for courses to be substituted for prerequisite or required courses for a program at UMW may be accepted with an assigned grade of C or higher. Credits for courses to be used for elective purposes may be accepted with an assigned grade of D or higher.

Student Classification

1. **Full Time**—A student enrolled for at least three-fourths of a normal load or 12 quarter credits.
2. **Part Time**—A student enrolled for less than three-fourths of a normal load.
3. **Freshman**—A student who has completed fewer than 45 quarter credits of college work at the time of registration.
4. **Senior**—A student who has completed more than 45 quarter credits of college work at the time of registration.
5. **Unclassified**—A student who is not registered in a program but has fulfilled the requirements for matriculation or is enrolled in college-level courses on an audit basis.

Grading

Grades

Final grades for each course taken are reported to the Office of Admissions and Records at the end of every quarter. The academic achievement of students is evaluated and recorded through the following system of grades and symbols:

1. A—Excellent achievement
B—Above-minimum achievement for occupational competence
C—Minimum achievement for occupational competence
S—Satisfactory achievement; does not carry grade points
N—No credit; granted if performance is below a grade of C

Students must earn 108 credits to qualify for graduation. Courses for which N grades have been earned do not count toward graduation. Students may repeat a course as often as they wish in order to obtain credit for the course. Each time a student takes a course the grade earned will be recorded on the official transcript. Students must satisfactorily complete the required competency courses for their programs to qualify for graduation.

2. The symbol X is reported in continuation courses for which a grade cannot be determined until the sequence is completed. Upon completion of the sequence each X is replaced by a permanent grade.
3. The registration symbol V (visitor) indicates enrollment as an auditor or visitor. A student does not receive credits or grades for courses taken on audit.
4. The symbol T (transferred) indicates credit transferred from another institution or from one college to another within the University. The symbol is placed immediately preceding the transferred grade on the transcript.
5. A registration symbol W (withdrawal) indicates official withdrawal from a course without grade. It is assigned when cancellation occurs during the first six weeks of the quarter; after six weeks, an N grade is assigned.

Grade Points

Grade points are assigned to the permanent course grades according to the following system:

<i>Grade</i>	<i>Grade Points Earned</i>
A	4 per credit
B	3 per credit
C	2 per credit
S	None
N	None

Grade Point Average

To obtain a numerical measure of the quality of a student's work, a grade point average (GPA) is computed by dividing the number of grade points earned by the total number of credits for which grades of A, B, or C have been recorded. For example, if a student earned 100 grade points and has completed 40 quarter credits of satisfactory work, the grade point average is 100 divided by 40, or 2.50.

Academic Progress

Candidates for the associate degree are required to earn a minimum grade point average of 2.00 (see Graduation Requirements below). An attempt is made to help each student make satisfactory progress in the curriculum selected.

Deficiency reports are mailed to all students whose academic progress is unsatisfactory at midquarter. Students receiving a "midquarter alert" slip are required to discuss their course difficulties with their instructor-counselor and with the instructor issuing the alert.

Academic Policies and Procedures

The instructor-counselor and instructor will sign the slip when they complete their conferences with the student. The signed slip is returned to the office of the chairman of the academic division.

Students are notified that their progress is unsatisfactory at the end of every quarter in which they receive N grades or no grades in 50 percent or more of the credits attempted that quarter. Students who receive N grades or no grades in 50 percent or more of the credits attempted for two quarters are placed on academic probation and must work out a program to correct their deficiencies with the director of counseling services. Students who receive N grades or no grades in 50 percent or more of the credits attempted in three quarters are subject to one of the following actions by the Admissions and Scholastic Committee:

1. **Registration Unchanged**—Students will be allowed to continue as regular students.
2. **Registration Altered**—Students will be allowed to continue in college with a reduced credit load.
3. **Academic Dismissal**—Students will be terminated from UMW for a minimum of one quarter.

Graduation

Graduation Requirements

To qualify for the associate in applied science degree, a student must complete a minimum of 108 credits in a specific curriculum or an approved sequence of courses with a minimum grade point average of 2.00 (C). Of the total credits required for graduation, 96 must be earned in academic course work and 12 in pre-occupational preparation. A minimum of one-half of the credits required for graduation must be earned while registered at UMW. A student must be registered at UMW during the quarter in which she or he graduates.

Major field, related education, and elective requirements for graduation are outlined for each program of study. Please refer to the listings of the suggested major programs in section IV of this bulletin.

The college reserves the right to change requirements for the various majors. However, the total credits required for the degree will not exceed that specified at the time the student first enrolls.

Substitutions

Occasionally, special career goals or past experiences warrant amendment of requirements for a prescribed academic program, and permission may be granted for substitutions for required courses. When substituting one course for another, the substitute course must have a close relationship to the student's major or career objective. Course substitutions should enrich the student's program of study.

Students may substitute up to two courses for their majors with approval of the instructor-counselor, division chairperson, and assistant provost for academic affairs. Students completing multiple majors may not substitute more than two courses per major.

Waivers

Program competency requirements may be waived in emergency situations in which a student has not been able to schedule required courses. A maximum of two courses may be waived. Waivers usually are not allowed for courses that are taught two or more times per year. Waiver privileges will not be granted for any required course in which an N grade was already received. Waiver requests will not be approved after the end of the sixth week of the student's last quarter of registration.

Graduation Procedures for Degree Candidates

Application for the associate in applied science degree must be initiated by the student and filed with the Office of Admissions and Records prior to registering for the quarter in which the student expects to receive the degree.

Students must have their academic plan reconciled with their academic record. This procedure is described in the curriculum planning guide for each major.

The graduation fee must be paid a minimum of six weeks prior to the commencement at which the student expects to receive the degree.

Graduation With Honors

A student who completes a degree program with a minimum grade point average of 3.25 graduates "with distinction." A student who completes a degree program with a minimum grade point average of 3.75 graduates "with high distinction."

Policy Interpretation and Appeal Procedures

To the extent possible, academic policies will be interpreted at the academic division level. It is the responsibility of the assistant provost for academic affairs to interpret and enforce the academic policies and procedures of the college. The Admissions and Scholastic Committee will review and approve or reject requests for departures from academic policies.

Questions about procedures for reviewing records should be directed to the Office of Admissions and Records.

Access to Student Educational Records

In accordance with regents' policy on access to student records, information about a student generally may not be released to a third party without the student's permission. The policy also permits students to review their educational records and to challenge the contents of those records.

Some student information—name, address, telephone number, dates of attendance, college and class, major, adviser, and degrees earned—is considered public or directory information. To prevent release of such information outside the University while in attendance at the University, a student must notify the Office of Admissions and Records at UMW.

Students are notified annually of their right to review their educational records. The regents' policy, including a directory of student records, is available for review at the Office of Admissions and Records.

Student Consumer Information

Federal regulations require that certain information be available on request to current and prospective students. Retention rates (the percentage of students, of those who enroll, who remain in the college within a two-year period) are available at the Office of Admissions and Records. Placement facility information is available in the college Placement Center and at academic division offices. Information about the typical salary ranges of graduates in a particular field is also available at the Placement Center. Information on academic programs, degrees, laboratory facilities, and the faculty is included in this bulletin.



IV. CURRICULAR OFFERINGS

The programs offered by the college are designed to prepare students for semiprofessional, midmanagement positions in the largest and most important segment of the American economy—agriculture. The curricular programs that are presented below provide training for a wide variety of personal and professional goals. Each program has unique characteristics; yet each has much in common with the others. Students may transfer from one program to another with little loss of time.

Programs of Study

Seven program areas with 24 majors are offered. They are designed to prepare students for entry-level employment in selected technical fields. A student completing one of these majors will earn the associate in applied science degree. The majors are listed below for each program area. In certain majors, students may pursue an area of emphasis. These areas of emphasis are composed of recommended courses to be chosen as electives in the major.

Agricultural Business

- Agricultural Business Management
- Management of Cooperatives
- Agricultural Office Management
- Administrative Assistant Emphasis
- Executive Secretary Emphasis
- Agricultural Sales and Marketing
- Fuels and Lubricants

Agricultural Industries and Services

- Agricultural Communications
- Agricultural Mechanization Technology—Power and Machinery
- Agricultural Mechanization Technology—Structures and Equipment
- Agricultural Research Technology—Animal
- Agricultural Research Technology—Crop
- Animal Industry-Related Technology
- Crop Industry-Related Technology
- Soils and Chemicals Technology

Agricultural Production

- Crop Production
- Diversified Agricultural Production
- Light Horse Management
- Livestock Production
- Beef Emphasis
- Dairy Emphasis
- Poultry Emphasis
- Sheep Emphasis
- Swine Emphasis

Animal Health Technology

- Animal Health
- Laboratory Animal
- Large Animal
- Small Animal
- Zoo Animal

Food Industry and Technology

Food Marketing and Distribution
Food Products and Inspection

Home and Family Services

Child Care Services
Merchandising Technology
Clothing and Textiles
Furnishings and Equipment
Rural Home Services
Services for the Rural Elderly Emphasis¹
Rural Home Management Emphasis
Rural Youth and Recreation

Horticultural Technology

Floriculture, Greenhouse, and Garden Center Technology
Garden Center Emphasis
Production Emphasis
Retail Floriculture Emphasis
Landscape-Nursery Technology
Landscape Maintenance Emphasis
Landscape Planning and Development Emphasis
Nursery Production Emphasis

A common core of requirements is shared by each of the seven program areas. In addition, a group of competency requirements has been established for each major. In those majors that offer areas of emphasis, the instructor-counselor will work with the student to identify which courses should be taken as electives in order to develop the area of emphasis.

A total of 108 credits are required in each of the program areas. Of this total, 96 credits must be earned in academic course work and 12 credits in pre-occupational preparation.

Pre-Occupational Preparation (POP) Programs

Pre-Occupational Preparation

Pre-occupational preparation enables students to obtain additional training and to become better prepared for employment in their chosen field. This preparation may take the form of an on-the-job internship in a segment of the agricultural production or agribusiness industry, or of additional course work (12 credits) designed to further the competency level of the student. Those who choose the latter method must have their course selections approved by their instructor-counselor and the pre-occupational preparation coordinator.

The following regulations and procedures govern the design and operation of the program:

1. The instructor-counselor and the pre-occupational preparation coordinator, after consultation with the student, will determine where and how the pre-occupational preparation experience will be completed.
2. The student may enroll in pre-occupational preparation only after he or she has satisfactorily completed at least two quarters (24 credits) of work in the major.
3. The student may register for the pre-occupational preparation course (AgSc 1709) at any time after completing the requirement listed in item 2 above. However,

¹Pending approval by the Board of Regents.

students should be aware that every industry has peak seasons of employment needs and that placement usually corresponds to these needs. It is recommended that students discuss with their instructor-counselor and the pre-occupational preparation coordinator the most opportune time for enrolling in AgSc 1709. Every effort will be made to find suitable placements for all qualified students. A salary mutually satisfactory to the student and employer will be paid during the 12-week period of work experience. Every student will be supervised and evaluated on the job by a faculty member from the college and by the employer.

Grades for the pre-occupational preparation experience will be determined through evaluations based on visits made by the faculty supervisor to the student's training station, reports submitted by the employer, and monthly reports made by the student.

An alternative to the on-the-job internship has been developed for those students who have a valid reason for not participating in the POP program. Upon approval of the student's instructor-counselor, the POP coordinator, and the assistant provost for academic affairs, a student may elect Plan B. This plan allows the student to complete 12 credits of carefully selected courses that are appropriate to the student's career goals.

Students who fail to complete the pre-occupational preparation requirement may continue their enrollment but will not be granted the associate in applied science degree.

Pre-Occupational Preparation II

An additional pre-occupational preparation experience is available to students. The course, AgBM 1716, Pre-Occupational Preparation II, is designed to provide an expanded work experience for those students who determine, in consultation with their instructor-counselor, that they need an additional practical experience. This course is offered for variable credit (1 to 6).

Home Farm POP

The home farm pre-occupational preparation experience was developed for students who want to complete their POP requirement on the home farm. Its primary objective is to acquaint the student with the financial and management aspects of farming, and to establish a business relationship with the student's parents. Keeping the account book for a year, preparing a record for the farm analysis computer, and studying the results of the analysis are the methods used to accomplish these objectives.

The home farm POP experience requires six quarters to complete. During this time, students must complete the following courses: winter quarter, AgAc 1213 (accounting), 3 credits; spring quarter, AgAc 1321 (business planning), 1 credit; summer quarter, AgSc 1709 (home farm experience), 12 credits; fall quarter, AgAc 1431 (tax estimate), 1 credit; winter quarter, AgAc 1541 (computerizing), 1 credit; spring quarter, AgAc 1642 (analysis), 2 credits.

Students planning to complete POP on the home farm must enroll in the home farm POP program. Students must make this decision before winter quarter of their first year on campus in order to complete the program before graduation.

Related Education Division

Agriculture in its many facets is the mission of UMW. Understanding of applied technologies relies on knowledge of the arts and sciences for fundamental concepts in communication, mathematics, science, social science, the humanities, and psychology. The Related Education Division provides the course work in these disciplines. Approximately one-third of the course work for each major is completed in related education areas.

Curricular Offerings

To relate to students' interests and occupational goals, instructional examples in these classes are chosen, whenever possible, from the fields of agriculture. This is not simply a matter of substituting tractors for trains in a mathematical problem, or hog pens for skyscrapers in a communication exercise. One of the goals of UMW is to help each student develop as a "whole person." This goal is taken seriously at UMW. The college understands that preparation in the arts and sciences may enable the student not only to live a fuller and richer life, but to become a more successful and productive member of the agricultural community.



PROGRAMS

AGRICULTURAL BUSINESS

Agriculture has changed greatly during the past three decades. Agricultural business needs have grown very rapidly during this period and continue to grow today. Advances in agricultural technology have created additional opportunities for employment in agricultural midmanagement sales, marketing, and office occupations. Positions in agricultural businesses are attractive because they are well suited to individuals with a background in farming or with agricultural experience, or those who live in urban areas and desire to work in occupations related to agriculture. These positions aid and serve the farmer and provide an important communication link between agricultural businesses and farm businesses.

The program in agricultural business is designed for students who wish to enter or advance in one of the business professions related to agriculture. Majors may be pursued in agricultural business management, agricultural sales and marketing, or agricultural office management.

The future for employment in agriculture-related business careers is excellent. For each person employed in the production of agricultural commodities, three persons are required to provide the supplies and services that the farmer needs. Positions exist in the agricultural input industries—those that provide supplies to farms—and in the agricultural output industries—those that assemble, process, store, and distribute farm commodities. Persons with training in management skills as middle management personnel are especially needed in modern agricultural business offices.

Typical employment opportunities in the agricultural business management, agricultural office management, and agricultural sales and marketing majors are:

- Agricultural Business Proprietor
- Agricultural Business Management Trainee
- Agricultural Cooperative Management Trainee
- Agricultural Business Department Manager
- Agricultural Business Counter Salesperson
- Agricultural Business Accounting Clerk
- Dairy or Livestock Marketing Representative
- Elevator Management Trainee
- Fertilizer or Feed Management Trainee

- Agricultural Executive Assistant
- Agricultural Office Supervisor
- Agricultural Administrative Assistant
- Agricultural Word Processing Supervisor
- Agricultural Cooperative Secretary
- Agricultural Credit Association Secretary
- Agricultural Fertilizer, Feed, and Chemical Secretary
- Agricultural Extension Secretary
- Agricultural Government Office Secretary
- Agricultural Education Office Secretary
- Agricultural Retail Business Secretary

- Agricultural Farm Supply Salesperson
- Agricultural Retail Counter Salesperson
- Agricultural Commodity Purchasing Representative
- Agricultural Loan Representative
- Fertilizer or Feed Salesperson
- Grain Marketing Representative
- Land and Real Estate Salesperson
- Livestock Marketing Service Representative
- Livestock Commission Company Representative
- Market Technician/Commodity Analyst
- Territory Sales Manager

Curricular Offerings

General Program Requirements

To earn the associate in applied science degree in agricultural business, students must satisfactorily complete a minimum of 108 credits. That amount includes a common required core of 50 credits in agriculture and related education courses. The remaining credits are completed in major competency courses and electives appropriate for each major.

PROGRAM REQUIREMENTS	Credits
AgAc 1014 Principles of Agricultural Accounting—I	4
AgBM 1363 Agricultural Business Law	3
AgSc 1011 Agricultural Orientation	1
AgSc 1709 Pre-Occupational Preparation Unit	12
BiSc 1044 General Biology I	4
Chem 1105 Technical Chemistry	5
Comm 1103 Introduction to Communications	3
Comm 1203 Introduction to Technical Reporting	3
Comm 1303 Agribusiness Communications	3
Econ 1013 National Economic Issues	3
Math 1063 Applied Mathematics	3
PhEd 1100 Physical Education	1
PhEd 1200 Physical Education	1
Psyc 1114 General Psychology	4
	<hr/> 50

Agricultural Business Management

MAJOR COMPETENCY REQUIREMENTS	Credits
AgAc 1214 Principles of Agricultural Accounting—II	4
AgAc 1423 Agricultural Data Processing Fundamentals	3
AgBM 1013 Introduction to Agricultural Business	3
AgBM 1473 Small Business Management	3
AgBM 1553 Personnel Management	3
AgBM 1623 Agricultural Distribution Systems	3
AgBM 1652 Seminar: Agricultural Business	2
AgMk 1053 Principles of Agricultural Marketing	3
AgMk 1253 Agricultural Salesmanship	3
AgMk 1333 Advertising and Displaying Merchandise	3
AgMk 1373 Principles of Merchandising	3
Agro 1153 Introduction to Crop Science	3
AnSc 1053 Introduction to Animal Science	3
Econ 1023 Production and Business Economics	3
Soil 1054 Soil Science	4
	<hr/> 46
Electives—12 credits	

SUGGESTED PROGRAM

First Quarter

AgAc 1014 Prin of Ag Acct—I	4
AgBM 1013 Intro to Ag Bus	3
AgSc 1011 Ag Orientation	1
Comm 1103 Intro to Comm	3
Econ 1013 Nat Econ Issues	3
PhEd 1100 Phy Ed	1
	15

Second Quarter

AgAc 1214 Prin Ag Acct—II	4
AgMk 1253 Ag Salesmanship	3
Agro 1153 Intro to Crop Science	3
Comm 1203 Intro to Tech Rep	3
Econ 1023 Prod & Bus Econ	3
	16

Third Quarter

AgMk 1053 Prin Ag Mkt	3
AgMk 1253 Adv & Disp Merch	3
AnSc 1053 Intro to An Science	3
Math 1063 Applied Math	3
Psyc 1114 General Psychology	4
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	12

Fifth Quarter

AgAc 1423 Ag Data Proc Fund	3
AgBM 1363 Ag Bus Law	3
AgBM 1473 Small Bus Mgmt	3
AgMk 1373 Prin of Merch	3
Chem 1105 Tech Chemistry	5
	17

Sixth Quarter

AgBM 1623 Ag Dist Systems	3
AgBM 1553 Pers Mgmt	3
BiSc 1044 Gen Biology I	4
PhEd 1200 Phy Ed	1
Electives	5
	16

Seventh Quarter

Comm 1303 Agribus Comm	3
AgBM 1652 Seminar: Ag Bus	2
Soil 1054 Soil Science	4
Electives	7
	16

Agricultural Office Management— Administrative Assistant Emphasis

MAJOR COMPETENCY REQUIREMENTS

Credits

AgAc 1052 Office Machine Calculation	2
AgAc 1214 Principles of Agricultural Accounting—II	4
AgAc 1423 Agricultural Data Processing Fundamentals	3
AgBM 1013 Introduction to Agricultural Business	3
AgBM 1553 Personnel Management	3
AgOM 1113 Beginning Typewriting	3
AgOM 1172 Reprographics	2
AgOM 1213 Intermediate Typewriting	3
AgOM 1252 Records Management	2
AgOM 1333 Advanced Typewriting	3
AgOM 1382 Office Machine Transcription	2
AgOM 1564 Transcription in Word Processing	4
AgOM 1574 Office Procedures and Simulation	4
AgOM 1674 Office Management	4
Select two courses from the following:	
Agro 1153 Introduction to Crop Science	3
AnSc 1053 Introduction to Animal Science	3
Food 1113 Introduction to the Food Industry	3
Hort 1113 Introductory Horticulture	3
MeAg 1333 Agricultural Machinery	3
Soil 1054 Soil Science	4
	48 or 49

Electives—9 or 10 credits

Curricular Offerings

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
AgAc 1014 Prin Ag Acct—I	4	AgSc 1709 Pre-Occ Prep Unit	12
AgBM 1013 Intr Ag Bus	3		12
AgOM 1113 Beg Typewriting	3	<i>Fifth Quarter</i>	
AgOM 1213 Inter Typewriting	3	AgOM 1564 Trans in Word Proc	4
AgSc 1011 Ag Orientation	1	Comm 1303 Agribus Comm	3
Comm 1103 Intro to Comm	3	Econ 1013 Nat Econ Issues	3
	17	Math 1063 Applied Math	3
<i>Second Quarter</i>		Electives	3
AgAc 1052 Office Mach Calc	2		16
AgAc 1214 Prin Ag Acct II	4	<i>Sixth Quarter</i>	
AgOM 1252 Records Mgmt	2	AgBM 1553 Pers Mgmt	3
Chem 1105 Tech Chemistry	5	AgOM 1172 Reprographics	2
Comm 1203 Intro Tech Rep	3	AgOM 1674 Office Mgmt	4
PhEd 1100 Phy Ed	1	BiSc 1044 Gen Biology I	4
	17	Electives	3
<i>Third Quarter</i>			16
AgAc 1423 Ag Data Proc Fund	3	<i>Seventh Quarter</i>	
AgOM 1333 Adv Typewriting	3	AgBM 1363 Ag Bus Law	3
AgOM 1382 Off Mach Trans	2	Psyc 1114 General Psychology	4
AgOM 1574 Office Proc and Sim	4	Second of addtl req courses	3 or 4
PhEd 1200 Phy Ed	1	Electives	3
One of addtl req courses	3 or 4		13 or 14
	16 or 17		

Agricultural Office Management— Executive Secretary Emphasis

MAJOR COMPETENCY REQUIREMENTS

Credits

AgAc 1052 Office Machine Calculation	2
AgBM 1553 Personnel Management	3
AgOM 1113 Beginning Typewriting	3
AgOM 1172 Reprographics	2
AgOM 1213 Intermediate Typewriting	3
AgOM 1252 Records Management	2
AgOM 1273 Beginning Shorthand	3
AgOM 1333 Advanced Typewriting	3
AgOM 1354 Intermediate Shorthand	4
AgOM 1382 Office Machine Transcription	2
AgOM 1454 Advanced Shorthand and Transcription	4
AgOM 1564 Transcription in Word Processing	4
AgOM 1574 Office Procedures and Simulation	4
AgOM 1674 Office Management	4
Select two courses from the following:	
Agro 1153 Introduction to Crop Science	3
AnSc 1053 Introduction to Animal Science	3
Food 1113 Introduction to the Food Industry	3
Hort 1113 Introductory Horticulture	3
MeAg 1333 Agricultural Machinery	3
Soil 1054 Soil Science	4
	49 or 50

Electives—8 or 9 credits

SUGGESTED PROGRAM

First Quarter

AgAc 1014 Prin Ag Acct—I	4
AgOM 1113 Beg Typewriting	3
AgOM 1213 Inter Typewriting	3
AgOM 1273 Beg Shorthand	3
AgSc 1011 Ag Orientation	1
Comm 1103 Intro to Comm	3
	17

Second Quarter

AgAc 1052 Office Mach Calc	2
AgOM 1252 Records Mgmt	2
AgOM 1354 Inter Shorthand	4
Chem 1105 Tech Chemistry	5
Comm 1203 Intro Tech Rep	3
PhEd 1100 Phy Ed	1
	17

Third Quarter

AgOM 1333 Adv Typewriting	3
AgOM 1382 Off Mach Trans	2
AgOM 1454 Adv Shorthand	4
AgOM 1574 Office Proc and Sim	4
PhEd 1200 Phy Ed	1
One of addtl req courses	3 or 4
	17 or 18

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	12

Fifth Quarter

AgOM 1564 Trans in Word Proc	4
Comm 1303 Agribus Comm	3
Econ 1013 Nat Econ Issues	3
Math 1063 Applied Math	3
Electives	3
	16

Sixth Quarter

AgBM 1553 Pers Mgmt	3
AgOM 1172 Reprographics	2
AgOM 1674 Office Mgmt	4
BiSc 1044 Gen Biology I	4
Electives	3
	16

Seventh Quarter

AgBM 1363 Ag Bus Law	3
Psyc 1114 General Psychology	4
Second of addtl req courses	3 or 4
Electives	2 or 3
	12-14

Agricultural Sales and Marketing

MAJOR COMPETENCY REQUIREMENTS

Credits

AgAc 1214 Principles of Agricultural Accounting—II	4
AgBM 1013 Introduction to Agricultural Business	3
AgBM 1513 Agricultural Sales Management	3
AgBM 1652 Seminar: Agricultural Business	2
AgBM 1716 Pre-Occupational Preparation II	6
(or) AgSc 1059 Special Problems	1-3
AgMk 1053 Principles of Agricultural Marketing	3
AgMk 1253 Agricultural Salesmanship	3
AgMk 1333 Advertising and Displaying Merchandise	3
AgMk 1353 Advanced Salesmanship	3
AgMk 1373 Principles of Merchandising	3
AgMk 1573 Advanced Agricultural Commodity Marketing	3
Agro 1153 Introduction to Crop Science	3
Agro 1433 Grain Grading and Seed Analysis	3
AnSc 1053 Introduction to Animal Science	3
Comm 1603 Speaking Skills	3
Econ 1023 Production and Business Economics	3
Soil 1054 Soil Science	4
	50-55

Electives—3-8 credits

Curricular Offerings

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
AgAc 1014 Prin Ag Acct—I	4	AgSc 1709 Pre-Occ Prep Unit	12
AgBM 1013 Intro to Ag Bus	3		12
AgSc 1011 Ag Orientation	1	<i>Fifth Quarter</i>	
Agro 1153 Intro to Crop Sci	3	AgMk 1053 Prin of Ag Mkt	3
Comm 1103 Intro to Comm	3	BiSc 1044 Gen Biology I	4
Econ 1013 Nat Econ Issues	3	Comm 1603 Speaking Skills	3
	17	Econ 1023 Prod & Bus Econ	3
<i>Second Quarter</i>		Electives	3
AgAc 1214 Prin Ag Acct—II	4		16
AgMk 1253 Ag Salesmanship	3	<i>Sixth Quarter</i>	
AnSc 1053 Intro to An Sci	3	AgBM 1716 Pre-Occ Prep II	6
Comm 1203 Intro to Tech Rep	3	(or) AgSc 1059 Spec Prob in Ag	1-3
Psyc 1114 General Psychology	4	AgMk 1353 Adv Salesmanship	3
	17	AgMk 1573 Adv Ag Comm Mkt	3
<i>Third Quarter</i>		Agro 1433 Grain Grading	3
AgBM 1363 Ag Business Law	3	Chem 1105 Tech Chemistry	5
AgMk 1333 Adver & Displ Merch	3		15-20
AgMk 1373 Prin of Merch	3	<i>Seventh Quarter</i>	
Comm 1303 Agribus Comm	3	AgBM 1513 Ag Sales Mgmt	3
Math 1063 Applied Math	3	AgBM 1652 Seminar	2
PhEd 1100 Phy Ed	1	PhEd 1200 Phy Ed	1
	16	Soil 1054 Soil Science	4
		Electives	0-5
			10-15

AGRICULTURAL INDUSTRIES AND SERVICES

Agriculture is Minnesota's major industry. Agriculture is more than growing crops and raising livestock. The efficiency and productivity of farm production are dependent upon the services and technology supplied by many different science based industries, such as fertilizer, feeds, seeds, and machinery. The majors offered in the Agricultural Industries and Services Division provide basic preparation for a variety of areas of specialization in agriculture.

The programs offered in this division are most useful to students who have a definite idea of the area in which they plan to work. The primary emphasis is on the development of technical skills in a student's area of interest, but all programs include an appropriate amount of business instruction. The development of technical expertise helps to prepare UMW graduates for employment in the agricultural industry. Students can select majors that provide training for entry into a variety of careers dealing with animals, crops, soils, mechanized agriculture, or agricultural communications technologies.

There are eight majors offered by the Agricultural Industries and Services Division: agricultural communications, agricultural mechanization—power and machinery, agricultural mechanization—structures and equipment, agricultural research technology—animal, agricultural research technology—crop, animal industry-related technology, crop industry-related technology, and soils and chemicals technology. Typical employment opportunities in these majors are:

- Farm Reporter or Broadcaster
- Advertising and Marketing Technician
- Agricultural Public Relations Assistant
- Agricultural Communications Technician
- Implement Dealer Office Manager
- Agricultural Machinery Research Technician
- Agricultural Machinery Production Supervisor
- Agricultural Machinery Sales Representative

- Agricultural Buildings Sales Representative
- Agricultural Equipment Sales Representative
- Agricultural Equipment Installation Supervisor
- Farm Materials Handling Technician
- Agricultural Experiment Farm Technician
- Livestock Research Technician
- Feed Research Technician
- Seed Research Technician
- Plant Breeding Technician
- Laboratory Technician
- Soil Research Technician
- Artificial Breeding Technician
- Livestock Fieldworker
- Breed Association Fieldworker
- Dairy Herd Improvement Association Supervisor
- Commission Firm Buyer
- Livestock Marketing Technician
- Animal Supplies Salesperson
- Feed and Seed Store Manager
- Feed Salesperson
- Feed Company Representative
- Grain Marketing Technician
- Grain By-Products Sales Representative
- Seed and Grain Inspector
- Elevator Manager
- Food and Drug Administration Inspector
- State Grain Inspector
- Sales Representative
- Plant Supervisor
- Agricultural Chemicals Fieldworker
- Soil Conservation Technician
- Soil Testing Technician
- Irrigation Technician

General Program Requirements

To earn the associate in applied science degree in agricultural industries and services, students must satisfactorily complete a minimum of 108 credits. That amount includes a common required core of 35 credits in agriculture and related education courses. The remaining credits are completed in major competency courses and electives appropriate for each major.

PROGRAM REQUIREMENTS	Credits
Agro 1153 Introduction to Crop Science	3
AgSc 1011 Agricultural Orientation	1
AgSc 1709 Pre-Occupational Preparation Unit	12
AnSc 1053 Introduction to Animal Science	3
Chem 1105 Technical Chemistry	5
Comm 1103 Introduction to Communications	3
Comm 1203 Introduction to Technical Reporting	3
Math 1063 Applied Mathematics	3
PhEd 1100 Physical Education	1
PhEd 1200 Physical Education	1
	35

Agricultural Communications

MAJOR COMPETENCY REQUIREMENTS	Credits
AgCm 1223 Introduction to Photography	3
AgCm 1313 Audiovisual Techniques	3
AgCm 1333 Introduction to Mass Communications	3
AgCm 1533 Agricultural Reporting	3

Curricular Offerings

AgCm 1563 Agricultural Magazine/Journal Writing	3
AgCm 1663 Introduction to Radio and Television Broadcasting	3
AgMk 1053 Principles of Agricultural Marketing	3
AgMk 1253 Agricultural Salesmanship	3
AgMk 1353 Advanced Salesmanship	3
AgSc 1059 Special Problems	6
BiSc 1044 General Biology I	4
Comm 1303 Agribusiness Communications	3
Comm 1603 Speaking Skills	3
Psyc 1114 General Psychology	4
SocS 1053 Rural Sociology	3
SocS 1273 Principles of Leadership and Public Relations	3
Soil 1054 Soil Science	4

57

Electives—16 credits

SUGGESTED PROGRAM

First Quarter

AgCm 1223 Intro to Photo	3
AgSc 1011 Ag Orientation	1
AgSc 1059 Special Problem	2
Comm 1103 Intro to Comm	3
Math 1063 Applied Math	3
Psyc 1114 Gen Psychology	4
	<u>16</u>

Second Quarter

AgCm 1533 Ag Reporting	3
AgSc 1059 Special Problem	2
Comm 1203 Intro Tech Rep	3
Comm 1603 Speaking Skills	3
PhEd 1100 Phy Ed	1
Electives	3
	<u>15</u>

Third Quarter

AgCm 1333 Intro to Mass Comm	3
AgMk 1053 Prin Ag Mkt	3
AgSc 1059 Special Problem	2
BiSc 1044 Gen Biology I	4
Comm 1303 Agribus Comm	3
	<u>15</u>

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	<u>12</u>

Fifth Quarter

AgCm 1563 Ag Mag/Jrnl Writ	3
AgMk 1253 Ag Salesmanship	3
AnSc 1053 Intro to An Sci	3
SocS 1053 Rural Sociology	3
PhEd 1200 Phy Ed	1
Electives	4
	<u>17</u>

Sixth Quarter

AgCm 1663 Intro to Radio	3
AgMk 1353 Adv Salesmanship	3
Agro 1153 Prin Crop Prod	3
Chem 1105 Tech Chemistry	5
Electives	3
	<u>17</u>

Seventh Quarter

AgCm 1313 Audiovis Tech	3
SocS 1273 Prin Leadership	3
Soil 1054 Soil Science	4
Electives	6
	<u>16</u>

Agricultural Mechanization Technology — Power and Machinery

MAJOR COMPETENCY REQUIREMENTS

AgAc 1014 Principles of Agricultural Accounting—I	4
AgMk 1253 Agricultural Salesmanship	3
BiSc 1044 General Biology I	4
Comm 1603 Speaking Skills	3
Econ 1013 National Economic Issues	3
MeAg 1024 Technical Drawing	4
MeAg 1043 Agricultural Metals and Welding	3
MeAg 1083 Fundamentals of Power and Air-Cooled Engines	3
MeAg 1333 Agricultural Machinery	3
MeAg 1443 Agricultural Gasoline Power Mechanics and Maintenance	3
MeAg 1453 Agricultural Diesel Power Mechanics and Maintenance	3
MeAg 1523 Basic Hydraulics	3
MeAg 1633 Advanced Agricultural Machinery	3
Phys 1104 Technical Physics	4
Soil 1054 Soil Science	4
	<u>4</u>

50

Electives—23 credits

Agricultural Industries and Services

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
Agro 1153 Prin Crop Prod	3	AgSc 1709 Pre-Occ Prep Unit	12
AgSc 1011 Ag Orientation	1		12
Comm 1103 Intro to Comm	3		
Math 1063 Applied Math	3		
MeAg 1024 Tech Drawing	4		
MeAg 1333 Ag Machinery	3		
	17		
<i>Second Quarter</i>		<i>Fifth Quarter</i>	
BiSc 1044 Gen Biology I	4	AgMk 1253 Ag Salesmanship	3
Comm 1203 Intro to Tech Rep	3	MeAg 1633 Adv Ag Machinery	3
MeAg 1043 Ag Metals	3	PhEd 1200 Phy Ed	1
MeAg 1083 Fund Power	3	Soil 1054 Soil Science	4
Phys 1104 Tech Physics	4	Electives	6
	17		17
<i>Third Quarter</i>		<i>Sixth Quarter</i>	
AnSc 1053 Intro to An Sci	3	AgAc 1014 Prin Ag Acct I	4
Chem 1105 Tech Chemistry	5	MeAg 1453 Ag Diesel Power	3
Econ 1013 Nat Economic Iss	3	MeAg 1523 Basic Hydraulics	3
MeAg 1443 Ag Gas Power	3	Electives	5
PhEd 1100 Phy Ed	1		15
	15		
		<i>Seventh Quarter</i>	
		Comm 1603 Speaking Skills	3
		Electives	12
			15

Agricultural Mechanization Technology— Structures and Equipment

MAJOR COMPETENCY REQUIREMENTS	Credits
AgAc 1014 Principles of Agricultural Accounting—I	4
AgMk 1253 Agricultural Salesmanship	3
BiSc 1044 General Biology I	4
Comm 1603 Speaking Skills	3
Econ 1013 National Economic Issues	3
MeAg 1024 Technical Drawing	4
MeAg 1043 Agricultural Metals and Welding	3
MeAg 1083 Fundamentals of Power and Air-Cooled Engines	3
MeAg 1253 Agricultural Electrical Equipment	3
MeAg 1374 Agricultural Structures and Environment	4
MeAg 1404 Fundamentals of Surveying	4
MeAg 1523 Basic Hydraulics	3
MeAg 1543 Agricultural Waste Management	3
MeAg 1664 Agricultural Products Handling	4
Phys 1104 Technical Physics	4
Soil 1054 Soil Science	4
	56
Electives—17 credits	

Curricular Offerings

SUGGESTED PROGRAM

First Quarter

AgSc 1011 Ag Orientation	1
Chem 1105 Tech Chemistry	5
Comm 1103 Intro to Comm	3
MeAg 1024 Tech Drawing	4
MeAg 1043 Ag Metals	3
	16

Second Quarter

Agro 1153 Prin Crop Prod	3
Comm 1203 Intro to Tech Rep	3
MeAg 1083 Fund Power	3
MeAg 1253 Ag Elect Equip	3
Phys 1104 Tech Physics	4
	16

Third Quarter

AgMk 1253 Ag Salesmanship	3
AnSc 1053 Intro to An Sci	3
BiSc 1044 Gen Biology I	4
Math 1063 Applied Math	3
MeAg 1664 Ag Prod Handling	4
	17

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	12

Fifth Quarter

MeAg 1404 Fund Surveying	4
PhEd 1100 Phy Ed	1
Soil 1054 Soil Science	4
Electives	7
	16

Sixth Quarter

Econ 1013 Nat Econ Issues	3
MeAg 1374 Ag Structures	4
MeAg 1523 Basic Hydraulics	3
MeAg 1543 Ag Waste Mgmt	3
Electives	3
	16

Seventh Quarter

AgAc 1014 Prin of Ag Acct—I	4
Comm 1603 Speaking Skills	3
PhEd 1200 Phy Ed	1
Electives	7
	15

Agricultural Research Technology—Animal

MAJOR COMPETENCY REQUIREMENTS

Credits

AgAc 1052 Office Machine Calculation	2
AgAc 1423 Agricultural Data Processing Fundamentals	3
AgSc 1554 Research Techniques	4
AnSc 1122 Livestock Evaluation	2
AnSc 1332 Artificial Insemination	2
AnSc 1353 Animal Nutrition I—Basic Nutrition	3
AnSc 1362 Principles of Animal Breeding	2
AnSc Applied Breeding Course (1411, 1421, 1431, 1441, or 1451)	1
AnSc 1443 Animal Nutrition II—Applied Nutrition	3
AnSc 1483 Meat and Livestock Products	3
(or) Food 1573 Milk and Dairy Products	3
AnSc 1523 Introduction to Animal Diseases	3
AnSc 1623 Livestock Management Techniques	3
AnSc 1682 Seminar: Animal Science	2
BiSc 1105 Animal Biology I	5
BiSc 1205 Animal Biology II	5
Chem 1224 Organic and Biochemistry	4
Chem 1374 Methods of Chemical Analysis	4
Comm 1473 Technical Report Writing	3
Econ 1013 National Economic Issues	3
MeAg 1664 Agricultural Products Handling	4
	61

Electives—12 credits

Agricultural Industries and Services

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fifth Quarter</i>	
Agro 1153 Prin Crop Prod	3	AnSc 1332 Artificial Insem	2
AgSc 1011 Ag Orientation	1	AnSc 1353 An Nutrition I	3
AnSc 1053 Intro An Sci	3	Comm 1203 Intro Tech Rep	3
BiSc 1105 Animal Biology I	5	MeAg 1664 Ag Prod Handling	4
Math 1063 Applied Math	3	Electives	4
PhEd 1100 Phy Ed	1		16
	16		
<i>Second Quarter</i>		<i>Sixth Quarter</i>	
AgSc 1554 Research Tech	4	AgAc 1052 Office Mach Cal	2
AnSc 1523 Intro An Dis	3	AnSc 1362 Prin An Breeding	2
BiSc 1205 Animal Biology II	5	AnSc 1443 An Nutrition II	3
Chem 1105 Tech Chemistry	5	AnSc 1483 Meat, Lvstk Prod	3
	17	(or) Food 1573 Milk, Dairy Prod	3
		Electives	6
			16
<i>Third Quarter</i>		<i>Seventh Quarter</i>	
AgAc 1423 Ag Data Proc	3	AnSc Appl Breeding	1
AnSc 1122 Lvstk Evaluation	2	AnSc 1682 Seminar: An Sci	2
AnSc 1623 Lvstk Mgmt Tech	3	Chem 1374 Meth Chem Anal	4
Chem 1224 Organic	4	Comm 1473 Tech Rep Writing	3
Comm 1103 Intro to Comm	3	Econ 1013 Nat Econ Issues	3
PhEd 1200 Phy Ed	1	Electives	2
	16		15
<i>Fourth Quarter</i>			
AgSc 1709 Pre-Occ Prep Unit	12		
	12		

Agricultural Research Technology—Crop

MAJOR COMPETENCY REQUIREMENTS

	Credits
AgAc 1423 Agricultural Data Processing Fundamentals	3
AgSc 1064 Plant Protection	4
AgSc 1554 Research Techniques	4
Agro 1253 Forage, Pasture, and Grassland Production	3
Agro 1362 Weed Identification and Control	2
Agro 1383 Grain Crop Production	3
Agro 1652 Seminar: Agronomy-Soils	2
BiSc 1115 Plant Biology I	5
BiSc 1215 Plant Biology II	5
Chem 1224 Organic and Biochemistry	4
Chem 1374 Methods of Chemical Analysis	4
Comm 1473 Technical Report Writing	3
Econ 1013 National Economic Issues	3
Soil 1054 Soil Science	4
Soil 1333 Soil Fertility	3
Soil 1643 Agricultural Chemicals	3
	55

Electives—18 credits

Curricular Offerings

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fifth Quarter</i>	
Agro 1153 Prin Crop Prod	3	AgSc 1053 Intro to An Sci	3
AgSc 1011 Ag Orientation	1	BiSc 1215 Plant Biology II	5
AgSc 1064 Plant Protection	4	PhEd 1200 Phy Ed	1
Comm 1103 Intro to Comm	3	Soil 1643 Ag Chemicals	3
Math 1063 Applied Math	3	Electives	4
Electives	2		16
	16		
<i>Second Quarter</i>		<i>Sixth Quarter</i>	
AgSc 1554 Research Tech	4	Agro 1253 Forages	3
BiSc 1115 Plant Biology I	5	Agro 1652 Seminar: Agro	2
Chem 1105 Tech Chemistry	5	Chem 1224 Organic	4
Electives	3	Comm 1473 Tech Rep Writing	3
	17	Soil 1333 Soil Fertility	3
			15
<i>Third Quarter</i>		<i>Seventh Quarter</i>	
Agro 1383 Grain Crop Prod	3	AgAc 1423 Ag Data Proc	3
Comm 1203 Intro to Tech Rep	3	Agro 1362 Weed Ident	2
PhEd 1100 Phy Ed	1	Chem 1374 Meth Chem Anal	4
Soil 1054 Soil Science	4	Econ 1013 Nat Econ Issues	3
Electives	5	Electives	4
	16		16
<i>Fourth Quarter</i>			
AgSc 1709 Pre-Occ Prep Unit	12		
	12		

Animal Industry-Related Technology

MAJOR COMPETENCY REQUIREMENTS

Credits

AgAc 1014 Principles of Agricultural Accounting—I	4
AgBM 1013 Introduction to Agricultural Business	3
AgMk 1053 Principles of Agricultural Marketing	3
Agro 1253 Forage, Pasture, and Grassland Production	3
AnSc 1122 Livestock Evaluation	2
AnSc 1332 Artificial Insemination	2
AnSc 1353 Animal Nutrition I—Basic Nutrition	3
AnSc 1362 Principles of Animal Breeding	2
AnSc Applied Breeding Course (1411, 1421, 1431, 1441, or 1451)	1
AnSc 1443 Animal Nutrition II—Applied Nutrition	3
AnSc 1483 Meat and Livestock Products	3
(or) Food 1573 Milk and Dairy Products	3
AnSc 1523 Introduction to Animal Diseases	3
AnSc 1682 Seminar: Animal Science	2
BiSc 1044 General Biology I	4
Comm 1603 Speaking Skills	3
Econ 1013 National Economic Issues	3
MeAg 1543 Agricultural Waste Management	3
MeAg 1664 Agricultural Products Handling	4
	51

Electives—22 credits

Agricultural Industries and Services

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
Agro 1153 Prin Crop Prod	3	AgSc 1709 Pre-Occ Prep Unit	12
AgSc 1011 Ag Orientation	1		12
AnSc 1053 Intro to An Sci	3	<i>Fifth Quarter</i>	
BiSc 1044 Gen Biology I	4	AgBM 1013 Intro to Ag Bus	3
Comm 1103 Intro to Comm	3	AnSc 1332 Artificial Insem	2
PhEd 1100 Phy Ed	1	AnSc 1353 An Nutrition I	3
	15	Comm 1203 Intro to Tech Rep	3
<i>Second Quarter</i>		Econ 1013 Nat Econ Issues	3
AnSc 1483 Meat, Lvstk Prod	3	Electives	3
(or) Food 1573 Milk, Dairy Prod	3		17
Chem 1105 Tech Chemistry	5	<i>Sixth Quarter</i>	
MeAg 1543 Ag Waste Mgmt	3	Agro 1253 Forages	3
PhEd 1200 Phy Ed	1	AnSc 1362 Prin An Breeding	2
Electives	4	AnSc 1443 An Nutrition II	3
	16	AnSc 1523 Intro An Dis	3
<i>Third Quarter</i>		Comm 1603 Speaking Skills	3
AgAc 1014 Prin of Ag Acct I	4	Electives	3
AnSc 1122 Lvstk Evaluation	2		17
Math 1063 Applied Math	3	<i>Seventh Quarter</i>	
MeAg 1664 Ag Prod Handling	4	AgMk 1053 Prin Ag Mkt	3
Electives	3	AnSc Appl Breeding	1
	16	AnSc 1682 Seminar: An Sci	2
		Electives	9
			15

Crop Industry-Related Technology

MAJOR COMPETENCY REQUIREMENTS

	Credits
AgMk 1053 Principles of Agricultural Marketing	3
AgMk 1573 Advanced Agricultural Commodity Marketing	3
AgSc 1064 Plant Protection	4
Agro 1253 Forage, Pasture, and Grassland Production	3
Agro 1362 Weed Identification and Control	2
Agro 1383 Grain Crop Production	3
Agro 1433 Grain Grading and Seed Analysis	3
Agro 1652 Seminar: Agronomy-Soils	2
BiSc 1044 General Biology I	4
Econ 1013 National Economic Issues	3
MeAg 1664 Agricultural Products Handling	4
Soil 1054 Soil Science	4
Soil 1222 Soil and Plant Testing	2
Soil 1333 Soil Fertility	3
Soil 1643 Agricultural Chemicals	3
	46

Electives—27 credits

Curricular Offerings

SUGGESTED PROGRAM

First Quarter

Agro 1153 Prin Crop Prod	3
AgSc 1011 Ag Orientation	1
BiSc 1044 Gen Biology I	4
Chem 1105 Tech Chemistry	5
Comm 1103 Intro to Comm	3
	<u>16</u>

Second Quarter

Agro 1253 Forages	3
PhEd 1100 Phy Ed	1
Soil 1054 Soil Science	4
Electives	8
	<u>16</u>

Third Quarter

AgMk 1053 Prin Ag Mkt	3
Agro 1362 Weed Ident	2
Agro 1383 Grain Crop Prod	3
AgSc 1064 Plant Protection	4
Econ 1013 Nat Econ Issues	3
PhEd 1200 Phy Ed	1
	<u>16</u>

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	<u>12</u>

Fifth Quarter

AnSc 1053 Intro to An Sci	3
Soil 1222 Soil Plant Test	2
Electives	11
	<u>16</u>

Sixth Quarter

AgMk 1573 Adv Ag Comm Mkt	3
Agro 1433 Grain Grad and Seed Analysis	3
Agro 1652 Seminar: Agro	2
Comm 1203 Intro Tech Rep	3
Math 1063 Applied Math	3
Soil 1333 Soil Fertility	3
	<u>17</u>

Seventh Quarter

MeAg 1664 Ag Prod Handling	4
Soil 1643 Ag Chemicals	3
Electives	8
	<u>15</u>

Soils and Chemicals Technology

MAJOR COMPETENCY REQUIREMENTS

	Credits
AgMk 1053 Principles of Agricultural Marketing	3
Agro 1362 Weed Identification and Control	2
Agro 1383 Grain Crop Production	3
Agro 1652 Seminar: Agronomy-Soils	2
AgSc 1064 Plant Protection	4
BiSc 1044 General Biology I	4
Econ 1013 National Economic Issues	3
MeAg 1333 Agricultural Machinery	3
MeAg 1404 Fundamentals of Surveying	4
MeAg 1664 Agricultural Products Handling	4
Soil 1054 Soil Science	4
Soil 1222 Soil and Plant Testing	2
Soil 1331 Fertilizers	1
Soil 1333 Soil Fertility	3
Soil 1553 Soil Conservation and Water Management	3
Soil 1643 Agricultural Chemicals	3
	<u>48</u>

Electives—25 credits

SUGGESTED PROGRAM

First Quarter

Agro 1153 Prin Crop Prod	3
AgSc 1011 Ag Orientation	1
BiSc 1044 Gen Biology I	4
Chem 1105 Tech Chemistry	5
Comm 1103 Intro to Comm	3
	<u>16</u>

Second Quarter

Comm 1203 Intro to Tech Rep	3
Math 1063 Applied Math	3
PhEd 1100 Phy Ed	1
Soil 1054 Soil Science	4
Electives	4
	<u>15</u>

Third Quarter

AgMk 1053 Prin Ag Mkt	3
Agro 1362 Weed Ident	2
Agro 1383 Grain Crop Prod	3
MeAg 1333 Ag Machinery	3
PhEd 1200 Phy Ed	1
Soil 1643 Ag Chemicals	3
	15

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	12

Fifth Quarter

AgSc 1064 Plant Prot	4
AnSc 1053 Intro An Sci	3
Econ 1013 Nat Econ Issues	3
MeAg 1404 Fund Surveying	4
Soil 1222 Soil Plant Test	2
	16

Sixth Quarter

Agro 1652 Seminar: Agro	2
Soil 1331 Fertilizers	1
Soil 1333 Soil Fertility	3
Electives	11
	17

Seventh Quarter

MeAg 1664 Ag Prod Hand	4
Soil 1553 Soil Conserv	3
Electives	10
	17

AGRICULTURAL PRODUCTION

Production agriculture is vital to Minnesota's economy. The 1980s and 1990s will be critical years for the state of Minnesota, the United States, and the world. Shortages of food continue to exist and are projected to be a more serious problem in the coming years. A larger share of our income is being used for food today. An appreciation for the role of producers of agricultural products is increasing.

The need for persons interested in producing crops and livestock is stronger today. New methods and information resulting from past experiences, advances in technology and science, and competition have created challenging careers for persons entering this field.

The programs offered by the Agricultural Production Division combine scientific studies with practical experience. They are designed to prepare graduates to increase both the quality and quantity of farm production.

Students may major in crop production, diversified agricultural production, light horse management, and livestock production. Four options are offered in the livestock production major: beef emphasis, dairy emphasis, sheep emphasis, and swine emphasis. Examples of employment opportunities in each major include:

- Crop Farmer
- Crop Farm Manager-Operator
- Crop Technician
- Canning Company Field Representative
- Cash Crop Company Field Representative
- Specialized Crop Supervisor
- Elevator Technician
- Insect Control Technician
- Diversified Farmer
- Diversified Farm Technician
- Diversified Farm Manager
- Farm Management Advisor
- Crop and/or Livestock Manager
- Crop and/or Livestock Farmer
- Assistant Horse Manager-Trainer
- Horse Technician
- Horse Trainer
- Horse Riding Instructor
- Horse Showperson-Groom
- Stable Manager

Curricular Offerings

Livestock Farm Manager
 Livestock Feedlot Supervisor
 Dairy Herd Supervisor
 Swine Herd Supervisor
 Beef Herd Supervisor
 Sheep Herd Supervisor

General Program Requirements

To earn the associate in applied science degree in agricultural production, students must satisfactorily complete a minimum of 108 credits. That amount includes a common required core of 35 credits in agriculture and related education courses. The remaining credits are completed in major competency courses and electives appropriate for each major.

PROGRAM REQUIREMENTS	Credits
AgBM 1333 Principles of Farm Management	3
AgSc 1011 Agricultural Orientation	1
AgSc 1709 Pre-Occupational Preparation Unit	12 ¹
Chem 1105 Technical Chemistry	5
Comm 1103 Introduction to Communications	3
Comm 1203 Introduction to Technical Reporting	3
Econ 1013 National Economic Issues	3
Math 1063 Applied Mathematics	3
PhEd 1100 Physical Education	1
PhEd 1200 Physical Education	1
	35

Crop Production

MAJOR COMPETENCY REQUIREMENTS	Credits
AgAc 1565 Applied Farm Accounting	5
AgMk 1573 Advanced Agricultural Commodity Marketing	3
Agro 1153 Introduction to Crop Science	3
Agro 1362 Weed Identification and Control	2
Agro 1383 Grain Crop Production	3
Agro 1652 Seminar: Agronomy-Soils	2
AgSc 1064 Plant Protection	4
BiSc 1115 Plant Biology I	5
BiSc 1215 Plant Biology II	5
MeAg 1333 Agricultural Machinery	3
MeAg 1664 Agricultural Products Handling	4
Soil 1054 Soil Science	4
Soil 1333 Soil Fertility	3
Soil 1643 Agricultural Chemicals	3
AgBM/AgMk Minimum of 6 additional credits	6
Agro Minimum of 2 additional credits	2
MeAg Minimum of 3 additional credits	3
	60

Electives—13 credits

¹Students may complete this requirement through the home farm POP sequence. See Home Farm POP at the beginning of this section of the bulletin.

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
Agro 1153 Intro Crop Prod	3	AgSc 1709 Pre-Occ Prep Unit	<u>12</u>
AgSc 1011 Ag Orientation	1		12
BiSc 1115 Plant Biology I	5		
Comm 1103 Intro to Comm	3	<i>Fifth Quarter</i>	
Econ 1013 Nat Econ Issues	3	AgMk 1573 Adv Ag Comm Mkt	3
PhEd 1100 Phy Ed	<u>1</u>	Agro 1383 Grain Crop Prod	3
	16	Comm 1203 Intro Tech Rep	3
		Electives	<u>7</u>
			16
<i>Second Quarter</i>		<i>Sixth Quarter</i>	
BiSc 1215 Plant Biology II	5	AgAc 1565 Appl Farm Acct	5
Chem 1105 Tech Chemistry	5	Agro 1652 Seminar: Agro	2
Math 1063 Appied Math	3	Soil 1333 Soil Fertility	3
Agro Electives	<u>2</u>	AgBM/AgMk Electives	<u>6</u>
	15		16
<i>Third Quarter</i>		<i>Seventh Quarter</i>	
AgBM 1333 Farm Mgmt	3	MeAg 1333 Ag Machinery	3
Agro 1362 Weed Ident	2	MeAg 1664 Ag Prod Handling	4
AgSc 1064 Plant Protection	4	PhEd 1200 Phy Ed	1
Soil 1054 Soil Science	4	Soil 1643 Ag Chemicals	3
MeAg Electives	<u>3</u>	Electives	<u>6</u>
	16		17

Diversified Agricultural Production

Diversified Agricultural Production

MAJOR COMPETENCY REQUIREMENTS

	Credits
AgAc 1565 Applied Farm Accounting	5
AgMk 1573 Advanced Agricultural Commodity Marketing	3
Agro 1153 Introduction to Crop Science	3
Agro 1253 Forage, Pasture, and Grassland Production	3
(or) Agro 1383 Grain Crop Production	3
AgSc 1064 Plant Protection	4
AnSc 1053 Introduction to Animal Science	3
AnSc 1353 Animal Nutrition I—Basic Nutrition	3
AnSc 1443 Animal Nutrition II—Applied Nutrition	3
BiSc 1044 General Biology I	4
BiSc 1053 General Biology II	3
MeAg 1333 Agricultural Machinery	3
MeAg 1374 Agricultural Structures and Environment	4
MeAg 1443 Agricultural Gasoline Power Mechanics and Maintenance	3
Soil 1054 Soil Science	4
Agro/AnSc/Soil Minimum of 9 additional credits	<u>9</u>
	57

Electives—16 credits

Curricular Offerings

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
Agro 1153 Intro Crop Prod	3	AgSc 1709 Pre-Occ Prep Unit	12
AgSc 1011 Ag Orientation	1		12
AnSc 1053 Intro to An Sci	3	<i>Fifth Quarter</i>	
BiSc 1044 Gen Biology I	4	Comm 1203 Intro Tech Rep	3
Math 1063 Applied Math	3	MeAg 1443 Gas Power	3
PhEd 1100 Phy Ed	1	Soil 1054 Soil Science	4
	15	Electives	6
<i>Second Quarter</i>			16
Agro 1253 Forages	3	<i>Sixth Quarter</i>	
(or) Agro 1383 Grain Crop Prod	3	AgAc 1565 Appl Farm Acct	5
AnSc 1353 An Nutr I	3	AgMk 1573 Adv Ag Comm Mkt	3
BiSc 1053 Gen Biology II	3	PhEd 1200 Phy Ed	1
Chem 1105 Tech Chemistry	5	Electives	7
Comm 1103 Intro to Comm	3		16
	17	<i>Seventh Quarter</i>	
<i>Third Quarter</i>		Econ 1013 Nat Econ Issues	3
AgBM 1333 Farm Mgmt	3	MeAg 1374 Ag Structures	4
AgSc 1064 Plant Prot	4	Electives	9
AnSc 1443 An Nutr II	3		16
MeAg 1333 Ag Machinery	3		
Electives	3		
	16		

Light Horse Management

MAJOR COMPETENCY REQUIREMENTS

	Credits
AgAc 1014 Principles of Agricultural Accounting—I	4
Agro 1253 Forage, Pasture, and Grassland Production	3
AnSc 1053 Introduction to Animal Science	3
AnSc 1091 Horse Husbandry	1
AnSc 1192 Fundamentals of Riding	2
AnSc 1193 Light Horse Management	3
AnSc 1292 Stable Management	2
AnSc 1353 Animal Nutrition I—Basic Nutrition	3
AnSc 1362 Principles of Animal Breeding	2
AnSc 1431 Applied Horse Breeding	1
AnSc 1443 Animal Nutrition II—Applied Nutrition	3
AnSc 1491 Horse Evaluation	1
AnSc 1523 Introduction to Animal Diseases	3
AnSc 1591 Advanced Horse Husbandry	1
AnSc 1592 Western Equitation	2
AnSc 1593 Introduction to Farrier Science	3
AnSc 1682 Seminar: Animal Science	2
AnSc 1693 Young Horse: Care and Training	3
AnSc 1772 Development of the Riding-Age Horse	2
BiSc 1044 General Biology I	4
BiSc 1053 General Biology II	3
	51

Electives—22 credits

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
AgSc 1011 Ag Orientation	1	AgSc 1709 Pre-Occ Prep Unit	12
AnSc 1192 Fund Riding	2		12
AnSc 1193 Light Horse Mgmt	3	<i>Fifth Quarter</i>	
BiSc 1044 Gen Biology I	4	AgAc 1014 Prin Ag Acct I	4
Comm 1103 Intro to Comm	3	AnSc 1353 An Nutr I	3
Math 1063 Applied Math	3	AnSc 1591 Adv Horse Husbandry	1
	16	AnSc 1693 Care & Train	3
<i>Second Quarter</i>		Comm 1203 Intro Tech Rep	3
Agro 1253 Forages	3	Electives	3
AnSc 1053 Intro to An Sci	3		17
AnSc 1091 Horse Husbandry	1	<i>Sixth Quarter</i>	
AnSc 1292 Stable Mgmt	2	AnSc 1443 An Nutr II	3
BiSc 1053 Gen Biology II	3	AnSc 1523 An Diseases	3
PhEd 1100 Phy Ed	1	AnSc 1772 Dev Riding	2
Electives	3	Electives	8
	16		16
<i>Third Quarter</i>		<i>Seventh Quarter</i>	
AgBM 1333 Farm Mgmt	3	AnSc 1431 Horse Breeding	1
AnSc 1362 Prin Breeding	2	AnSc 1491 Horse Eval	1
AnSc 1592 Western Equitation	2	AnSc 1682 Seminar: An Sci	2
AnSc 1593 Farrier Sci	3	Econ 1013 Nat Econ Iss	3
Chem 1105 Tech Chemistry	5	PhEd 1200 Phy Ed	1
	15	Electives	8
			16

Livestock Production

Livestock Production—Beef Emphasis

MAJOR COMPETENCY REQUIREMENTS	Credits
AgAc 1565 Applied Farm Accounting	5
AgMk 1573 Advanced Agricultural Commodity Marketing	3
Agro 1153 Introduction to Crop Science	3
Agro 1253 Forage, Pasture, and Grassland Production	3
AnSc 1053 Introduction to Animal Science	3
AnSc 1353 Animal Nutrition I—Basic Nutrition	3
AnSc 1362 Principles of Animal Breeding	2
AnSc 1411 Applied Beef Breeding	1
AnSc 1443 Animal Nutrition II—Applied Nutrition	3
AnSc 1523 Introduction to Animal Diseases	3
AnSc 1473 Beef Production and Management	3
AnSc Minimum of 9 additional credits	9
BiSc 1044 General Biology I	4
BiSc 1053 General Biology II	3
MeAg Minimum of 6 credits selected from: MeAg 1333, 1374, 1543, 1664	6
Soil 1054 Soil Science	4
	58

Electives—15 credits

Curricular Offerings

SUGGESTED PROGRAM

First Quarter

Agro 1153 Intro Crop Prod	3
AgSc 1011 Ag Orientation	1
AnSc 1053 Intro to An Sci	3
BiSc 1044 Gen Biology I	4
Comm 1103 Intro to Comm	3
PhEd 1100 Phy Ed	1
	<u>15</u>

Second Quarter

AgMk 1573 Adv Ag Comm Mkt	3
Agro 1253 Forage	3
AnSc 1353 An Nutr I	3
AnSc 1523 An Diseases	3
BiSc 1053 Gen Biology II	3
	<u>15</u>

Third Quarter

AnSc 1362 Prin Breeding	2
AnSc 1443 An Nutr II	3
Chem 1105 Tech Chemistry	5
Comm 1203 Intro Tech Rep	3
Econ 1013 Nat Econ Iss	3
	<u>15</u>

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	<u>12</u>

Fifth Quarter

AgBM 1333 Farm Mgmt	3
AnSc 1411 Beef Breeding	1
AnSc 1473 Beef Prod	3
Soil 1054 Soil Science	4
AnSc credits	3
MeAg credits	3
	<u>17</u>

Sixth Quarter

AgAc 1565 Appl Farm Acct	5
Math 1063 Appl Math	3
MeAg credits	3
Electives	6
	<u>17</u>

Seventh Quarter

AnSc credits	6
PhEd 1200 Phy Ed	1
Electives	9
	<u>16</u>

Livestock Production—Dairy Emphasis

MAJOR COMPETENCY REQUIREMENTS

	Credits
AgAc 1565 Applied Farm Accounting	5
AgMk 1573 Advanced Agricultural Commodity Marketing	3
Agro 1153 Introduction to Crop Science	3
Agro 1253 Forage, Pasture, and Grassland Production	3
AnSc 1053 Introduction to Animal Science	3
AnSc 1322 Reproductive Physiology of Farm Animals	2
AnSc 1332 Artificial Insemination	2
AnSc 1353 Animal Nutrition I—Basic Nutrition	3
AnSc 1362 Principles of Animal Breeding	2
AnSc 1421 Applied Dairy Breeding	1
AnSc 1443 Animal Nutrition II—Applied Nutrition	3
AnSc 1471 Dairy Cattle Evaluation	1
AnSc 1513 Dairy Cattle Production and Management	3
AnSc 1523 Introduction to Animal Diseases	3
AnSc 1612 Current Issues in Dairy Management	2
AnSc Minimum of 6 additional credits	6
BiSc 1044 General Biology I	4
BiSc 1053 General Biology II	3
Food 1573 Milk and Dairy Products	3
MeAg Minimum of 6 credits selected from: MeAg 1333, 1374, 1543, 1664	6
Soil 1054 Soil Science	4
	<u>65</u>

Electives—8 credits

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
Agro 1153 Intro Crop Prod	3	AgSc 1709 Pre-Occ Prep Unit	12
AgSc 1011 Ag Orientation	1		12
AnSc 1053 Intro to An Sci	3	<i>Fifth Quarter</i>	
AnSc 1353 An Nutrition I	3	AnSc 1513 Dairy Prod	3
AnSc 1471 Dairy Cattle Eval	1	AnSc credits	3
BiSc 1044 Gen Biology I	4	Comm 1230 Intro Tech Rep	3
	15	PhEd 1100 Phy Ed	1
<i>Second Quarter</i>		MeAg credits	3
Agro 1253 Forage	3		17
AnSc 1443 An Nutrition II	3	<i>Sixth Quarter</i>	
AnSc 1523 An Diseases	3	AgAc 1565 Appl Farm Acct	5
BiSc 1053 Gen Biology II	3	AgMk 1573 Adv Ag Comm Mkt	3
Comm 1103 Intro to Comm	3	AnSc 1421 Dairy Breeding	1
	15	Food 1573 Milk Dairy Prod	3
<i>Third Quarter</i>		MeAg credits	3
AgBM 1333 Farm Mgmt	3	PhEd 1200 Phy Ed	1
AnSc 1322 Physiology	2		16
AnSc 1362 Prin Breeding	2	<i>Seventh Quarter</i>	
Chem 1105 Tech Chemistry	5	AnSc 1332 Art Insemin	2
Econ 1013 Nat Econ Iss	3	AnSc 1612 Current Issues	2
Math 1063 Applied Math	3	AnSc credits	3
	18	Electives	8
			15

Livestock Production—Sheep Emphasis

MAJOR COMPETENCY REQUIREMENTS	Credits
AgAc 1565 Applied Farm Accounting	5
AgMk 1573 Advanced Agricultural Commodity Marketing	3
Agro 1153 Introduction to Crop Science	3
Agro 1253 Forage, Pasture, and Grassland Production	3
AnSc 1053 Introduction to Animal Science	3
AnSc 1353 Animal Nutrition I—Basic Nutrition	3
AnSc 1362 Principles of Animal Breeding	2
AnSc 1441 Applied Sheep Breeding	1
AnSc 1443 Animal Nutrition II—Applied Nutrition	3
AnSc 1523 Introduction to Animal Diseases	3
AnSc 1583 Sheep Production and Management	3
AnSc Minimum of 9 additional credits	9
BiSc 1044 General Biology I	4
BiSc 1053 General Biology II	3
MeAg minimum of 6 credits selected from: MeAg 1333, 1374, 1543, 1664	6
Soil 1054 Soil Science	4
	58
Electives—15 credits	

Curricular Offerings

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
AgSc 1011 Ag Orientation	1	AgSc 1709 Pre-Occ Prep Unit	12
AnSc 1053 Intro to An Sc	3		12
AnSc 1353 An Nutr I	3	<i>Fifth Quarter</i>	
BiSc 1044 Gen Biology I	4	AgBM 1333 Farm Mgmt	3
Comm 1103 Intro to Comm	3	Agro 1153 Prin Crop Prod	3
PhEd 1100 Phy Ed	1	AnSc credits	3
	15	MeAg credits	3
<i>Second Quarter</i>		Soil 1054 Soil Science	4
AgMk 1573 Adv Ag Comm Mkt	3		16
Agro 1253 Forages	3	<i>Sixth Quarter</i>	
AnSc 1443 An Nutr II	3	AgAc 1565 Appl Farm Acct	5
AnSc 1523 An Diseases	3	Math 1063 Applied Math	3
BiSc 1053 Gen Biology II	3	MeAg credits	3
	15	Electives	6
<i>Third Quarter</i>			17
AnSc 1362 Prin Breeding	2	<i>Seventh Quarter</i>	
AnSc 1583 Sheep Prod	3	AnSc 1441 Sheep Breeding	1
Chem 1105 Tech Chemistry	5	PhEd 1200 Phy Ed	1
Comm 1203 Intro Tech Rep	3	AnSc credits	6
Econ 1013 Nat Econ Iss	3	Electives	9
	16		17

Livestock Production—Swine Emphasis

MAJOR COMPETENCY REQUIREMENTS

	Credits
AgAc 1565 Applied Farm Accounting	5
AgMk 1573 Advanced Agricultural Commodity Marketing	3
Agro 1153 Introduction to Crop Science	3
AnSc 1053 Introduction to Animal Science	3
AnSc 1353 Animal Nutrition I—Basic Nutrition	3
AnSc 1362 Principles of Animal Breeding	2
AnSc 1383 Swine Production and Management	3
AnSc 1443 Animal Nutrition II—Applied Nutrition	3
AnSc 1451 Applied Swine Breeding	1
AnSc 1523 Introduction to Animal Diseases	3
AnSc Minimum of 9 additional credits	9
BiSc 1044 General Biology I	4
BiSc 1053 General Biology II	3
MeAg Minimum of 6 credits selected from: MeAg 1333, 1374, 1543, 1664	6
Soil 1054 Soil Science	4
	55

Electives—18 credits

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
AgSc 1011 Ag Orientation	1	AgSc 1709 Pre-Occ Prep Unit	12
AnSc 1053 Intro to An Sci	3		12
AnSc 1353 An Nutr I	3	<i>Fifth Quarter</i>	
BiSc 1044 Gen Biology I	4	AnSc 1383 Swine Prod	3
Comm 1103 Intro to Comm	3	AnSc 1451 Swine Breeding	1
PhEd 1100 Phy Ed	1	Comm 1203 Intro Tech Rep	3
	15	MeAg credits	3
<i>Second Quarter</i>		Soil 1054 Soil Science	4
Agro 1153 Intro Crop Prod	3	Electives	3
AnSc 1443 An Nutr II	3		17
AnSc 1523 An Diseases	3	<i>Sixth Quarter</i>	
BiSc 1053 Gen Biology II	3	AgAc 1565 App Farm Acct	5
Math 1063 Applied Math	3	AgMk 1573 Adv Ag Comm Mkt	3
PhEd 1200 Phy Ed	1	AnSc credits	6
	16	Electives	2
<i>Third Quarter</i>			16
AgBM 1333 Farm Mgmt	3	<i>Seventh Quarter</i>	
AnSc 1362 Prin Breeding	2	Econ 1013 Nat Econ Iss	3
Chem 1105 Tech Chemistry	5	AnSc credits	3
Electives	6	MeAg credits	3
	16	Electives	7
			16

ANIMAL HEALTH TECHNOLOGY

The American Veterinary Medical Association has recognized an increasing need for personnel qualified by formal training to assist doctors of veterinary medicine in practice, biological laboratories, animal research facilities, and state and federal civil service agencies. The animal health technology program, a two-year program accredited by the Committee on Animal Technician Activities and Training of the American Veterinary Medical Association, is designed to prepare such personnel.

Course work covers care of large and small animals as well as laboratory and zoo animals. Areas stressed include medical terminology, proper handling of equipment and instruments, X-ray techniques, and medical record keeping. Students learn about the common internal and external parasites of animals and methods of identifying them. Basic diagnostic laboratory procedures involving clinical hematology, urinalysis, and microbiology are also examined. Course work relies heavily on practical laboratory experiences. Students assist in examination of, treatment of, and surgery on live animals that are the property of the University. Referral animals are also studied.

Medical and surgical nursing courses acquaint students with the symptoms of disease, vaccination procedures, drug administration, preventive care, and humane methods of euthanasia. Standard procedures of presurgical preparation, instrument sterilization, surgical assisting, postsurgical care, and sterile technique are practiced.

The Animal Grooming course teaches students to identify the breeds of cats and dogs recognized by the American Cat Fanciers and the American Kennel Club. Techniques of preparing and showing small animals for exhibition are practiced.

Program enrollment is restricted based on the employment opportunities in the animal health field each year.

Typical employment opportunities in the animal health major are:

- Small Animal Practice General Technician
- Small Animal Practice Clinic or Hospital Receptionist
- Small Animal Practice Radiology, Surgery, or Clinical Laboratory Technician
- Large Animal Practice General Technician
- Large Animal Practice Hospital Receptionist

Curricular Offerings

Large Animal Practice Assistant
Laboratory Animal Technician
Laboratory Animal Research Assistant
Zoo Technician
State and Federal Civil Service Worker

General Program Requirements

To earn the associate in applied science degree in animal health technology, students must satisfactorily complete a minimum of 108 credits. That amount includes a common required core of 24 credits in agriculture and related education courses. The remaining credits are completed in major competency courses and electives appropriate for the major.

PROGRAM REQUIREMENTS

	Credits
AgSc 1011 Agricultural Orientation	1
AgSc 1709 Pre-Occupational Preparation Unit	12
Comm 1103 Introduction to Communications	3
Comm 1203 Introduction to Technical Reporting	3
Math 1063 Applied Mathematics	3
PhEd 1100 Physical Education	1
PhEd 1200 Physical Education	1
	<hr/>
	24

Animal Health

MAJOR COMPETENCY REQUIREMENTS

	Credits
AgAc 1013 Bookkeeping for Non-Business Majors	3
AnHe 1022 Introduction to Animal Health Technology	2
AnHe 1395 Clinical Anatomy and Physiology	5
AnHe 1424 Surgical Nursing and Anesthesiology	4
AnHe 1442 Animal Parasitology	2
AnHe 1443 Pathogenic Microbiology	3
AnHe 1454 Clinical Laboratory I	4
AnHe 1554 Clinical Laboratory II	4
AnHe 1555 Animal Diseases and Pharmacology	5
AnHe 1573 Animal Grooming	3
AnHe 1593 Small Animal Medical Nursing	3
AnHe 1623 Radiologic Techniques	3
AnHe 1723 Large Animal Medical Nursing	3
AnHe 1752 Applied Clinical Laboratory	2
AnSc 1053 Introduction to Animal Science	3
BiSc 1105 Animal Biology I	5
BiSc 1205 Animal Biology II	5
BiSc 1255 Microbiology	5
Chem 1105 Technical Chemistry	5
Chem 1224 Organic and Biochemistry	4
	<hr/>
	73

Electives—11 credits

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fifth Quarter</i>	
AgSc 1011 Ag Orientation	1	AgAc 1013 Bookkeeping	3
AnHe 1022 Intro An He	2	AnHe 1424 Surg Nursing	4
BiSc 1105 Animal Biology I	5	AnHe 1442 An Parasitology	2
Chem 1105 Tech Chemistry	5	AnHe 1443 Path Micro	3
Comm 1103 Intro Comm	3	AnHe 1573 An Grooming	3
	16		15
<i>Second Quarter</i>		<i>Sixth Quarter</i>	
AnHe 1454 Clin Lab I	4	AnHe 1555 An Diseases	5
AnHe 1623 Radiologic Tech	3	Math 1063 Applied Math	3
BiSc 1205 Animal Biology II	5	PhEd 1200 Phy Ed	1
Chem 1224 Organic	4	Electives	6
PhEd 1100 Phy Ed	1		15
	17		
<i>Third Quarter</i>		<i>Seventh Quarter</i>	
AnHe 1395 Clin Anatomy	5	AnHe 1752 App Clin Lab	2
AnHe 1554 Clin Lab II	4	AnSc 1053 Intro to An Sci	3
AnHe 1593 Small An Med Nursing	3	Comm 1203 Tech Rep	3
BiSc 1255 Microbiology	5	AnHe 1723 Large An Med Nursing	3
	17	Electives	5
			16
<i>Fourth Quarter</i>			
AgSc 1709 Pre-Occ Prep Unit	12		
	12		

FOOD INDUSTRY AND TECHNOLOGY

Minnesota ranks high among the states in total cash income derived from agricultural food sales. The number of persons working in postharvest occupations has increased markedly in recent years. A large part of that increase has been at the midmanagement level. Indications are that this is a trend that will continue for many years.

Marketing of food—taking it from production centers to population centers—is a very involved, complex process requiring thousands of employees. The assurance of nutritional quality and safety, as well as research and development, are also a part of this field.

The goal of the food marketing and distribution major is to train individuals who will become involved in the purchase, transportation, and sale of food products. The history and nature of food, selling and buying techniques, and new food concepts are studied. Ways to evaluate food products from today's marketplace are covered. Students are acquainted with practices and principles of retail, institutional, and industrial marketing of food. The distribution relationships of the producer to the processor and the marketplace to the consumer are studied. Food packaging and preservation techniques are examined and practiced.

The food products and inspection major prepares students for positions in food processing plants, dairy laboratories, test kitchens, and government service. Courses on food chemistry, microbiology, manufacturing, evaluation, and inspection acquaint students with the processing, structure, and quality of food systems. Rules and regulations enforced by governmental agencies are studied. Basic concepts of human nutrition, packaging, product development, and analysis testing are also a part of the curriculum.

Graduates of the Food Industry and Technology Division have found jobs in all phases of the food industry. Typical employment opportunities in the food marketing and distribution and the food products and inspection majors are:

- Retail Foodstore Assistant Manager
- Industrial Foods Salesperson
- Purchasing Agent or Buyer of Foods and Ingredients
- Advertising Salesperson or Buyer
- Inventory Control Manager
- Transportation Manager
- Marketing Research Trainee

Curricular Offerings

Food Processing Technician
 Dairy Laboratory Assistant
 Product Research and Development Assistant
 Dairy Plant Supervisor
 Fruit and Vegetable Inspector
 Food Product Demonstrator
 Test Kitchen Assistant
 Sensory Evaluation Technician

General Program Requirements

To earn the associate in applied science degree in food industry and technology, students must satisfactorily complete a minimum of 108 credits. That amount includes a common required core of 78 credits in agriculture and related education courses. The remaining credits are completed in major competency courses and electives appropriate for each major.

PROGRAM REQUIREMENTS	Credits
AgMk 1053 Principles of Agricultural Marketing	3
AgSc 1011 Agricultural Orientation	1
AgSc 1709 Pre-Occupational Preparation Unit	12
BiSc 1044 General Biology I	4
BiSc 1255 Microbiology	5
Chem 1105 Technical Chemistry	5
Comm 1103 Introduction to Communications	3
Comm 1203 Introduction to Technical Reporting	3
Comm 1603 Speaking Skills	3
Econ 1023 Production and Business Economics	3
Food 1113 Introduction to the Food Industry	3
Food 1204 Food Product Evaluation	4
Food 1344 Food Preservation	3
Food 1413 Food Industry Operations	3
Food 1433 Food and Family Nutrition	3
Food 1533 Packaging and Labeling	3
Food 1612 Food Industry Seminar	2
Food 1762 Food Industry Project	2
Math 1063 Applied Mathematics	3
PhEd 1100 Physical Education	1
PhEd 1200 Physical Education	1
Psyc 1114 General Psychology	4
SocS 1273 Principles of Leadership and Public Relations	3
	78

Food Marketing and Distribution

MAJOR COMPETENCY REQUIREMENTS	Credits
AgBM 1013 Introduction to Agricultural Business	3
AgBM 1553 Personnel Management	3
AgBM 1623 Agricultural Distribution Systems	3
AgMk 1373 Principles of Merchandising	3
Food 1253 Food Products Marketing	3
	15

Electives—15 credits

SUGGESTED PROGRAM

First Quarter

AgMk 1053 Prin of Ag Mkt	3
AgSc 1011 Ag Orientation	1
BiSc 1044 General Biology I	4
Comm 1103 Intro to Comm	3
Food 1113 Intro Food Ind	3
PhEd 1100 Phy Ed	1
	15

Fifth Quarter

Comm 1603 Speaking Skills	3
Food 1344 Food Preservation	4
Food 1433 Food/Family Nutr	3
Food 1533 Packaging	3
PhEd 1200 Phy Ed	1
Electives	3
	17

Second Quarter

AgBM 1013 Intro to Ag Bus	3
Chem 1105 Tech Chemistry	5
Food 1204 Food Prod Eval	4
Math 1063 Applied Math	3
Electives	1
	16

Sixth Quarter

AgBM 1553 Pers Mgmt	3
AgBM 1623 Ag Dist Systems	3
Econ 1023 Prod, Bus Econ	3
Food 1612 Food Ind Seminar	2
Food 1762 Food Industry Proj	2
Electives	3
	16

Third Quarter

AgMk 1373 Prin of Merch	3
BiSc 1255 Microbiology	5
Comm 1203 Intro Tech Rep	3
Food 1253 Food Prod Mkt	3
Electives	2
	16

Seventh Quarter

Food 1413 Food Ind Oper	3
Psyc 1114 General Psychology	4
SocS 1273 Prin Leadership	3
Electives	6
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	12

Food Products and Inspection

MAJOR COMPETENCY REQUIREMENTS

	Credits
Chem 1454 Food Chemistry	4
Food 1322 Food Product Inspection	2
Food 1523 New Product Development	3
Food 1645 Food Microbiology	5
	14
Electives—16 credits	

SUGGESTED PROGRAM

First Quarter

AgMk 1053 Prin of Ag Mkt	3
AgSc 1011 Ag Orientation	1
BiSc 1044 General Biology I	4
Comm 1103 Intro to Comm	3
Food 1113 Intro Food Ind	3
PhEd 1100 Phy Ed	1
	15

Fifth Quarter

Comm 1603 Speaking Skills	3
Food 1344 Food Preservation	4
Food 1433 Food/Family Nutr	3
Food 1533 Packaging	3
PhEd 1200 Phy Ed	1
Electives	3
	17

Second Quarter

Chem 1105 Tech Chemistry	5
Food 1204 Food Prod Eval	4
Math 1063 Applied Math	3
Electives	4
	16

Sixth Quarter

Econ 1023 Prod, Bus Economics	3
Food 1612 Food Ind Seminar	2
Food 1645 Food Microbiology	5
Food 1762 Food Industry Proj	2
Electives	4
	16

Third Quarter

BiSc 1255 Microbiology	5
Chem 1454 Food Chemistry	4
Comm 1203 Intro Tech Rep	3
Food 1322 Food Prod Insp	2
Electives	2
	16

Seventh Quarter

Food 1413 Food Ind Oper	3
Food 1523 New Prod Dev	3
Psyc 1114 General Psychology	4
SocS 1273 Prin Leadership	3
Electives	3
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	12

HOME AND FAMILY SERVICES

The Home and Family Services Division is dedicated to lifelong educational experiences. The curricula offer a means of acquiring and maintaining the competencies needed in our changing society. The program recognizes that advanced technologies have had a significant impact upon rural living and life-styles. Because of these changing forces, greater demands are being placed upon technicians in occupations serving rural-based people and communities.

There is a strong demand for well-trained, well-qualified personnel in midmanagement positions in the human and community service areas. Individuals interested in occupations working with children, older adults, or farm and town families, or in serving people through fashion-oriented retail businesses, can obtain the skills necessary for these positions through home and family services programs.

Typical employment opportunities in the child care services, merchandising technology, rural home services, and rural youth and recreation majors are:

- Assistant Teacher in Day Care
- Assistant Teacher in Nursery School
- Assistant Teacher in Kindergarten
- Assistant Teacher in Special Education
- Assistant Teacher in Head Start
- Family Day Care Provider
- Assistant Teacher in Programs for Exceptional Children
- Sales Supervisor
- Assistant Buyer
- Assistant Manager
- Fashion Coordinator
- Home Furnishings Consultant
- Product Demonstrator
- Display Technician
- Home Care Aide
- Outreach Worker
- Homemaker
- Parent Coordinator
- Activities Director
- Transportation Volunteer Coordinator
- Senior Citizens Center Director
- Seasonal Recreation Leader
- Camp Program Counselor

General Program Requirements

To earn the associate in applied science degree in home and family services, students must satisfactorily complete a minimum of 108 credits. That amount includes a common required core of 39 credits in agriculture and related education courses. The remaining credits are completed in major competency courses and electives appropriate for each major.

PROGRAM REQUIREMENTS	Credits
AgSc 1011 Agricultural Orientation	1
AgSc 1709 Pre-Occupational Preparation Unit	12 ¹
BiSc 1014 Principles of Biology	4
Comm 1103 Introduction to Communications	3
Comm 1203 Introduction to Technical Reporting	3
Econ 1103 Consumer Economics	3
HFSc 1052 Orientation to Family Environment	2
HFSc 1672 Seminar: Home and Family Services	2
Math 1063 Applied Mathematics	3
PhEd 1100 Physical Education	1
PhEd 1200 Physical Education	1
Psyc 1114 General Psychology	4
	39

¹Students may complete this requirement through the home farm POP sequence. See Home Farm POP at the beginning of this section of the bulletin.

Child Care Services

MAJOR COMPETENCY REQUIREMENTS

Credits

AgBM 1013 Introduction to Agricultural Business	3
Comm 1603 Speaking Skills	3
Food 1433 Family and Food Nutrition	3
HFSc 1123 Introduction to Competency-Based Child Care	3
HFSc 1125 Development of the Preschool Child	5
HFSc 1223 Administration of Preschool Programs	3
HFSc 1273 Creative Activities for Children	3
HFSc 1303 First Aid and Emergency Care	3
HFSc 1334 Practicum: Development of the Preschool Child	4
HFSc 1363 Teacher-Parent Interaction	3
HFSc 1373 Cognitive Activities for Children	3
HFSc 1401 Licensing Regulations for Preschool Programs	1
HFSc 1453 Home Management	3
HFSc 1634 Family Food Management and Preparation	4
HFSc 1653 The Exceptional Individual	3
HFSc 1663 Techniques in Teaching Exceptional Children	3
Humn 1313 Introduction to Humanities	3
SocS 1053 Rural Sociology	3
SocS 1273 Principles of Leadership and Public Relations	3
	<u>59</u>

Electives—10 credits

SUGGESTED PROGRAM

First Quarter

AgSc 1011 Ag Orientation	1
Food 1433 Food/Family Nutr	3
HFSc 1052 Orient Fam Environ	2
HFSc 1125 Dev of Preschool Child	5
Humn 1313 Intro to Humanities	3
Math 1063 Applied Math	3
	<u>17</u>

Second Quarter

AgBM 1013 Intro to Ag Bus	3
Comm 1103 Intro to Comm	3
HFSc 1123 Intro Comp-Based Ch	3
HFSc 1273 Creative Activ	3
Psyc 1114 General Psyc	4
	<u>16</u>

Third Quarter

BiSc 1014 Prin of Biology	4
Comm 1203 Intro Tech Rep	3
Econ 1103 Consumer Economics	3
HFSc 1303 First Aid	3
PhEd 1100 Phy Ed	1
SocS 1273 Prin Leadership	3
	<u>17</u>

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	<u>12</u>

Fifth Quarter

Comm 1603 Speaking Skills	3
FSc 1373 Cognitive Activities	3
HFSc 1453 Home Management	3
HFSc 1634 Family Food Mgmt	4
SocS 1053 Rural Sociology	3
	<u>16</u>

Sixth Quarter

HFSc 1334 Pract-Dev Presch Ch	4
HFSc 1653 Exceptional Ind	3
PhEd 1200 Phy Ed	1
Electives	7
	<u>15</u>

Seventh Quarter

HFSc 1223 Admin of Preschool Prog	3
HFSc 1363 Teacher-Parent Inter	3
HFSc 1401 Lic Regul Presch Pro	1
HFSc 1663 Teach Except Child	3
HFSc 1672 Seminar: HFSc	2
Electives	3
	<u>15</u>

Merchandising Technology

MAJOR COMPETENCY REQUIREMENTS

Credits

AgAc 1014 Principles of Agricultural Accounting—I	4
AgBM 1013 Introduction to Agricultural Business	3
AgBM 1473 Small Business Management	3
AgMk 1253 Agricultural Salesmanship	3

Curricular Offerings

AgMk 1333 Advertising and Displaying Merchandise	3
AgMk 1373 Principles of Merchandising	3
Comm 1603 Speaking Skills	3
HFSc 1113 Textiles	3
HFSc 1233 Apparel and Accessory Selection	3
HFSc 1254 Clothing Construction	4
HFSc 1263 Introduction to Fashion-Influenced Industries	3
HFSc 1323 Home Furnishings	3
HFSc 1403 Sewing for the Home	3
HFSc 1563 Interior Decorating	3
HFSc 1642 Equipment in the Home	2
HFSc 1693 Merchandise Technology	3
SocS 1273 Principles of Leadership and Public Relations	3
Select two courses from the following:	
AgAc 1052 Office Machine Calculation	2
AgAc 1423 Agricultural Data Processing Fundamentals	3
AgBM 1363 Agricultural Business Law	3
AgBM 1443 Credit and Collections	3
	57 or 58

Electives—11 or 12 credits

SUGGESTED PROGRAM

First Quarter

AgBM 1013 Intro to Ag Bus	3
AgSc 1011 Ag Orientation	1
Comm 1103 Intro to Comm	3
HFSc 1052 Orient Fam Environ	2
HFSc 1113 Textiles	3
Math 1063 Applied Math	3
PhEd 1100 Phy Ed	1
	16

Second Quarter

Comm 1603 Speaking Skills	3
HFSc 1233 Apparel/Access	3
HFSc 1254 Clothing Const	4
HFSc 1263 Intro Fashion Ind	3
Electives	3
	16

Third Quarter

AgMk 1253 Ag Sales	3
AgMk 1333 Adv & Disp Merch	3
AgMk 1373 Prin of Merch	3
HFSc 1323 Home Furnishings	3
Select one of two addtl business req	2 or 3
	14 or 15

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
HFSc 1403 Sewing for Home	3
	15

Fifth Quarter

AgBM 1473 Small Bus Mgmt	3
Comm 1203 Intro Tech Rep	3
Econ 1103 Consumer Econ	3
Electives	6
	15

Sixth Quarter

AgAc 1014 Prin of Ag Acct—I	4
HFSc 1563 Interior Decorating	3
PhEd 1200 Phy Ed	1
Psyc 1114 General Psychology	4
Select one of two addtl business reg	2 or 3
	14 or 15

Seventh Quarter

BiSc 1014 Prin of Biology	4
HFSc 1642 Equipment in Home	2
HFSc 1672 Seminar: HFSc	2
HFSc 1693 Merchandise Tech	3
SocS 1273 Prin of Leadership	3
Electives	2 or 3
	16 or 17

Rural Home Services— Services for the Rural Elderly Emphasis¹

MAJOR COMPETENCY REQUIREMENTS

AgAc 1014 Principles of Agricultural Accounting—I	4
(or) AgAc 1565 Applied Farm Accounting	5
AgBM 1363 Agricultural Business Law	3
Food 1432 Nutrition Through the Life Cycle	2

¹Pending approval by the Board of Regents.

Home and Family Services

Food 1433 Food and Family Nutrition	3
HFSc 1125 Development of the Preschool Child	5
HFSc 1184 Introduction to Gerontology	4
HFSc 1283 Creative Activities for the Elderly	3
HFSc 1303 First Aid and Emergency Care	3
HFSc 1384 Practicum—Services for the Rural Elderly	4
HFSc 1453 Home Management	3
HFSc 1482 Health and Recreation for the Elderly	2
HFSc 1583 Death and Dying	3
HFSc 1634 Family Food Management and Preparation	4
Hort 1313 Home Horticulture	3
SocS 1053 Rural Sociology	3
	<u>49 or 50</u>

Electives—0-12 credits

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
AgSc 1011 Ag Orientation	1	AgSc 1709 Pre-Occ Prep Unit	<u>12</u>
Comm 1103 Intro to Comm	3		12
Food 1433 Food Fam Nutrition	3		
HFSc 1052 Orient Family	2	<i>Fifth Quarter</i>	
HFSc 1184 Intro Geront	4	HFSc 1125 Dev Preschool	5
PhEd 1100 Phy Ed	1	HFSc 1303 First Aid	3
Electives	<u>2 or 3</u>	HFSc 1453 Home Mgmt	3
	16 or 17	HFSc 1634 Fam Food Mgmt	<u>4</u>
			15
<i>Second Quarter</i>		<i>Sixth Quarter</i>	
AgBM 1363 Ag Business Law	3	Comm 1203 Tech Rep Writ	3
HFSc 1283 Creat Activities	3	HFSc 1482 Health Rec Eld	2
Math 1063 Applied Math	3	HFSc 1583 Death and Dying	2
Psyc 1114 Gen Psychology	4	HFSc 1672 Seminar: HFSc	2
Electives	<u>3 or 4</u>	One of two reqd courses	2-4
	16 or 17	Electives	<u>1 or 2</u>
			13-16
<i>Third Quarter</i>		<i>Seventh Quarter</i>	
AgAc 1014 Prin Ag Acct—I	4	Econ 1103 Cons Economics	3
(or) AgAc 1565 Appl Farm Acct	5	PhEd 1200 Phy Ed	1
BiSc 1014 Prin of Biology	4	SocS 1053 Rural Sociology	3
Food 1432 Nutrition	2	One of two reqd courses	2-4
HFSc 1384 Practicum	4	Electives	<u>5 or 6</u>
Hort 1313 Home Hort	<u>3</u>		14-17
	17 or 18		

Rural Home Services— Rural Home Management Emphasis

MAJOR COMPETENCY REQUIREMENTS	Credits
AgAc 1014 Principles of Agricultural Accounting—I	4
(or) AgAc 1565 Applied Farm Accounting	5
AgBM 1363 Agricultural Business Law	3
Food 1433 Food and Family Nutrition	3
HFSc 1125 Development of the Preschool Child	5
HFSc 1184 Introduction to Gerontology	4
HFSc 1303 First Aid and Emergency Care	3
HFSc 1453 Home Management	3
HFSc 1634 Family Food Management and Preparation	4
SocS 1053 Rural Sociology	3
Select four courses from:	
Agro 1153 Introduction to Crop Science	3
AnSc 1053 Introduction to Animal Science	3

Curricular Offerings

HFSc 1113 Textiles	3
HFSc 1254 Clothing Construction	4
HFSc 1323 Home Furnishings	3
HFSc 1642 Equipment in the Home	2
Select two courses from:	
AgBM 1333 Principles of Farm Management	3
AgBM 1473 Small Business Management	3
AgBM 1543 Tax Management	3
AgMk 1053 Principles of Agricultural Marketing	3
AgOM 1252 Records Management	2
	<u>48-52</u>

Electives—17-21 credits

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fifth Quarter</i>	
AgSc 1011 Ag Orientation	1	Econ 1103 Cons Economics	3
Comm 1103 Intro to Comm	3	Food 1433 Food Fam Nutr	3
HFSc 1052 Orient Family	2	HFSc 1453 Home Mgmt	3
HFSc 1125 Dev Preschool	5	HFSc 1634 Fam Food Mgmt	4
HFSc 1184 Intro Geront	4	PhEd 1200 Phy Ed	1
PhEd 1100 Phy Ed	<u>1</u>	Electives	<u>3</u>
	16		17
<i>Second Quarter</i>		<i>Sixth Quarter</i>	
AgBM 1363 Ag Bus Law	3	AgAc 1014 Prin Ag Acct—I	4
Comm 1203 Tech Rep Writ	3	(or) AgAc 1565 Appl Farm Acct	5
Math 1063 Applied Math	3	HFSc 1672 Seminar: HFSc	2
Psyc 1114 Gen Psychology	4	One of four reqd courses	2-4
One of four reqd courses	<u>2-4</u>	Electives	<u>4-6</u>
	15-17		17-21
<i>Third Quarter</i>		<i>Seventh Quarter</i>	
BiSc 1014 Prin of Biology	4	HFSc 1303 First Aid	3
One of four reqd courses	2-4	SocS 1053 Rural Sociology	3
One of two reqd courses	2 or 3	One of four reqd courses	2-4
Electives	<u>5-7</u>	One of two reqd courses	2 or 3
	13-18	Electives	<u>4 or 5</u>
			14-18
<i>Fourth Quarter</i>			
AgSc 1709 Pre-Occ Prep Unit	<u>12</u>		
	12		

Rural Youth and Recreation

MAJOR COMPETENCY REQUIREMENTS	Credits
AgCm 1313 Audiovisual Techniques	3
AgMk 1053 Principles of Ag Marketing	3
AgMk 1333 Advertising and Displaying Merchandise	3
Comm 1473 Technical Report Writing	3
Comm 1603 Speaking Skills	3
Econ 1013 National Economic Issues	3
Food 1204 Food Product Evaluation	4
HFSc 1303 First Aid and Emergency Care	3
HFSc 1453 Home Management	3
HFSc 1634 Family Food Management and Preparation	4
Hort 1313 Home Horticulture	3
SocS 1053 Rural Sociology	3
SocS 1273 Principles of Leadership and Public Relations	<u>3</u>
	<u>41</u>

Electives—28 credits

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
AgSc 1011 Ag Orientation	1	AgSc 1709 Pre-Occ Prep Unit	<u>12</u>
BiSc 1014 Prin of Biology	4		12
Comm 1103 Intro to Comm	3	<i>Fifth Quarter</i>	
HFSc 1052 Orient Fam Env	2	Comm 1473 Tech Rep Writing	3
Math 1063 Applied Math	3	Econ 1103 Consumer Economics	3
Psyc 1114 General Psychology	4	HFSc 1453 Home Mgmt	3
	17	PhEd 1200 Phy Ed	1
<i>Second Quarter</i>		Electives	<u>6</u>
AgMk 1053 Prin Ag Mkt	3		16
Comm 1203 Intro Tech Rep	3	<i>Sixth Quarter</i>	
Food 1204 Food Prod Eval	4	AgCm 1313 Audiovisual Tech	3
Electives	<u>6</u>	Econ 1013 Nat Economic Issues	3
	16	HFSc 1672 Seminar: HFSc	2
<i>Third Quarter</i>		SocS 1273 Prin Leadership	3
AgMk 1333 Advert Displ Merch	3	Electives	<u>4</u>
HFSc 1303 First Aid	3		15
Hort 1313 Home Hort	3	<i>Seventh Quarter</i>	
PhEd 1100 Phy Ed	1	Comm 1603 Speaking Skills	3
Electives	<u>6</u>	HFSc 1634 Fam Food Mgmt	4
	16	SocS 1053 Rural Sociology	3
		Electives	<u>6</u>
			16

HORTICULTURAL TECHNOLOGY

Horticulture has enjoyed accelerated development in recent years. It is presently the fastest growing segment of the American agricultural economy on a dollar-volume basis. Home building and commercial development have created an unprecedented demand for shrubs and flowers for beautification. Aesthetic appreciation by the general public and environmental concerns insure a strong demand for horticultural goods and services.

The need for personnel trained in horticultural skills is increasing as a result of a change in the structure of horticultural industry from small, family operations to larger organizations. This change has created a need for employees with midmanagement or supervisory skills and horticultural knowledge. Many new garden centers are developing throughout the state and nation under franchise arrangements, and many established businesses are diversifying by adding horticultural lines. These enterprises will need people who can grow, manage, and retail horticultural products.

Typical employment opportunities in the floriculture, greenhouse, and garden center technology and landscape-nursery technology majors are:

- Wholesale Florist Supervisor
- Garden Center Floral Technician
- Floral Supply Salesperson
- Greenhouse Owner-Operator
- Greenhouse Section Technician
- Wholesale Florist
- Retail Florist
- Floral Shop Manager
- Floral Designer
- Flower Grower
- Flower Propagator
- Garden Center Owner-Operator
- Garden Center Salesperson
- Horticultural Equipment Salesperson
- Garden Center Plant Buyer
- Grounds Maintenance Owner-Operator
- Landscape Contractor
- Landscape Designer

Curricular Offerings

Landscape Planting Technician
 Landscape Construction Supervisor
 Landscape Materials Salesperson
 Landscape Equipment Salesperson
 Turf and Sod Retailer
 Turf Grower
 Grounds Manager for Private Estates
 Park and Playground Planner
 Public Recreation Grounds Superintendent
 Cemetery Superintendent
 Nursery Owner-Operator
 Nursery Stock Section Supervisor
 Nursery Field Technician
 Nursery Stock Propagator
 Nursery, Garden Center Wholesale Supplier
 Nursery Stock Inspector
 Golf Course Grounds Manager
 Arboretum Superintendent

General Program Requirements

To earn the associate in applied science degree in horticultural technology, students must satisfactorily complete a minimum of 108 credits. That amount includes a common required core of 63 credits in agriculture and related education courses. The remaining credits are completed in major competency courses and electives appropriate for each major.

PROGRAM REQUIREMENTS	Credits
AgBM 1473 Small Business Management	3
AgSc 1011 Agricultural Orientation	1
AgSc 1064 Plant Protection	4
AgSc 1709 Pre-Occupational Preparation Unit	12
BiSc 1115 Plant Biology I	5
BiSc 1215 Plant Biology II	5
Chem 1105 Technical Chemistry	5
Comm 1103 Introduction to Communications	3
Comm 1203 Introduction to Technical Reporting	3
Hort 1113 Introductory Horticulture	3
Hort 1332 Annuals and Perennials	2
Hort 1343 Plant Propagation	3
Hort 1651 Horticultural Seminar	1
Math 1063 Applied Mathematics	3
PhEd 1100 Physical Education	1
PhEd 1200 Physical Education	1
Psyc 1114 General Psychology	4
Soil 1054 Soil Science	4
	63

Floriculture, Greenhouse, and Garden Center Technology—Garden Center Emphasis

MAJOR COMPETENCY REQUIREMENTS	Credits
AgAc 1014 Principles of Agricultural Accounting—I	4
AgMk 1253 Agricultural Salesmanship	3
AgMk 1333 Advertising and Displaying Merchandise	3
AgOM 1252 Records Management	2
Comm 1603 Speaking Skills	3
Hort 1232 Basic Flower Arrangement and Floral Design	2
Hort 1253 Greenhouse Operations	3
Hort 1263 Vegetable Production	3
Hort 1272 Fruit Production	2
Hort 1323 Woody Plant Materials	3
Hort 1443 Landscape Maintenance	3
Hort 1524 Horticultural Retail Management	3
	34

Electives—11 credits

SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fifth Quarter</i>	
AgSc 1011 Ag Orientation	1	AgAc 1014 Prin of Ag Acct—I	4
AgSc 1064 Plant Protection	4	AgMk 1333 Adv & Displ Merch	3
Hort 1113 Intro to Hort	3	BiSc 1215 Plant Biology II	5
Hort 1323 Woody Plant Material	3	Hort 1232 Basic Flower Arrang	2
Hort 1332 Annuals & Perennials	2	Electives	3
Hort 1443 Landscape Maintenance	3		17
	16		
<i>Second Quarter</i>		<i>Sixth Quarter</i>	
BiSc 1115 Plant Biology I	5	AgOM 1252 Records Mgmt	2
Comm 1103 Intro to Comm	3	Chem 1105 Tech Chemistry	5
Hort 1253 Greenhouse Operations	3	Comm 1603 Speaking Skills	3
Math 1063 Applied Math	3	Hort 1343 Plant Propagation	3
PhEd 1100 Phy Ed	1	Hort 1524 Hort Retail Mgmt	2
	15		15
<i>Third Quarter</i>		<i>Seventh Quarter</i>	
AgBM 1473 Smail Bus Mgmt	3	AgMk 1253 Ag Salesmanship	3
Hort 1263 Vegetable Production	3	Comm 1203 Intro to Tech Rep	3
Hort 1272 Fruit Production	2	Hort 1524 Hort Retail Mgmt	1
PhEd 1200 Phy Ed	1	Hort 1651 Seminar	1
Psyc 1114 General Psychology	4	Soil 1054 Soil Science	4
Electives	4	Electives	4
	17		16
<i>Fourth Quarter</i>			
AgSc 1709 Pre-Occ Prep Unit	12		
	12		

Floriculture, Greenhouse, and Garden Center Technology—Production Emphasis

MAJOR COMPETENCY REQUIREMENTS	Credits
AgAc 1014 Principles of Agricultural Accounting—I	4
Agro 1362 Weed Identification and Control	2
Hort 1232 Basic Flower Arrangement and Floral Design	2
Hort 1253 Greenhouse Operations	3
Hort 1352 Foliage and Flowering Pot Plants	2
Hort 1513 Flower Production	3
Hort 1533 Minor Floral Crops	3
Hort 1613 Commercial Floriculture Management	3
Soil 1222 Soil and Plant Testing	2
	24
Electives—21 credits	

Curricular Offerings

SUGGESTED PROGRAM

First Quarter

AgSc 1011 Ag Orientation	1
Chem 1105 Tech Chemistry	5
Hort 1113 Intro to Hort	3
Hort 1232 Basic Flower Arrang	2
Hort 1332 Annuals & Perennials	2
Math 1063 Applied Math	3
	<u>16</u>

Second Quarter

BiSc 1115 Plant Biology I	5
Hort 1253 Greenhouse Operations	3
Hort 1343 Plant Propagation	3
Hort 1352 Foliage Plants	2
Soil 1054 Soil Science	4
	<u>17</u>

Third Quarter

AgBM 1473 Small Bus Mgmt	3
Agro 1362 Weed Ident	2
AgSc 1064 Plant Protection	4
Comm 1103 Intro to Comm	3
Soil 1222 Soil Plant Test	2
Electives	3
	<u>17</u>

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	<u>12</u>

Fifth Quarter

AgAc 1014 Prin of Ag Acct—I	4
BiSc 1215 Plant Biology II	5
Hort 1513 Flower Production	3
PhEd 1100 Phy Ed	1
Electives	3
	<u>16</u>

Sixth Quarter

Comm 1203 Intro to Tech Rep	3
Hort 1533 Minor Floral Crops	3
Hort 1613 Comm Flor Mgmt	3
Electives	6
	<u>15</u>

Seventh Quarter

Hort 1651 Seminar	1
PhEd 1200 Phy Ed	1
Psyc 1114 General Psychology	4
Electives	9
	<u>15</u>

Floriculture, Greenhouse, and Garden Center Technology—Retail Floriculture Emphasis

MAJOR COMPETENCY REQUIREMENTS

	Credits
AgAc 1014 Principles of Agricultural Accounting—I	4
AgBM 1443 Credit and Collections	3
AgMk 1253 Agricultural Salesmanship	3
AgMk 1333 Advertising and Displaying Merchandise	3
AgOM 1252 Records Management	2
Comm 1603 Speaking Skills	3
Hort 1232 Basic Flower Arrangement and Floral Design	2
Hort 1253 Greenhouse Operations	3
Hort 1341 Cut Flowers and Greens	1
Hort 1352 Foliage and Flowering Pot Plants	2
Hort 1413 Advanced Floral Design	3
Hort 1524 Horticultural Retail Management	3
	<u>32</u>

Electives—13 credits

SUGGESTED PROGRAM

First Quarter

AgSc 1011 Ag Orientation	1
BiSc 1115 Plant Biology I	5
Comm 1103 Intro to Comm	3
Hort 1113 Intro to Hort	3
Hort 1232 Basic Flower Arrang	2
Hort 1332 Annuals & Perennials	2
	<u>16</u>

Second Quarter

BiSc 1215 Plant Biology II	5
Hort 1253 Greenhouse Operations	3
Hort 1341 Cut Flowers	1
Hort 1352 Foliage Plants	2
Hort 1413 Adv Floral Design	3
Math 1063 Applied Math	3
	<u>17</u>

Third Quarter

AgBM 1473 Small Bus Mgmt	3
AgSc 1064 Plant Protection	4
Hort 1343 Plant Propagation	3
PhEd 1100 Phy Ed	1
Psyc 1114 General Psychology	4
	<u>15</u>

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	<u>12</u>

Fifth Quarter

AgAc 1014 Prin of Ag Acct—I	4
AgMk 1333 Adv & Displ Merch	3
Chem 1105 Tech Chemistry	5
Electives	5
	<u>17</u>

Sixth Quarter

AgBM 1443 Credit, Collections	3
AgOM 1252 Records Mgmt	2
Comm 1203 Intro to Tech Rep	3
Hort 1524 Hort Retail Mgmt	3
Soil 1054 Soil Science	4
	<u>15</u>

Seventh Quarter

AgMk 1253 Ag Salesmanship	3
Comm 1603 Speaking Skills	3
Hort 1651 Seminar	1
PhEd 1200 Phy Ed	1
Electives	8
	<u>16</u>

Landscape-Nursery Technology— Landscape Maintenance Emphasis

MAJOR COMPETENCY REQUIREMENTS

Credits

AgAc 1014 Principles of Agricultural Accounting—I	4
Agro 1362 Weed Identification and Control	2
Hort 1323 Woody Plant Materials	3
Hort 1372 Arboriculture	2
Hort 1443 Landscape Maintenance	3
Hort 1643 Turf Management	3
Hort 1673 Grounds Management	3
MeAg 1032 Principles of Equipment Maintenance	2
MeAg 1083 Fundamentals of Power and Air-Cooled Engines	3
MeAg 1234 Fundamentals of Building Construction	4
	<u>29</u>

Electives—16 credits

SUGGESTED PROGRAM

First Quarter

AgSc 1011 Ag Orientation	1
AgSc 1064 Plant Protection	4
Hort 1113 Intro to Hort	3
Hort 1443 Landscape Maint	3
PhEd 1100 Phy Ed	1
Electives	4
	<u>16</u>

Second Quarter

BiSc 1115 Plant Biology I	5
Comm 1103 Intro to Comm	3
Hort 1323 Woody Plant Materials	3
Math 1063 Applied Math	3
Electives	2
	<u>16</u>

Curricular Offerings

Third Quarter

AgAc 1014 Prin of Ag Acct—I	4
BiSc 1215 Plant Biology II	5
MeAg 1083 Fund of Power	3
PhEd 1200 Phy Ed	1
Electives	3
	<u>16</u>

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	12

Fifth Quarter

AgBM 1473 Small Bus Mgmt	3
Agro 1362 Weed Ident	2
Hort 1332 Annuals & Perennials	2
Hort 1372 Arboriculture	2
Hort 1643 Turf Mgmt	3
Electives	4
	<u>16</u>

Sixth Quarter

Chem 1105 Tech Chemistry	5
Comm 1203 Intro to Tech Rep	3
Hort 1343 Plant Propagation	3
MeAg 1234 Fund Bldg Const	4
Electives	1
	<u>16</u>

Seventh Quarter

Hort 1651 Seminar	1
Hort 1673 Grounds Mgmt	3
MeAg 1032 Prin Equip Maint	2
Psyc 1114 General Psychology	4
Soil 1054 Soil Science	2
Electives	4
	<u>16</u>

Landscape-Nursery Technology— Landscape Planning and Development Emphasis

MAOR COMPETENCY REQUIREMENTS

	Credits
AgBM 1013 Introduction to Agricultural Business	3
(or) Hort 1673 Grounds Management	3
AgMk 1253 Agricultural Salesmanship	3
Hort 1323 Woody Plant Materials	3
Hort 1443 Landscape Maintenance	3
Hort 1554 Landscape Planning	4
Hort 1634 Landscape Construction	4
MeAg 1024 Technical Drawing	4
MeAg 1404 Fundamentals of Surveying	4
	<u>28</u>

Electives—17 credits

SUGGESTED PROGRAM

First Quarter

AgSc 1011 Ag Orientation	1
BiSc 1115 Plant Biology I	5
Hort 1113 Intro to Hort	3
Hort 1323 Woody Plant Materials	3
MeAg 1024 Tech Drawing	4
PhEd 1100 Phy Ed	1
	<u>17</u>

Second Quarter

BiSc 1215 Plant Biology I	5
Comm 1103 Intro to Comm	3
Hort 1634 Landscape Planning	4
Math 1063 Applied Math	3
	<u>15</u>

Third Quarter

AgBM 1473 Small Bus Mgmt	3
AgSc 1064 Plant Protection	4
Hort 1634 Landscape Constr	4
MeAg 1404 Fund Surveying	4
Electives	2
	<u>17</u>

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	12

Fifth Quarter

Hort 1332 Annuals & Perennials	2
Hort 1343 Plant Propagation	3
Hort 1443 Landscape Maint	3
PhEd 1200 Phy Ed	1
Psyc 1114 General Psychology	4
Electives	3
	<u>16</u>

Sixth Quarter

AgBM 1013 Intro to Ag Bus	3
(or) Hort 1673 Grounds Mgmt	3
Chem 1105 Tech Chemistry	5
Comm 1203 Intro to Tech Rep	3
Electives	4
	<u>15</u>

Seventh Quarter

AgMk 1253 Ag Salesmanship	3
Hort 1651 Seminar	1
Soil 1054 Soil Science	4
Electives	8
	<u>16</u>

Landscape-Nursery Technology— Nursery Production Emphasis

MAJOR COMPETENCY REQUIREMENTS

	Credits
AgAc 1014 Principles of Agricultural Accounting—I	4
Agro 1362 Weed Identification and Control	2
Hort 1253 Greenhouse Operations	3
Hort 1323 Woody Plant Materials	3
Hort 1443 Landscape Maintenance	3
Hort 1674 Nursery Operations and Management	4
MeAg 1032 Principles of Equipment Maintenance	2
Soil 1222 Soil and Plant Testing	2
	23

Electives—22 credits

SUGGESTED PROGRAM

First Quarter

AgSc 1011 Ag Orientation	1
AgSc 1064 Plant Protection	4
BiSc 1115 Plant Biology I	5
Hort 1113 Intro to Hort	3
Math 1063 Applied Math	3
	16

Second Quarter

BiSc 1215 Plant Biology II	5
Comm 1103 Intro to Comm	3
Hort 1323 Woody Plant Materials	3
Hort 1332 Annuals & Perennials	2
Hort 1443 Landscape Maint	3
	16

Third Quarter

Chem 1105 Tech Chemistry	5
Comm 1203 Intro to Tech Rep	3
Hort 1253 Greenhouse Operations	3
Hort 1343 Plant Propagation	3
Soil 1054 Soil Science	4
	18

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	12

Fifth Quarter

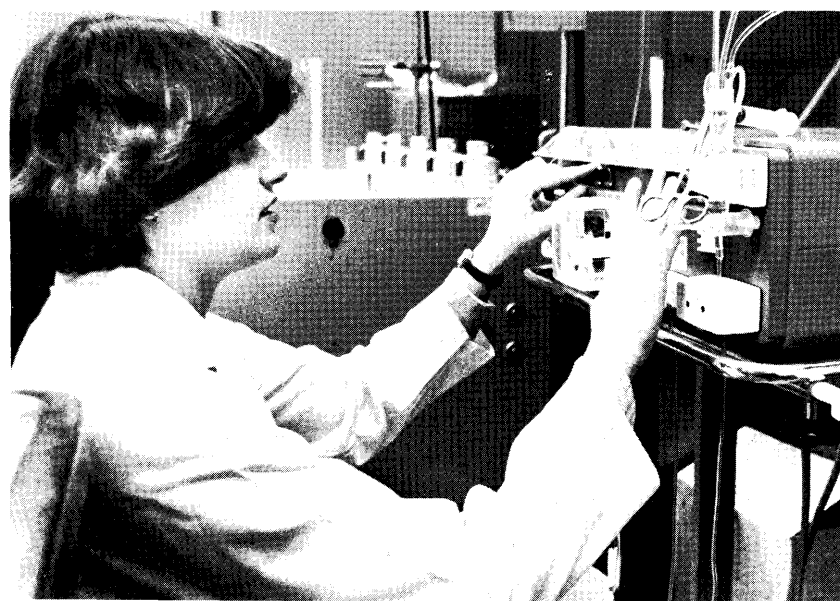
AgAc 1014 Prin of Ag Acct—I	4
AgBM 1473 Small Bus Mgmt	3
Agro 1362 Weed Ident	2
PhEd 1100 Phy Ed	1
Soil 1222 Soil Plant Test	2
Electives	4
	16

Sixth Quarter

Hort 1674 Nursery Oper, Mgmt	4
PhEd 1200 Phy Ed	1
Electives	9
	14

Seventh Quarter

Hort 1651 Seminar	1
MeAg 1032 Prin Equip Maint	2
Psyc 1114 General Psychology	4
Electives	9
	16



V. DESCRIPTION OF COURSES

Courses are listed by data processing call numbers and by descriptive titles. The two center figures of the call numbers represent the course number; they range from 01 to 79 (e.g., 1253 = 25). The numbers identify the quarter of attendance when the course should be scheduled most appropriately by each student, as follows:

Course Numbers

01-10 = First-quarter core courses generally required for most students

11-19 = First-quarter courses in most majors

20-29 = Recommended second-quarter courses in most majors

30-39 = Recommended third-quarter courses in most majors

40-49 = Recommended fourth-quarter courses in most majors

50-59 = Recommended fifth-quarter courses in most majors

60-69 = Recommended sixth-quarter courses in most majors

70 = Pre-Occupational preparation course

71-79 = Recommended seventh-quarter courses in most majors

Abbreviations

AgAc—Agricultural Accounting

AgBM—Agricultural Business Management

AgCm—Agricultural Communications

AgMk—Agricultural Marketing

AgOM—Agricultural Office Management

AgSc—Agricultural Science

Agro—Agronomy

AnHe—Animal Health Technology

AnSc—Animal Science

BiSc—Biological Science

Chem—Chemistry

Comm—Communications

Econ—Economics

Food—Food Industry and Technology

HFSc—Home and Family Services

Hort—Horticultural Science

Humn—Humanities

LeSk—Learning Skills

Math—Mathematics

MeAg—Mechanized Agriculture

PhEd—Physical Education

Phys—Physics

Psyc—Psychology

SocS—Social Science

Soil—Soil Science

f,w,s,su Following the course number indicate fall, winter, spring, and summer quarters

Agricultural Accounting (AgAc)

1013s,su. BOOKKEEPING FOR NON-BUSINESS MAJORS. (3 cr; 4 hrs per wk)

Entry-level bookkeeping skills for the non-business major. Skills include journalizing, posting, and preparing worksheets and financial statements by hand and computer for a service or merchandising organization.

1014f,w,s. PRINCIPLES OF AGRICULTURAL ACCOUNTING—I. (4 cr; 5 hrs per wk)

Basic principles of accounting with emphasis on business transactions involving the complete accounting cycle. Applications of techniques in solving practice problems that relate to an agrusiness environment.

1052w. OFFICE MACHINE CALCULATION. (2 cr; 4 hrs per wk)

Operation and application of modern office equipment: the electronic printing calculator, electronic display calculator, 10-key adding-listing machine, electronic cash register, electronic typewriters. Emphasis on problem-solving activities leading to efficient machine operation, programming, and better understanding of business mathematics.

1059. SPECIAL PROBLEMS. (1-3 cr; hrs ar)

Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.

1213w. HOME FARM POP—ACCOUNTING. (3 cr; 3 hrs per wk)

Designed to start the student on a home farm record keeping system. Beginning inventories, entry of farm receipts and expenses, depreciation methods, and use of farm records stressed. A sample farm problem is used to implement instruction, and monthly entries into the home farm account book provide hands-on experience. Introduction to typical farm accounting and business analysis.

Description of Courses

- 1214w,s. PRINCIPLES OF AGRICULTURAL ACCOUNTING—II.** (4 cr; prereq 1014; 5 hrs per wk)
Expansion of accounting fundamentals and principles acquired in AgAc 1014 with emphasis on accounting procedures for assets, liabilities, and capital commonly found in agricultural businesses.
- 1313s. PRINCIPLES OF AGRICULTURAL ACCOUNTING—III.** (3 cr; prereq 1214; offered alt yrs; 4 hrs per wk)
Analysis of financial statements, departmental accounting, accounting for the manufacturing operation, and management control and planning through budgeting.
- 1321s. HOME FARM POP—BUSINESS PLANNING.** (1 cr; prereq 1213; 1 hr per wk)
Continuation of home farm accounts and records. Financial and enterprise analysis with emphasis on planning for entering an operation. Determining the profitability of an expansion plan, cash flow projections, and working agreements.
- 1423f,w,s,su. AGRICULTURAL DATA PROCESSING FUNDAMENTALS.** (3 cr; 4 hrs per wk)
A general introduction to computers, flow charting, and programming related to agriculture.
- 1431f. HOME FARM POP—TAX ESTIMATE.** (1 cr; prereq 1321; 1 hr per wk)
The home farm record is closed out for an October 1 income tax estimate.
- 1541w. HOME FARM POP—COMPUTERIZING.** (1 cr; prereq 1431, AgSc 1809; 1 hr per wk)
The account book for the home farm is closed out and prepared for analysis. The analysis is reviewed for accuracy, and management implications are studied.
- 1565f,w. APPLIED FARM ACCOUNTING.** (5 cr; 7 hrs per wk)
Use of farm records for calculating financial solvency, liquidity, profitability, cash flow and enterprise analysis. Budgeting and using farm records as a tool in the decision-making process on the farm.
- 1642s. HOME FARM POP—ANALYSIS.** (2 cr; prereq 1541; 4 hrs per wk)
The student's home farm analysis is the basis for a financial and enterprise analysis of the farm business. The student develops alternatives for a profitability study and cash flow projection for the home operation. A working agreement for the home farm is developed.

Agricultural Business Management (AgBM)

- 1013f,w,su. INTRODUCTION TO AGRICULTURAL BUSINESS.** (3 cr; 5 hrs per wk)
Fundamentals of agricultural business; economic ideas relating to businesses; functional areas of production, marketing, finance, accounting, personnel, and labor relations; and the legal, ethical, technological, and human value environments of agricultural business.
- 1059. SPECIAL PROBLEMS.** (1 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1312f,s,su. AGRICULTURAL APPRAISAL.** (2 cr; 4 hrs per wk)
Three approaches to real estate value—cost, market, and earnings—are applied to the student's home farm. A fourth approach, debt servicing capacity, is explored. Local county offices provide information related to agricultural real estate.
- 1333f,s. PRINCIPLES OF FARM MANAGEMENT.** (3 cr; 4 hrs per wk)
Organization and operation of farm enterprises and the decision-making processes involved in establishing and operating a farm. Principles of production economics are applied to agriculture.
- 1343w. COOPERATIVE BUSINESS ORGANIZATION.** (3 cr; 4 hrs per wk)
Organization of the cooperative type of business enterprise, including history of the cooperative movement, philosophy of the cooperative business, and organizational structure of a cooperative.
- 1363f,w,s. AGRICULTURAL BUSINESS LAW.** (3 cr; 4 hrs per wk)
Basic legal principles involved in contracts, negotiable instruments, bailments, insurance, partnerships, corporations, real property, wills, and rural community relationships particularly applicable to farm and agribusinesses.
- 1443w. CREDIT AND COLLECTIONS.** (3 cr; 4 hrs per wk)
Nature of credit instruments, consumer credit, mercantile credit, credit agency reports, collection policies, bankruptcy and collection procedures. Emphasis on agricultural aspects of credit—corporate and individual.
- 1473f,s,su. SMALL BUSINESS MANAGEMENT.** (3 cr; 4 hrs per wk)
Management principles uniquely important to small business enterprise with emphasis on agricultural businesses related to student's interest. Focus on economic and social environment affecting the small firm; financing, marketing, business location, legal, and governmental influences will be studied from a practical viewpoint.
- 1513s. AGRICULTURAL SALES MANAGEMENT.** (3 cr; prereq 1013 or consent; 4 hrs per wk)
The management of personal selling, including activities such as recruiting, selecting, training, compensating, supervising, and motivating salespeople. Emphasis on the role of sales in business operations, territory management, and methods of problem solving for the customer.
- 1543f. TAX MANAGEMENT.** (3 cr; 4 hrs per wk)
Principles of tax management for farmers and agribusiness owners. Tax deductions and credits and adjustments to income, and how they affect tax liability.

- 1553f,w. PERSONNEL MANAGEMENT.** (3 cr; 4 hrs per wk)
Techniques and procedures of dealing with people in business organizations through effective personnel management, stressing philosophy, approach, point of view, and fundamental methods of personnel supervision.
- 1623w. AGRICULTURAL DISTRIBUTION SYSTEMS.** (3 cr; 4 hrs per wk)
The physical distribution process as it relates to agriculture with emphasis on the transportation phase. Transportation, inventory control, warehousing, order processing, packaging, material handling, containerization, and local analysis.
- 1631w. GETTING STARTED.** (1 cr; 2 hrs per wk)
Practical concepts and procedures for getting started in farming or agricultural or horticultural business. Goal setting and acquisition, control, and management of the resources needed to conduct a successful enterprise.
- 1633f,w. ADVANCED FARM MANAGEMENT.** (3 cr; prereq 1333, AgAc 1211, 1321, 1431, 1543 or 1565; 5 hrs per wk)
Use of computers and other modern management tools to plan for the total farm operation. Short and long term planning for land, labor, power, and enterprise and financial management. Alternatives analyzed by computer and organized into a practical management plan.
- 1652f,s. SEMINAR: AGRICULTURAL BUSINESS.** (2 cr; prereq sr major in AgBM; 3 hrs per wk)
Agricultural business management techniques researched, written about, and discussed by students. Designed to establish depth of understanding. Topics presented and evaluated by class members.
- 1716f,w,s,su. PRE-OCCUPATIONAL PREPARATION II.** (6 cr; prereq AgSc 1709; 12 hrs per wk)
Opportunity for an additional quarter in cooperative education to develop specific career competency at a level beyond POP I. Learning objectives will be developed by the instructor-counselor, student, employer, and pre-occupational preparation coordinator.

Agricultural Communications (AgCm)

- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1223f,w,s,su. INTRODUCTION TO PHOTOGRAPHY.** (3 cr; 4 hrs per wk)
Practice photography for visual communication. Fundamentals of photography, developing film, and printing black and white pictures. Use of photography for agricultural publications and news media.
- 1313s. AUDIOVISUAL TECHNIQUES.** (3 cr; 3 hrs per wk)
Lecture and laboratory work in the use of audiovisual equipment; production of materials and visuals; principles involved in effective presentations.
- 1333s. INTRODUCTION TO MASS COMMUNICATIONS.** (3 cr; 4 hrs per wk)
The functions and responsibilities of the mass media, especially as they relate to the agriculturally oriented producer and consumer; newspapers, magazines, books, broadcasting, films, advertising, and public relations.
- 1423s. ADVANCED PHOTOGRAPHY—PHOTOJOURNALISM.** (3 cr; 5 hrs per wk)
Advanced use of photography for agricultural publications and news media using darkroom techniques, and special projects.
- 1533w,su. AGRICULTURAL REPORTING.** (3 cr; prereq Comm 1103, 1203; 4 hrs per wk)
Practice in gathering and writing agricultural information appropriate for company news releases or for news stories in agricultural news sections of newspapers and bulletins.
- 1563f. AGRICULTURAL MAGAZINE/JOURNAL WRITING.** (3 cr; prereq Comm 1103, 1203; 4 hrs per wk)
Practice in researching, writing, and layout for periodical articles. At least one article will be submitted to an agricultural periodical for publication.
- 1663w. INTRODUCTION TO RADIO AND TELEVISION BROADCASTING.** (3 cr; 4 hrs per wk)
Principles of radio and television broadcasting techniques for the agriculturally oriented journalist. Exercises in production, scriptwriting, and performance, with practical experiences in UMW communication laboratories.

Agricultural Marketing (AgMk)

- 1053f,s. PRINCIPLES OF AGRICULTURAL MARKETING.** (3 cr; 4 hrs per wk)
Fundamentals of market organization, operation, techniques, problems, and policies within various channels for agricultural products, including practices in futures trading.
- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1253f,w,s,su. AGRICULTURAL SALESMANSHIP.** (3 cr; 4 hrs per wk)
The art of creative selling, utilizing the principles of human relations in creating values for a buyer. Fundamentals and techniques of successful selling; developing sales personality, and the selling cycle.

Description of Courses

- 1333f,s. ADVERTISING AND DISPLAYING MERCHANDISE.** (3 cr; 4 hrs per wk)
Planning, creation, and use of advertising related to the agricultural economy and marketing of agricultural products. Purposes of advertising and displaying of merchandise, methods of appeal, copy problems, layout, design problems, and selection of media. Practical applications will be demonstrated.
- 1353w. ADVANCED SALESMANSHIP.** (3 cr; prereq 1253; 4 hrs per wk)
Practical application through sales presentation of the principles of selling using videotape as a self-evaluation device. Emphasis on setting up sales program and actual selling through on-campus experience.
- 1373f,s. PRINCIPLES OF MERCHANDISING.** (3 cr; prereq 1053; 4 hrs per wk)
Careers and opportunities in agricultural marketing, retail operations, purchasing procedures, discounts and ordering policies, inventory control, budgeting, receiving, checking and marking merchandise.
- 1513w. PRINCIPLES OF INSURANCE.** (3 cr; 4 hrs per wk)
Developing and understanding insurance principles and practices; risks involved in retailing; buying insurance and handling insurance claims. Applications to agribusinesses.
- 1573f,w,su. ADVANCED AGRICULTURAL COMMODITY MARKETING.** (3 cr; prereq Econ 1013 or consent; 4 hrs per wk)
Principles of marketing applied to grain and livestock. Emphasis on techniques and timing of sales using different methods; development of individual market plan incorporating risk exposure, goals, and strategy.
- 1634s. AGRICULTURAL FINANCE.** (4 cr; 5 hrs per wk)
Credit, insurance, legislation, income tax and social security problems applied to the production of agricultural products; description and analysis of agricultural credit institutions and agencies. Emphasis on effective use of credit and credit instruments.

Agricultural Office Management (AgOM)

- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1113f,w,s,su. BEGINNING TYPEWRITING.** (3 cr; 5 hrs per wk)
Students develop ability to type accurately at a minimum of 35 words per minute; arrange letters, manuscripts, tabulations, and statistical reports in proper form; proofread; compose at the typewriter; and organize an efficient work station.
- 1172w. REPROGRAPHICS.** (2 cr; prereq 1113 or equiv; 3 hrs per wk)
Instruction and practice in use and operation of duplicating and photocopy equipment.
- 1213f. INTERMEDIATE TYPEWRITING.** (3 cr; prereq 1113 or equiv; 5 hrs per wk)
Development of basic typing skills and knowledge with emphasis of facility in producing letters, business reports, tabulations, business and legal forms; oriented to agricultural topics.
- 1252w,su. RECORDS MANAGEMENT.** (2 cr; 3 hrs per wk)
Records, filing systems, equipment and procedures used in filing and record keeping with applications on agricultural topics and businesses. Opportunity to develop personal records system.
- 1273f. BEGINNING SHORTHAND.** (3 cr; prereq 1113 or consent; offered alt yrs; 4 hrs per wk)
Principles of Gregg shorthand theory, stressing reading and writing ability that apply to types of agribusiness correspondence.
- 1333s. ADVANCED TYPEWRITING.** (3 cr; prereq 1213; 5 hrs per wk)
Refinement of typing skills, with continued emphasis on speed, in the production of various types of office typewriting; oriented to agricultural types and forms. Improvement of decision-making skills.
- 1354w. INTERMEDIATE SHORTHAND.** (4 cr; prereq 1273; offered alt yrs; 6 hrs per wk)
Continuation of 1273 with emphasis on development of speed in accurate reading and writing of Gregg shorthand by practicing types of agribusiness correspondence.
- 1382s. OFFICE MACHINE TRANSCRIPTION.** (2 cr; prereq 1113; 4 hrs per wk)
Operation and practice in use of transcription machines with emphasis on development of speed and facility in transcribing a variety of agribusiness correspondence; letters, interoffice memos, and telegrams. Includes unit on improving dictation techniques.
- 1454s. ADVANCED SHORTHAND AND TRANSCRIPTION.** (4 cr; prereq 1354; offered alt yrs; 6 hrs per wk)
Dictation and transcription in office style in simulated work situations. Emphasis on transcribing for mailability.
- 1564f. TRANSCRIPTION IN WORD PROCESSING.** (4 cr; prereq 1382, 1454; 6 hrs per wk)
Agricultural terminology in correspondence and its use in shorthand and office machine transcription; developing further competency in transcription skills and using electronic typewriting equipment.

- 1574s. OFFICE PROCEDURES AND SIMULATION.** (4 cr; prereq 1333 or consent; 6 hrs per wk)
Daily office operation. Topics include interviewing techniques, telephone techniques, filing systems, writing effective business letters, and introduction to word processing. Jobs created will provide a full cycle of work flow, from the request for service through recording, invoicing, posting, and receipt of payment. Orientation to the office conducted by the general manager.
- 1674w. OFFICE MANAGEMENT.** (4 cr; prereq consent; 6 hrs per wk)
Emphasis on the office manager's need to understand the role of technology and to refine her or his ability to work through and with people in order to manage the information function. Topics include word processing, telecommunications, staffing the office, the office environment, and office systems.

Agricultural Science (AgSc)

- 1011f,w,s,su. AGRICULTURAL ORIENTATION.** (1 cr; 2 hrs per wk)
The agricultural industries, their common bonds and individual differences; designed to acquaint students with agricultural opportunities and reinforce their knowledge about college programs and academic procedures.
- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field of agriculture, directed and adapted to any program area by appropriate members of the faculty.
- 1064f,s,su. PLANT PROTECTION.** (4 cr; 5 hrs per wk)
Introduction to the theory and practice of protecting plants from damage by diseases, animal pests, and adverse environmental conditions. Basic pest management concepts, including plant diseases; insect and related animals that attack plants; control methods; agricultural chemicals, their action, application techniques; safety; and laws that affect licensing and application.
- 1081s. INTRODUCTION TO AGRICULTURAL EDUCATION.** (1 cr; 2 hrs per wk)
Orientation to employment and service opportunities in agricultural education. An overview of agricultural education programs in Minnesota and the nation.
- 1554w. RESEARCH TECHNIQUES.** (4 cr; 5 hrs per wk)
Designed to prepare students for careers in research; basic terminology used by research personnel, experimental design, data collection, and simple statistical analyses. Each student must design and execute his or her own experiment, summarizing the data in the form of a technical paper.
- 1709f,w,s,su. PRE-OCCUPATIONAL PREPARATION I.** (12 cr; entails work equivalent to 1 quarter's time)
On-the-job internship experience or additional college laboratory or classroom experience designed to make the student more acceptable to industry within his or her chosen program or occupational emphasis.

Agronomy (Agro)

- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1153f,w,su. INTRODUCTION TO CROP SCIENCE.** (3 cr; 4 hrs per wk)
Introduction to the major agronomic crops of Minnesota and the world; their use, adaptation, identification, morphology, physiology, growth, and production. Current topics of agricultural interest such as world population and hunger.
- 1253f,s. FORAGE, PASTURE, AND GRASSLAND PRODUCTION.** (3 cr; 4 hrs per wk)
Economic management and cultural practices used in hay, haylage, silage, pasture, and range production; theories and practices relating to variety selection, seeding rates and mixtures, fertilization, establishment, weed control, and harvesting; identification of various grass and legume species common to the United States.
- 1362s,su. WEED IDENTIFICATION AND CONTROL.** (2 cr; prereq consent; 3 hrs per wk)
Identification of the most common cropland, garden, and turf weeds at all stages of growth; laboratory practice in identifying weed seeds and weed plants in both juvenile and adult stages of growth.
- 1383f,s,su. GRAIN CROP PRODUCTION.** (3 cr; prereq consent; 4 hrs per wk)
Economic management and cultural practices used in corn, soybean, wheat, oat, barley, rye, and sunflower production in Minnesota, plus an overview of other crops produced for grain such as navy beans and buckwheat, time permitting. Practices such as variety selection, seeding rate, fertilization, row spacing, seed treatment, weed control, growth regulation, harvesting, and storage.
- 1433w. GRAIN GRADING AND SEED ANALYSIS.** (3 cr; 5 hrs per wk)
Principles and practices used in grading grain, including the official U.S. standards for grain and factors that influence the quality of grain.

Description of Courses

- 1452s,su. CANNING CROP PRODUCTION.** (2 cr; 3 hrs per wk)
Principles and practices of growing and harvesting crops intended for processing (canning or freezing). Company/grower policies and responsibilities.
- 1652w. SEMINAR: AGRONOMY-SOILS.** (2 cr; 3 hrs per wk)
Presentation of current topics of agronomic interest by students and/or guest speakers. Designed to help students improve communication abilities and enhance knowledge in areas not adequately covered in other classes.

Animal Health Technology (AnHe)

- 1022f,su. INTRODUCTION TO ANIMAL HEALTH TECHNOLOGY.** (2 cr; 3 hrs per wk)
Introduction to the veterinary medical profession and the professional relationship between veterinarians and animal technicians. Opportunities for, duties of, laws governing, and ethics of animal technicians. Public and client relations. Medical terminology. Kennel management and animal handling. Telephone and radio communications.
- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1253f,w,s,su. LABORATORY ANIMAL CARE.** (3 cr; 5 hrs per wk)
Principles and practices of laboratory animal care. Information the student is expected to gather to prepare for American Association of Laboratory Animal Science (AALAS) certification.
- 1395w,s. CLINICAL ANATOMY AND PHYSIOLOGY.** (5 cr; prereq BiSc 1105, Chem 1105, 1224 or consent; 7 hrs per wk)
Comparative veterinary anatomy and physiology. Body systems and functions examined in their relationship to clinical medicine and surgery.
- 1424s,su. SURGICAL NURSING AND ANESTHESIOLOGY.** (4 cr; prereq 1395; 6 hrs per wk)
Presurgical preparation and postsurgical care of animals. Techniques involved in animal surgery, anesthesiology, euthanasia, dentistry, and equipment sterilization.
- 1442s,su. ANIMAL PARASITOLOGY.** (2 cr; prereq 1454, BiSc 1105, 1205, Chem 1105, 1224 or consent; 3 hrs per wk)
Classification of the common internal and external parasites of dogs, cats, cattle, sheep, swine, and horses. Laboratory procedures used for their identification. Drugs used in treatment.
- 1443s,su. PATHOGENIC MICROBIOLOGY.** (3 cr; prereq BiSc 1255; 5 hrs per wk)
Laboratory procedures and techniques used to isolate and identify pathogenic microorganisms from tissue, body fluids, and milk.
- 1454f,w. CLINICAL LABORATORY I.** (4 cr; prereq BiSc 1105; 6 hrs per wk)
Fundamentals of blood morphology and laboratory techniques concerned with the solid components of the blood.
- 1554w,s. CLINICAL LABORATORY II.** (4 cr; prereq 1454; 6 hrs per wk)
Detailed study of urinalysis, blood analysis, and blood chemistry with emphasis on colorimetric methods and techniques of kidney, liver, and other organ function tests. Record keeping and preparation of clinical laboratory specimens. Pregnancy and estrus determination. Semen evaluation.
- 1555f,su. ANIMAL DISEASES AND PHARMACOLOGY.** (5 cr; prereq 1443, 1454, 1554, Chem 1224 or consent; 7 hrs per wk)
The use of drugs and biologicals in the prevention and treatment of animal diseases. The organization of the veterinary pharmacy and dispensing of drugs in veterinary practice.
- 1573s,su. ANIMAL GROOMING.** (3 cr; 4 hrs per wk)
Grooming methods as they pertain to small animals. Identification of breeds of dogs and cats. Techniques of fitting and showing small animals for exhibition.
- 1593w,s. SMALL ANIMAL MEDICAL NURSING.** (3 cr; 4 hrs per wk)
Assisting in medical examination and treatment of small animals. Clinical symptoms of disease, vaccination procedures, drug administration, and preventive medicine. Care of medical cases and hospital record keeping.
- 1623f,w. RADIOLOGIC TECHNIQUES.** (3 cr; prereq BiSc 1105; 4 hrs per wk)
Physical principles of the X-ray. Identification of equipment including X-ray machine, film holders, cassettes, etc. Methods of developing, fixing, and drying radiographs. Positioning of the patient. Methods of film storage. Record keeping. Safety methods when using X-ray equipment.
- 1723f,w. LARGE ANIMAL MEDICAL NURSING.** (3 cr; 5 hrs per wk)
Restraint methods for large animals. Techniques involved in assisting the large animal veterinarian with vaccination, surgery, X-ray, and medical treatment procedures. Record keeping in large animal practice.
- 1742su. ZOO ANIMAL TECHNIQUES.** (2 cr; 3 hrs per wk)
Zoo construction, management of zoo animals, and new concepts of zoo animal care. Restraint and diseases of zoo animals.

- 1752f,w,s,su. **APPLIED CLINICAL LABORATORY.** (2 cr; prereq 1442, 1443, 1454, 1554 or consent; 3 hrs per wk)
Review of all techniques used in the clinical laboratory and conducting tests performed in a clinical veterinary practice.
- 1772f,w,s,su. **RADIOGRAPHIC ANATOMY.** (2 cr; prereq 1623; 3 hrs per wk)
Study of the anatomy of large and small animals radiographically. Detailed study of skeletal and soft tissue.

Animal Science (AnSc)

- 1053f,w,s,su. **INTRODUCTION TO ANIMAL SCIENCE.** (3 cr; 4 hrs per wk)
The animal industry with emphasis on consumption and production patterns; livestock and poultry terminology; characteristics of livestock; breeds of livestock; and fundamental concepts of animal nutrition, animal breeding, and livestock management. Will cover dairy and beef cattle, swine, sheep, horses, turkeys, and broiler and laying chickens.
1059. **SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1091f,w,s,su. **HORSE HUSBANDRY.** (1 cr; hrs ar)
Students feed and care for the college's light horses under a practical management situation. Students deal with a horse on a one-to-one basis as opposed to a herd situation. The experience simulates an on-the-job situation.
- 1122f,s. **LIVESTOCK EVALUATION.** (2 cr; 4 hrs per wk)
Comparative judging, grading, and selection of market and breeding classes of beef cattle, sheep, and swine. Type and performance testing stressed.
- 1192f,w,s,su. **FUNDAMENTALS OF RIDING.** (2 cr; 4 hrs per wk)
Introduction to the principles of horsemanship using hunt seat tack. The rider's role in horse control and movement. Includes fundamental dressage and forward seat riding techniques.
- 1193f,s. **LIGHT HORSE MANAGEMENT.** (3 cr; 4 hrs per wk)
The horse industry as a business in the United States and worldwide. Development of the breeds of horses and species used for work and recreation. Anatomy and physiology of the horse and their relationship to selection, breeding, feeding, and management practices.
- 1292f,w. **STABLE MANAGEMENT.** (2 cr; 3 hrs per wk)
Development of record systems and management calendars for various types of stables. Application of principles of selection, breeding, feeding, parasite control, and vaccination. Design and construction of stables and arenas. Legal aspects of the industry. Trailer selection and hauling practices.
- 1322f,s. **REPRODUCTIVE PHYSIOLOGY OF FARM ANIMALS.** (2 cr; 3 hrs per wk)
Reproductive physiology of farm animals including hormonal control, nutritional influences, reproductive diseases, reproductive failure, and general reproductive efficiency.
- 1332f,w,s,su. **ARTIFICIAL INSEMINATION.** (2 cr; block course between qtrs or 3 hrs per wk)
Theory and practice of artificial breeding. Includes management, nutritional, physiological, and genetic information necessary for a successful artificial insemination program.
- 1353f,w,su. **ANIMAL NUTRITION I—BASIC NUTRITION.** (3 cr; 4 hrs per wk)
Classification of and methods used to analyze major nutrients. Digestion, absorption, and metabolism of nutrients as they relate to maintenance, growth, reproduction, and production. Digestive systems of avian, monogastric, and ruminant animals used in agricultural operations.
- 1362w,s. **PRINCIPLES OF ANIMAL BREEDING.** (2 cr; prereq BiSc 1053 or consent; 3 hrs per wk)
Application of genetic principles to livestock improvement. Systems of selection, crossbreeding and inbreeding in farm animals. Use and value of performance testing.
- 1383f,s,su. **SWINE PRODUCTION AND MANAGEMENT.** (3 cr; prereq 1053, 1443, consent; 4 hrs per wk)
Production fundamentals and skills essential in the organization, operation, and management of swine enterprises. Principles of breeding, reproduction, feeding, marketing, and building and equipment requirements stressed.
- 1411f,s. **APPLIED BEEF BREEDING.** (1 cr; prereq 1362 or consent; 2 hrs per wk)
Application of genetic principles to improve beef cattle. Selection of and systems for mating beef cattle. Use of performance testing and record systems for more efficient management of the breeding program.
- 1421w,s. **APPLIED DAIRY BREEDING.** (1 cr; prereq 1362 or consent; 2 hrs per wk)
Application of genetic principles to improve dairy animals. Adjustment to achieve nongenetic effects, standardization of records for nongenetic effects, and selection for economic value. Progeny testing, bull selection, and cow selection for more efficient management of the breeding program.
- 1431s,su. **APPLIED HORSE BREEDING.** (1 cr; prereq 1362 or consent; 2 hrs per wk)
Application of genetic principles to improve horses. Selection of and systems for mating horses based on pedigree, show winnings, and performance. Use of records in breeding management.

Description of Courses

- 1441s. APPLIED SHEEP BREEDING.** (1 cr; prereq 1362 or consent; 2 hrs per wk)
Application of genetic principles to improve sheep. Selection of and systems for mating sheep. Use of performance testing for and management of the breeding program.
- 1443f,w,s,su. ANIMAL NUTRITION II—APPLIED NUTRITION.** (3 cr; prereq 1353 or consent; 4 hrs per wk)
Identification, classification, and simple use of feed nutrients; methods of preparing feed; relative values of common feeds, by-products, and feed additives for various classes of livestock.
- 1451f,s. APPLIED SWINE BREEDING.** (1 cr; prereq 1362 or consent; 2 hrs per wk)
Application of genetic principles to swine improvement. Adjustment to achieve nongenetic effects.
- 1471f,s. DAIRY CATTLE EVALUATION.** (1 cr; 2 hrs per wk)
Advanced techniques in selecting and evaluating dairy cattle; practical applications and integration of evaluative techniques with economical dairy management.
- 1473f,s. BEEF PRODUCTION AND MANAGEMENT.** (3 cr; prereq 1053 or consent; 4 hrs per wk)
Production fundamentals and skills essential in the organization, operation, and management of beef cattle enterprises. Principles of breeding, reproduction, feeding, marketing, and building and equipment requirements stressed.
- 1483w,su. MEAT AND LIVESTOCK PRODUCTS.** (3 cr; 5 hrs per wk)
Processes in evaluating and preparing meat and meat products. Marketing, humane slaughter, fabricating carcasses, and identifying retail meat cuts.
- 1491s,su. HORSE EVALUATION.** (1 cr; prereq 1193 or consent; 3 hrs per wk)
Evaluation of common breeds of horses based on conformation and performance. Proper presentation of reasons for evaluation.
- 1513f,w,s. DAIRY CATTLE PRODUCTION AND MANAGEMENT.** (3 cr; prereq 1053, 1362, 1443, consent; 4 hrs per wk)
Production fundamentals and skills essential in the organization, operation, and management of dairy enterprises. Principles of breeding, reproduction, feeding, marketing, and building and equipment requirements stressed.
- 1523w,su. INTRODUCTION TO ANIMAL DISEASES.** (3 cr; 4 hrs per wk)
Causes of animal diseases; their prevention and control. The relationship of animal health to human health, and the role of regulating agencies.
- 1563s. POULTRY PRODUCTION AND MANAGEMENT.** (3 cr; prereq 1053 or consent; 4 hrs per wk)
Production fundamentals and skills essential in the organization, operation, and management of poultry enterprises. Principles of breeding, reproduction, feeding, marketing, and building and equipment requirements stressed.
- 1583s. SHEEP PRODUCTION AND MANAGEMENT.** (3 cr; prereq 1053, 1362, 1443 or consent; 5 hrs per wk)
Production fundamentals and skills essential in the organization, operation, and management of sheep enterprises. Principles of breeding, reproduction, feeding, marketing, and building and equipment requirements stressed.
- 1591f,w,s,su. ADVANCED HORSE HUSBANDRY.** (1 cr; prereq 1091, 1292 or consent; hrs ar)
Experience in directing work of other students in care of college horses. Students determine nutritional programs of horses. Treatment for individual problems emphasized. Leg care emphasized.
- 1592f,w,s,su. WESTERN EQUITATION.** (2 cr; prereq 1192 or consent; 4 hrs per wk)
Instruction in developing the Western rider and Western pleasure horse. Balanced-seat approach stressed. Rider's role in controlling movement and action of the horse.
- 1593w,s. INTRODUCTION TO FARRIER SCIENCE.** (3 cr; prereq 1193 or consent; hrs ar)
Basic concepts of correct hoof trimming and preparation for shoeing. History and current status of farrier science. Foot and leg problems, and methods of correction through proper trimming or shoeing. Corrective shoes and how they function.
- 1612w,s. CURRENT ISSUES IN DAIRY MANAGEMENT.** (2 cr; prereq 1513 or consent; 3 hrs per wk)
Special topics dealing with areas of dairy science not covered in depth in other courses. A study survey and POP station experience will help instructor determine topics to cover. Course will be taken at end of students' UMW careers to help them be ready to enter industry upon graduation.
- 1623f,w,s,su. LIVESTOCK MANAGEMENT TECHNIQUES.** (3 cr; prereq 1053 or consent; 5 hrs per wk)
Management skills used in dairy and beef cattle, sheep, and swine production. Techniques include dehorning, docking, castration, vaccination, and back fat probing. Identification methods discussed, demonstrated, and practiced.
- 1682w,s. SEMINAR: ANIMAL SCIENCE.** (2 cr; prereq sr; 3 hrs per wk)
Current topics or problems vital to animal production of interest to senior students. Guest speakers, oral reports by students, and discussion sessions.
- 1692f,w,s,su. ADVANCED ENGLISH EQUITATION.** (2 cr; 4 hrs per wk)
Instruction in advanced techniques of hunt seat equitation. Introduction to jumping and dressage. Emphasis on refinement of aids and control.

- 1693f,s. YOUNG HORSE: CARE AND TRAINING.** (3 cr; prereq 1192, 1193, 1592 or consent; 5 hrs per wk)
Principles and practices in the care and training of the horse under three years of age; handling, training, grooming, fitting, and showing skills.
- 1723f,w,s,su. RIDING INSTRUCTOR TRAINING.** (3 cr; prereq 1192, 1592 or consent; 6 hrs per wk)
Theory and methodology of teaching equitation. Styles of teaching, psychology used with students, lesson plans, organization of instruction. Lab meets with AnSc 1192, Fundamental Riding Principles.
- 1772w,su. DEVELOPMENT OF THE RIDING-AGE HORSE.** (2 cr; prereq 1693 or consent; 4 hrs per wk)
Principles and practices in the care and training of the riding-age horse. Further development of horse handling, training, grooming, fitting, and showing skills. Proper methodology for introducing various types of bits and hackamores.
- 1792w,su. ADVANCED TRAINING OF THE YOUNG HORSE.** (2 cr; prereq 1693 or consent; 4 hrs per wk)
Advanced techniques in training young horses. Longeing, long lining, ground driving, and driving in harness with a two-wheeled cart.

Biological Sciences (BiSc)

- 1014s. PRINCIPLES OF BIOLOGY.** (4 cr; 5 hrs per wk)
Introduction to biological concepts of living organisms, both plant and animal.
- 1044f,w,su. GENERAL BIOLOGY I.** (4 cr; 6 hrs per wk)
Introduction to general concepts of biology; cell structure and functions, metabolic processes, anatomy and physiology of plants and animals with emphasis on those of agricultural importance, and classification systems.
- 1052s. MAN, AGRICULTURE, AND ENVIRONMENT.** (2 cr; 3 hrs per wk)
Fundamentals of human and occupational ecology as they relate to environmental quality, with emphasis on natural resources, agricultural pollution, and population problems.
- 1053f,w,s. GENERAL BIOLOGY II.** (3 cr; prereq 1044; 4 hrs per wk)
Introduction to general concepts of biology; plant and animal reproductive systems, patterns of development and basic genetics, ecological principles, and effects of human activities on the environment.
- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1105f,su. ANIMAL BIOLOGY I.** (5 cr; 7 hrs per wk)
Fundamental principles of animal biology; taxonomy and biology of the animal kingdom and the physiology and anatomy of animals, emphasizing those of agricultural importance.
- 1115f,w. PLANT BIOLOGY I.** (5 cr; 7 hrs per wk)
Fundamental principles of plant biology with emphasis on cytology, morphology, ecology, taxonomy, reproduction, and functional applications of cellular structure in roots, stems, leaves, and flowers.
- 1205f,w. ANIMAL BIOLOGY II.** (5 cr; prereq 1105; 7 hrs per wk)
Fundamental principles of animal biology; animal genetics, development and ecology of the animal kingdom.
- 1215f,w,s. PLANT BIOLOGY II.** (5 cr; prereq 1115; 7 hrs per wk)
Photosynthesis, respiration, nutrition, absorption, germination, flowering, inheritance, and growth in plants; emphasis on the influence of environment and growth regulators in controlling plant metabolism.
- 1255w,s. MICROBIOLOGY.** (5 cr; prereq 4 cr of biology; 7 hrs per wk)
The basic structure and function of microorganisms, including physiology, reproduction, classification, and control. Laboratory work includes staining, culturing, and identification procedures.
- 1411s. MICROSCOPY.** (1 cr; prereq 4 cr of biology; 2 hrs per wk)
Principles of technical microscopy including dark field, phase-contrast, fluorescence, and photomicrography, which are often used in laboratories for diagnostic purposes.
- 1552s. MICROTECHNIQUE.** (2 cr; prereq 4 cr of biology; offered alt yrs; 4 hrs per wk)
Preparation of microscope slides of animal tissue including whole mounts, with emphasis on fixation, tissue embedding, microtomy, and staining.

Chemistry (Chem)

- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1105f,w,s,su. TECHNICAL CHEMISTRY.** (5 cr; 7 hrs per wk)
Principles, laws, concepts, and measurements of chemistry, including atomic and molecular structure, solutions and reactions in solutions, and an introduction to organic chemistry and biochemistry.

Description of Courses

- 1224f,w,s. ORGANIC AND BIOCHEMISTRY.** (4 cr; prereq 1105; 6 hrs per wk)
Common classes of carbon compounds and the role of proteins, carbohydrates, enzymes, lipids, nucleic acids, and vitamins in living systems.
- 1374s. METHODS OF CHEMICAL ANALYSIS.** (4 cr; prereq 1105 or equiv; 6 hrs per wk)
Fundamental principles involved in sampling techniques, qualitative analysis, quantitative analysis, and instrumental methods of analysis. Laboratory work involves analyses commonly performed in agricultural, biological, and food laboratories.
- 1454s. FOOD CHEMISTRY.** (4 cr; prereq 1105, Food 1113 or consent; 6 hrs per wk)
Application of basic chemical principles of food systems, including those related to food composition, chemical reactions important in processing and storing food, and chemical analysis of food.

Communications (Comm)

- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1103f,w,s,su. INTRODUCTION TO COMMUNICATIONS.** (3 cr; 4 hrs per wk)
Practical applications of four communication skills: reading, writing, speaking, and listening.
- 1203f,w,s,su. INTRODUCTION TO TECHNICAL REPORTING.** (3 cr; prereq 1103 or consent; 4 hrs per wk)
Technical reporting skills applicable to agriculture, emphasizing clear, concise written and oral reports.
- 1303f,s. AGRIBUSINESS COMMUNICATIONS.** (3 cr; prereq 1103, 1203; 4 hrs per wk)
Application of reading, writing, speaking, and listening skills to agribusiness midmanagement and entrepreneur situations. Emphasis on practical business writing skills.
- 1473w. TECHNICAL REPORT WRITING.** (3 cr; prereq 1103, 1203; 4 hrs per wk)
Introduction to objective, informative writing designed to develop effective written communication skills for agricultural and agriculturally related industries.
- 1603f,w,s,su. SPEAKING SKILLS.** (3 cr; 4 hrs per wk)
For students in any major. Through emphasis on fundamental principles of public speaking and basic on-the-job speaking roles, students can gain confidence and effectiveness in personal and in job-related speaking situations.

Economics (Econ)

- 1013f,w,s,su. NATIONAL ECONOMIC ISSUES.** (3 cr; 4 hrs per wk)
Determinants of national income, employment, and price levels with attention to aggregate consumption, investment, and government.
- 1023f,w,su. PRODUCTION AND BUSINESS ECONOMICS.** (3 cr; 4 hrs per wk)
Economics of the firm; supply and demand analysis; theory of production, consumption, and distribution.
- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1103f,s. CONSUMER ECONOMICS.** (3 cr; 4 hrs per wk)
Designed for students interested in practical applications of the principles of economics; economics relating to tasks of personal money management in areas of credit, investment, insurance, income tax; consumer protection; and some selected types of purchasing.

Food Industry and Technology (Food)

- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1113f,su. INTRODUCTION TO THE FOOD INDUSTRY.** (3 cr; 4 hrs per wk)
Overview of the food industry including history and development, the changing nature of food, preservation techniques, quality and nutritional aspects, marketing, and distribution.
- 1204w. FOOD PRODUCT EVALUATION.** (4 cr; 6 hrs per wk)
Evaluation of food products found in today's marketplace. Quality control and assurance, measuring methods and instrumentation, sensory evaluation, and food safety. Evaluation of dairy products, fruits, vegetables, meats, poultry, and eggs.

- 1253s. FOOD PRODUCTS MARKETING.** (3 cr; prereq AgMk 1053 or consent; 4 hrs per wk)
Principles of and practices in distributing and marketing raw and processed food products through all channels to the consumer. Includes transportation, handling, storage, inventory, purchasing, sanitation, personnel, advertising, and display.
- 1322s. FOOD PRODUCT INSPECTION.** (2 cr; 3 hrs per wk)
Federal, state, and local food laws. Attributes of food quality and their importance in the marketplace. Inspection regulations for food processing plants. Relevant standards and grades of raw and processed food products.
- 1344f.su. FOOD PRESERVATION.** (4 cr; 6 hrs per wk)
Principles of food preservation and food engineering as they relate to freezing, canning, drying, and other processes. Modern methods of preparation, processing, and preservation and their effect on the characteristics of food and food production.
- 1413s. FOOD INDUSTRY OPERATIONS.** (3 cr; prereq 1113 or consent; 4 hrs per wk)
Weekly visits to food inspection laboratories, food processors, research institutions, food distribution centers, test kitchens, food markets, and other food related enterprises.
- 1432s. NUTRITION THROUGH THE LIFE CYCLE.** (2 cr; 3 hrs per wk)
Application of the principles of nutrition to meet the special requirements of growth, development, maintenance, and aging. The influence of various life stages and styles on diet and food patterns. Emphasis on professional education for nutritional care of various age groups.
- 1433f.su. FOOD AND FAMILY NUTRITION.** (3 cr; 4 hrs per wk)
Functions and interrelationships of various nutrients in the body; nutritional requirements during the life cycle; analysis of dietary intakes; individual and family food habits.
- 1523s. NEW PRODUCT DEVELOPMENT.** (3 cr; prereq 1343, 1533, Chem 1105 or consent; 4 hrs per wk)
Basic concepts in new product development; various aspects involved and contributions of many disciplines working together.
- 1533f. PACKAGING AND LABELING.** (3 cr; 4 hrs per wk)
The role of packaging and labeling as related to the food industry including rules and regulations, especially those of the Food and Drug Administration. Types of packaging materials and economic factors.
- 1573w.s. MILK AND DAIRY PRODUCTS.** (3 cr; 5 hrs per wk)
Marketing and pricing of milk. Quality control and the testing, manufacture, and evaluation of milk, cheese, ice cream, and other dairy products. Cleaning and sanitation.
- 1612w. FOOD INDUSTRY SEMINAR.** (2 cr; prereq sr, 9 cr in foods; 4 hrs per wk)
A weekly meeting to discuss aspects of the food industry, generally with off-campus industry leaders.
- 1645w. FOOD MICROBIOLOGY.** (5 cr; prereq BiSc 1255 or consent; 7 hrs per wk)
A continuing study of food product evaluation concepts. Use of statistics and informational data, including food marketing surveys.
- 1762f,w,s,su. FOOD INDUSTRY PROJECT.** (2 cr; 4 hrs per wk)
A directed study course involving a project of the student's choice. May include practical, applied training and study in such areas as dairy processing, food preservation, food analysis, food marketing, or other aspects of food industry. Progress reports, results, and conclusions presented weekly.

Home and Family Services (HFSc)

- 1052f. ORIENTATION TO FAMILY ENVIRONMENT.** (2 cr; 4 hrs per wk)
Study of the dynamics of marriage throughout various stages of life. Elements of positive relationships as well as problems and adjustments. Contemporary concerns of the family. Alternate life-styles.
- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1113f. TEXTILES.** (3 cr; 4 hrs per wk)
Characteristics, use, and care of materials, yarns, and finishes used in today's fabrics. Current trends and developments in textiles surveyed.
- 1123w. INTRODUCTION TO COMPETENCY BASED CHILD CARE.** (3 cr; 4 hrs per wk)
Perception of the responsibilities of the child care worker based on the child development associate credential award system. Fundamentals of portfolio development. Organization of classroom space and materials to meet requirements in setting up a learning environment.
- 1125f. DEVELOPMENT OF THE PRESCHOOL CHILD.** (5 cr; 7 hrs per wk)
Prenatal development and care. The social, emotional, physical, and intellectual development of the preschool child; emphasis on individual differences in development.

Description of Courses

- 1184f.s. INTRODUCTION TO GERONTOLOGY.** (4 cr; 6 hrs per wk)
Human physical, psychological, and social changes resulting from time-dependent factors. Emphasis on how these changes affect relationships within society.
- 1223s. ADMINISTRATION OF PRESCHOOL PROGRAMS.** (3 cr; prereq 1334; 4 hrs per wk)
Analysis of the process of administration and operation of a preschool program for optimum care and learning. Focuses on finances, space and equipment, staff management, enrollment, health, safety, and community relationships.
- 1233w. APPAREL AND ACCESSORY SELECTION.** (3 cr; 4 hrs per wk)
Selection, assortment planning, visual presentation, and selling knowledge of apparel and accessory merchandise for rural area department or specialty stores.
- 1254w. CLOTHING CONSTRUCTION.** (4 cr; 5 hrs per wk)
Fundamentals of fabric selection, construction techniques, and pattern alteration and fitting. Emphasis on new product and technique developments in the home sewing field.
- 1263w. INTRODUCTION TO FASHION-INFLUENCED INDUSTRIES.** (3 cr; 4 hrs per wk)
Retail merchandising of fashion-influenced products. Emphasis on career opportunities, related industries, and retail operations dealing with textiles, apparel, accessories, home furnishings, and household equipment.
- 1273w. CREATIVE ACTIVITIES FOR CHILDREN.** (3 cr; prereq 1125 or consent; 4 hrs per wk)
Planning and carrying out creative activities appropriate for young children in an early childhood program. Creative activities in the areas of art, music, drama, dramatic play, storytelling, social studies, cultural values, and physical activities.
- 1283w. CREATIVE ACTIVITIES FOR THE ELDERLY.** (3 cr; 4 hrs per wk)
Planning and carrying out creative and socialization activities appropriate for elderly persons within a nonmedical program. Emphasis on skills to achieve individual physiological and psychological changes.
- 1303f,w,s,su. FIRST AID AND EMERGENCY CARE.** (3 cr; 5 hrs per wk)
A 55-hour first aid course to teach the why and how of emergency care. Includes cardiopulmonary resuscitation, emergency childbirth, extrication from vehicles and farm machinery, and management of chemical drug abuse problems.
- 1323s. HOME FURNISHINGS.** (3 cr; 4 hrs per wk)
Selection of furnishings for the home with attention to function, cost, quality, aesthetics, and personality. Emphasis on furniture, floor coverings, wall coverings, window treatments, household linens, and table appointments.
- 1334w.s. PRACTICUM: DEVELOPMENT OF THE PRESCHOOL CHILD.** (4 cr; prereq consent; 5 hrs per wk)
Applying principles of human growth and development to personal interaction with children of preschool age using basic guidance techniques. Focuses on staff members and their roles in a child care center as well as the effect that the curriculum and classroom environment have on a child's learning and behavior.
- 1363su. TEACHER-PARENT INTERACTION.** (3 cr; 4 hrs per wk)
Philosophy of and techniques for working with parents of young children. Philosophy of and techniques for communicating with parents of young children. Parent interviews. Development of file on community and parent resources for center based preschool program.
- 1373f,su. COGNITIVE ACTIVITIES FOR CHILDREN.** (3 cr; 4 hrs per wk)
Planning and carrying out cognitive activities appropriate for young children in an early childhood program. Cognitive activities in the areas of language development, literature, woodworking, prereading, science, mathematics, and outdoor activities.
- 1384s. PRACTICUM—SERVICES FOR THE RURAL ELDERLY.** (4 cr; prereq 1184; 6 hrs per wk)
Students interact with older adults through and in cooperation with outside agencies. Application of knowledge of various aspects of the aging process in development of skills needed for working with the elderly. Public laws, services, and resources that affect this age group.
- 1401s. LICENSING REGULATIONS FOR PRESCHOOL PROGRAMS.** (1 cr; 2 hrs per wk)
Current licensing regulations and interpretations of those regulations in effect for family day care, day care, and nursery school programs.
- 1403f,su. SEWING FOR THE HOME.** (3 cr; prereq 1254 or consent; 4 hrs per wk)
Creativity in the use of fabrics in home furnishings. Emphasis on design and construction techniques for decorative accessories for the home. Practical application creating individual projects. Elementary construction knowledge and experience required.
- 1453f. HOME MANAGEMENT.** (3 cr; 4 hrs per wk)
Individual and family values, goals, and standards and their impact on decision making. Analysis of family resources, budgeting, and energy and their relationship to the special needs of families.
- 1482w,su. HEALTH AND RECREATION FOR THE ELDERLY.** (2 cr; 3 hrs per wk)
The administration of a recreation program, program planning, recreational resources, activities, and adaptation of activities for all groups. Emphasis on practical experience with methods and rules of games, tournaments, and activities.

- ▶ **1563w,su. INTERIOR DECORATING.** (3 cr; 4 hrs per wk)
Elements and principles of design as applied to decoration of living spaces. Emphasis on organization of floor plans and current trends in interior decorating. Creative selection of appropriate home furnishings and small accessories. Individual and family needs considered.
- ▶ **1634f,su. FAMILY FOOD MANAGEMENT AND PREPARATION.** (4 cr; 5 hrs per wk)
Development of techniques for and application of basic scientific principles to food preparation; standards of evaluation for food products. Fundamentals of menu planning, food purchase, safe preparation, and meal service with emphasis on foods for young children and for the elderly.
- ▶ **1642s. EQUIPMENT IN THE HOME.** (2 cr; 3 hrs per wk)
Selection and use of large and small household appliances. Comparative study of appliances currently available on the market. Demonstration of techniques in the operation, use, and care of appliances.
- ▶ **1653w. THE EXCEPTIONAL INDIVIDUAL.** (3 cr; 4 hrs per wk)
A study of the handicapped and gifted individual with emphasis on relating to and planning appropriate activities and tasks for exceptional individuals. Areas of exceptionality and mental retardation, learning disabilities, visual and auditory handicaps, physical and emotional handicaps, and problems of the aging.
- ▶ **1663s. TECHNIQUES IN TEACHING EXCEPTIONAL CHILDREN.** (3 cr; prereq 1653; 4 hrs per wk)
Curriculum methods and materials used in the education of exceptional preschool children. Practical application of that knowledge in laboratory setting working with exceptional children.
- ▶ **1672w,s. SEMINAR: HOME AND FAMILY SERVICES.** (2 cr; prereq sr or consent; 3 hrs per wk)
Study of selected topics of interest. Emphasis on literature review, discussion, research, and oral presentations.
- ▶ **1693s. MERCHANDISING TECHNOLOGY.** (3 cr; prereq consent; 4 hrs per wk)
In-depth study of retail merchandising of fashion-influenced products. Emphasis on terminology, merchandise planning, inventory, stock control, major fashion markets in the United States, and the fashion buyer's role and responsibilities.

Horticulture (Hort)

- ▶ **1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- ▶ **1113f,w,su. INTRODUCTORY HORTICULTURE.** (3 cr; 4 hrs per wk)
Survey of field of horticulture: environmental considerations, types of operations, planting, propagation, cultivation, pruning, protection, harvesting, and selection of plant materials; development and maintenance of horticultural grounds.
- ▶ **1232f,su. BASIC FLOWER ARRANGEMENT AND FLORAL DESIGN.** (2 cr; prereq consent; 4 hrs per wk)
Types of flowers and related materials used in commercial flower shops and principles of designing these materials in a pleasing and appealing manner.
- ▶ **1253w,su. GREENHOUSE OPERATIONS.** (3 cr; 5 hrs per wk)
Fundamentals of greenhouse construction and management, and environmental controls such as heat, ventilation, light, water, and gases. Soils and fertilizing practices used in greenhouses, various agricultural chemicals.
- ▶ **1263s,su. VEGETABLE PRODUCTION.** (3 cr; 4 hrs per wk)
Identification, culture, and management of major vegetable crops grown in Minnesota. Emphasis on the home garden, but some treatment of commercial production and marketing.
- ▶ **1272s,su. FRUIT PRODUCTION.** (2 cr; 3 hrs per wk)
The major fruit crops produced in Minnesota and their cultural requirements. Emphasis on home fruit production, but some treatment of commercial production and marketing.
- ▶ **1313s. HOME HORTICULTURE.** (3 cr; 4 hrs per wk)
Horticulture as related to the home consumer point of view. Arrangement of garden flowers for home use. Purchase, growth, maintenance, and care of plants. How plants respond to various environmental conditions. Course does not count toward graduation for horticultural technology students.
- ▶ **1323f,s. WOODY PLANT MATERIALS.** (3 cr; 4 hrs per wk)
Identification, adaptation, cultural characteristics, and use of trees, shrubs, vines, and common landscape plants suitable for Minnesota.
- ▶ **1332f,s,su. ANNUALS AND PERENNIALS.** (2 cr; 3 hrs per wk)
Identification, description, uses, cultural requirements, and adaptability of nonwoody ornamental plants with emphasis on annuals and seasonally flowering perennials and bulbs.
- ▶ **1341w. CUT FLOWERS AND GREENS.** (1 cr; 2 hrs per wk)
Identification, marketable units, uses, and characteristics of major cut flowers and greens used in the retail flower industry.

Description of Courses

- 1343f,w,s,su. PLANT PROPAGATION.** (3 cr; prereq BiSc 1115, 1215; 5 hrs per wk)
Principles and practices involved in propagation of plants through seeds, cuttings, grafts, layers, and divisions.
- 1352f,w. FOLIAGE AND FLOWERING POT PLANTS.** (2 cr; 3 hrs per wk)
Identification, description, uses, aesthetic qualities, environmental requirements, and adaptability of selected indoor ornamental foliage and flowering plants.
- 1372f,su. ARBORICULTURE.** (2 cr; prereq 1443; 4 hrs per wk)
Care and maintenance of trees. Emphasis on the commercial aspects of tree maintenance including cavity treatment, branching and cabling, fertilizing, diagnosing tree problems.
- 1413f,w,su. ADVANCED FLORAL DESIGN.** (3 cr; prereq 1232; 5 hrs per wk)
Theory and practice of designing and constructing wreaths, sprays, corsages, bouquets, and other arrangements for special functions.
- 1421s. WILD FLOWERS.** (1 cr; 2 hrs per wk)
Identification, cultural requirements, use in landscaping, and legal restrictions of wild flowers commonly found in Minnesota.
- 1443f,s,su. LANDSCAPE MAINTENANCE.** (2 cr; 4 hrs per wk)
Principles and practices in landscape maintenance including basic shrub, tree, and turf care; care of annuals, perennials, vines, and ground covers including edging, watering, mulching, fertilizing, and weed, insect, and disease control.
- 1513f,su. FLOWER PRODUCTION.** (3 cr; prereq consent; 4 hrs per wk)
Identification, culture, and management of major cut flower, bedding, and pot plants utilized in a florist business, including foliage plants, bulbs, and house plants.
- 1524w,su. HORTICULTURAL RETAIL MANAGEMENT.** (1-4 cr; prereq 1413, AgBM 1473 or consent; 2-6 hrs per wk)
Management problems and decisions in retailing horticultural goods and products. Planning and operating a retail enterprise with emphasis on retailing practices with living plant material. Students may register concurrently for or take later one or both of two labs that emphasize retail floriculture and garden center management.
- 1533w. MINOR FLORAL CROPS.** (3 cr; 4 hrs per wk)
Cultural requirements, management practices, and marketing habits of cut flowers and potted plants not covered in Hort 1513.
- 1554f,w. LANDSCAPE PLANNING.** (4 cr; prereq 1323, MeAg 1024; 6 hrs per wk)
Fundamentals of landscape theory including organization of space, complementary shapes and forms, site analysis, and the relationship of structure, texture, and colors in the landscape; includes study of ornamentals and their environmental requirements.
- 1613w. COMMERCIAL FLORICULTURE MANAGEMENT.** (3 cr; prereq 1513; 4 hrs per wk)
Emphasis on planning and management of floriculture crops in order to produce a profit. Marketing techniques used by the industry and supply and demand for various floriculture crops.
- 1621su. ADVANCED WOODY PLANT MATERIALS.** (1 cr; prereq 1323 or consent; 2 hrs per wk)
Identification, culture, and use of woody plant materials and cultivars beyond the scope of Hort 1323. Designed to help students make better decisions for using woody plants in a landscape setting.
- 1634s,su. LANDSCAPE CONSTRUCTION.** (4 cr; prereq 1554 or consent; 6 hrs per wk)
Practical assignments in planning and developing landscape sites. Drawing, sketching, introductory techniques of surveying, and ground preparation; construction of formal and informal landscape carrels.
- 1643s,su. TURF MANAGEMENT.** (3 cr; prereq 1443; 5 hrs per wk)
Theory and practical application of principles in care and maintenance of turf; grass types, irrigation, fertilizers, diseases, insects, weed control, and turf equipment.
- 1651f,w,s. HORTICULTURAL SEMINAR.** (1 cr; 2 hrs per wk)
Research presentation and seminar discussion of current horticultural topics by students, faculty members, and guest lecturers. Students will help faculty design and develop course content.
- 1662w. ADVANCED LANDSCAPE PLANNING.** (2 cr; 4 hrs per wk)
Advanced landscape design. Includes basic architectural and graphic techniques. Guest lecturers will offer critique of various design techniques.
- 1673w. GROUNDS MANAGEMENT.** (3 cr; prereq 1372, 1443, 1643; 4 hrs per wk)
Management principles necessary to operate a grounds maintenance program. Emphasis on integration of available resources, including land, labor, budget, and personnel, in a workable management program.
- 1674f,s. NURSERY OPERATIONS AND MANAGEMENT.** (4 cr; prereq 1343, AgBM 1473, Soil 1054 or consent; 7 hrs per wk)
Techniques and practices used in planning, propagating, planting, and growing commercial nursery crops. Scheduling nursery layout, containerization, and management decision making emphasized.

Humanities (Humn)

- 1313f.s. INTRODUCTION TO HUMANITIES.** (3 cr; 4 hrs per wk)
Human values and aspirations as revealed in art, including literature and the performing arts.
- 1423f,w,s,u. HUMANITIES—SPECIAL PROBLEMS.** (3 cr; 4 hrs per wk)
Topics course that investigates special areas in the humanities, such as theater or music, or particular problems relevant to the humanities, such as the individual and nature.
- 1533w. HUMANITIES OF THE MODERN ERA.** (3 cr; 4 hrs per wk)
Study of 20th-century arts as they exemplify values of rural America. Includes American architecture and background of popular and country music.

Learning Skills (LeSk)

- 1011f,w,s,su. BASIC MATHEMATICAL SKILLS.** (1 cr; 2 hrs per wk)
Development of basic mathematical skills—addition, subtraction, multiplication, and division of whole numbers, common fractions, decimals, percentages, and measurements.
- 1021f,w,s,su. READING AND STUDY SKILLS.** (1 cr; 2 hrs per wk)
Improvement of reading speed and comprehension; correction of faulty reading habits; application of reading skills to textbook materials. Improvement of other study skills essential to college success.
- 1031f,w,s,su. WRITING IMPROVEMENT.** (1 cr; 2 hrs per wk)
Fundamentals of written composition; grammatical structure, punctuation, and word usage.
- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.

Mathematics (Math)

- 1013w,su. ELEMENTARY ALGEBRA.** (3 cr; 4 hrs per wk)
Basic algebraic processes for students without a background in algebra. Basic operations with rational numbers, linear equations, and inequalities; polynomials, factoring; introduction to systems of equations, fractional expressions, and equations; radical notation; and quadratic equations.
- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1063f,w,s,su. APPLIED MATHEMATICS.** (3 cr; 4 hrs per wk)
An independent study and self-paced progress course. Practical application of the mathematics of whole numbers, common and decimal fractions, percentages, ratios and proportions, algebraic expressions, equation solving, geometric figures, measurement, graphs and statistics, banking, and interest. Applications to problems designed for the student's own area of specialization.
- 1254f,s. COLLEGE ALGEBRA.** (4 cr; prereq 1013 or equiv; 5 hrs per wk)
Advanced algebra. Includes a review of the number system and algebraic expressions; linear equations and inequalities; exponents; complex numbers; quadratic and fractional equations; graphic representation of functions; systems of equations and inequalities, sequences, variation; permutations, combinations, and probability.

Mechanized Agriculture (MeAg)

- 1012w,su. BASIC ARC WELDING.** (2 cr; 3 hrs per wk)
Selection and care of arc welding supplies and equipment. Basic arc welding techniques including working with steel and cast iron, brazing, hard surfacing; operation of wire feed welders. Identification and characteristics of metals and electrodes.
- 1022f,s. BASIC OXYACETYLENE WELDING.** (2 cr; 3 hrs per wk)
Selection and care of oxyacetylene supplies and equipment. Basic oxyacetylene theory and practice in welding steel and cast iron, brazing, hard-surfacing, cutting, and heliarc welding aluminum.
- 1024f,w,s,su. TECHNICAL DRAWING.** (4 cr; 6 hrs per wk)
Drafting instruments and their use; lettering, drafting symbols, sketching, tracing, and reproductions, beginning drafting and orthographic projection, isometric and one- and two-point perspective drawings, planning and interpretation of drawings.

Description of Courses

- 1032w,su. PRINCIPLES OF EQUIPMENT MAINTENANCE.** (2 cr; 4 hrs per wk)
Development of equipment maintenance programs and service scheduling for mechanical systems and equipment. Practical application of safe techniques for maintaining belts, chains, bearings, seals, tires, and tracks, and operating engines and hydraulic and transmission systems as specified by equipment manufacturer operator's manual.
- 1043f,w,s,su. AGRICULTURAL METALS AND WELDING.** (3 cr; 5 hrs per wk)
Identification and characteristics of metals used in farm machinery; practical arts and skills of metal fabrication, including arc, acetylene, TIG and wire feed welding; applications of heat treatment of metals.
- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1083w,su. FUNDAMENTALS OF POWER AND AIR-COOLED ENGINES.** (3 cr; 5 hrs per wk)
Principles and theory of internal combustion engines. Practical applications of disassembly, overhaul, and assembly of major types of small air-cooled engines.
- 1234f,s. FUNDAMENTALS OF BUILDING CONSTRUCTION.** (4 cr; 6 hrs per wk)
Selection, care, and safe use of hand and power tools for construction. Construction methods and materials in concrete and masonry, wood framing and finishing, surface finishes, and preservation. Basic plumbing and pipe fitting and applied electrical wiring construction and materials selection.
- 1253w,su. AGRICULTURAL ELECTRICAL EQUIPMENT.** (3 cr; 4 hrs per wk)
Elementary theory of electricity, electromagnetism, power transmission circuits and testing instruments. Electric motors, electrical controls, materials, regulation, and the application of electrical devices.
- 1333f,s. AGRICULTURAL MACHINERY.** (3 cr; 5 hrs per wk)
Machinery components, maintenance procedures, and proper operation and adjustment of field machinery used in crop production. Fundamental principles of machinery selection.
- 1374w,s. AGRICULTURAL STRUCTURES AND ENVIRONMENT.** (4 cr; prereq Math 1063 or consent; 6 hrs per wk)
Design of farm service buildings, farmstead layouts, building sizes, and construction details; analysis of materials used, heating, ventilation, and light control as related to environmental control in livestock buildings.
- 1404f,su. FUNDAMENTALS OF SURVEYING.** (4 cr; prereq Math 1063 or consent; 6 hrs per wk)
Principles and theory of surveying; care and use of surveying equipment; measurement of distances, elevations, angles, and directions; contours, field notes, and calculation methods.
- 1412f. AGRICULTURAL FUELS AND LUBRICANTS.** (2 cr; 3 hrs per wk)
Refining, production, transportation, and storage of petroleum products used in agriculture. Emphasis on gasoline, liquid petroleum, diesel fuel, and oil production and their application to agricultural power units.
- 1443f,s,su. AGRICULTURAL GASOLINE POWER MECHANICS AND MAINTENANCE.** (3 cr; 5 hrs per wk)
Operation, design, and selection of farm power units for modern agricultural production; preventive maintenance, adjusting, diagnostic, and servicing techniques for various tractor power units.
- 1453w,s. AGRICULTURAL DIESEL POWER MECHANICS AND MAINTENANCE.** (3 cr; 5 hrs per wk)
Operation, design, and selection of diesel farm power units for modern agricultural production; preventive maintenance, testing, and adjusting.
- 1523w. BASIC HYDRAULICS.** (3 cr; 4 hrs per wk)
Fundamental principles of hydraulics, fluid power components and their design, application, operation, and maintenance; use of hydraulic systems in controlling agricultural and light industrial equipment.
- 1543w,su. AGRICULTURAL WASTE MANAGEMENT.** (3 cr; prereq Math 1063 or consent; 3 hrs per wk)
Fundamental principles of managing agricultural waste products. Federal, state, and local regulations governing land, air, and water pollution. Emphasis on the physical, biological, and chemical characteristics and effects of agricultural waste products. Design of waste facilities, equipment, and techniques.
- 1633f. ADVANCED AGRICULTURAL MACHINERY.** (3 cr; 5 hrs per wk)
Fundamental principles of applied mathematics and physics in agricultural machinery industries; design, testing, fabrication, and quality control techniques. Establishment and operation of parts inventory systems and their management by hand and computer.
- 1664f,s. AGRICULTURAL PRODUCTS HANDLING.** (4 cr; prereq Math 1063 or consent; 5 hrs per wk)
Principles of design and layout of mechanized systems in agriculture with regard to effective use of the basic theories of materials flow. Systems and equipment used in the movement of grain in storage and drying systems, processed feeds and forages, fertilizer products.

Physical Education (PhEd)

Physical education courses offer skills and knowledge designed to allow the student to live a physically sound life and enjoy leisure time recreation. Through physical education courses, an individual has the opportunity to learn to perform efficiently the motor skills he or she needs in everyday living and in recreational activities.

Physical education is the study and practice of the science and art of human movement. It is concerned with why and how men and women move and with the physiological, sociological, and psychological consequences of their movement.

Students in all programs are required to complete two credits of physical education courses (each course carries one-half credit and is offered for one-half of the quarter) and may select an additional two credits as elective courses.

- 1101f,w,s,su. ARCHERY—BEGINNING.** (½ cr; 1 hr per wk)
Designed for the beginning archer. The history and techniques of archery; rules of competition and terminology; development of skills.
- 1111f,w,s,su. BADMINTON.** (½ cr; 1 hr per wk)
Designed for the beginning player. The history, techniques, and strategy of badminton; rules and terminology; development of skills. Designed to aid the student in becoming an efficient player.
- 1121f,w,s,su. BOWLING.** (½ cr; 1 hr per wk)
Designed for the beginning bowler. Rules, terminology, bowling techniques, and scoring stressed.
- 1131s,su. CANOEING.** (½ cr; 1 hr per wk)
Designed for the beginning canoeist. Terminology, history, strokes, safety, turns, and apparatus stressed. Most sessions held at Loon Lake.
- 1141f,w. SOCIAL DANCE.** (½ cr; 2 hrs per wk)
Designed for the student interested in learning the fundamentals of social dance.
- 1151s. EXERCISE FOR LIFE.** (½ cr; 1 hr per wk)
Designed for the student interested in a continuing program of cardiorespiratory fitness. Consists of activities of aerobic nature such as jogging, cycling, swimming, tennis, badminton, rope skipping, and many others. Facilities and some equipment furnished by UMW.
- 1161f,w. BEGINNING GOLF.** (½ cr; 2 hrs per wk)
Designed for the student who has had no or little exposure to golf. Terminology, history, rules, etiquette, safety, and fundamentals of grip, stance, and address and swing of clubs, woods, irons, and putter stressed. Sessions in gymnasium or on range.
- 1181f,w,s,su. SWIMMING—BEGINNING.** (½ cr; 1 hr per wk)
Adaptation of balance, rhythmic breathing, and breath control under pressure. Application of buoyancy and controlled action for locomotion in the water.
- 1191f,w,s,su. SWIMMING—INTERMEDIATE.** (½ cr; prereq 1181; 1 hr per wk)
Designed to help the novice or advanced beginner increase proficiency to the minimum ability level for an intermediate swimmer specified by the American Red Cross.
- 1201w,su. SWIMMING—ADVANCED.** (½ cr; prereq 1191; 1 hr per wk)
Designed to help the student acquire the minimum ability level for an advanced swimmer specified by the American Red Cross. Includes leg and arm stroke, and diving and complete coordination of breast, side, crawl, and back crawl strokes to minimum distance of 100 yards.
- 1211s,su. SOFTBALL.** (½ cr; 1 hr per wk)
Designed for the beginning player. The history, rules, terminology, and techniques of softball; development of skills. Individual and team drills are designed to aid the student in becoming a more efficient player.
- 1221f,s,su. TENNIS—BEGINNING.** (½ cr; 1 hr per wk)
Designed for the beginning player. Emphasis on the forehand, backhand, and serve, and on tennis rules and terminology.
- 1231f,s,su. TENNIS—INTERMEDIATE.** (½ cr; prereq 1221; 1 hr per wk)
Designed for the intermediate player. The lob, volley, and overhead, and strategy and the finer points of the game stressed.
- 1241w. POWER VOLLEYBALL.** (½ cr; 2 hrs per wk)
Designed for the beginning player. The history, techniques, and strategy of power volleyball; rules and terminology; development of skills. Individual and team drills are designed to aid the student in becoming a more efficient player.
- 1251f,w,s,su. INTERMEDIATE ARCHERY.** (½ cr; prereq 1101; 1 hr per wk)
Designed for the student who has successfully completed PhEd 1101 or who can demonstrate basic archery competency at 10, 15, 20, and 25 yards. Refinement of basic skills and introduction to freestyle shooting. Review of rules and terminology.
- 1261f,w. PADDLEBALL.** (½ cr; 2 hrs per wk)
Body control and eye-hand coordination. Rules, terminology, strokes, serves, and strategy stressed.
- 1271f,s. INTERMEDIATE GOLF.** (½ cr; prereq 1161; 2 hrs per wk)
Designed for the student who has had some experience with golf. Various stances, special shots, stroke and match play, handicapping, correction, and actual play.

Description of Courses

- 1281w. SENIOR LIFESAVING.** (1 cr; prereq consent; 2 hrs per wk)
Designed to provide the student with the knowledge and skills needed to save the life of another in an emergency. Satisfies the hours of instruction required for senior lifesaving certification by the American Red Cross. Not intended to be a complete lifeguard training course.
- 1291w. CROSS-COUNTRY SKIING.** (½ cr; 1 hr per wk)
Designed for the beginning cross-country skier. Equipment selection, waxing techniques, and clothing essential for comfort. Emphasis on practicing and studying various methods of locomotion through snow. Sessions use UMW terrain and local ski areas.
- 1301w. BEGINNING DOWNHILL SKIING.** (½ cr; 1 hr per wk)
Basic techniques, equipment selection, safety, and skills. Sessions at local ski areas.
- 1341w. SQUARE DANCE.** (½ cr; 1 hr per wk)
Designed for the student interested in learning the fundamentals of contemporary square dance. A few line and circle dances will also be taught.
- 1441f,w. DISCO DANCE.** (½ cr; 1 hr per wk)
Designed for the student who enjoys the unstructured and creative style of dance to music that has a distinct beat and a lively tempo.
- 1541w,s. AEROBIC DANCE/SLIMNASTICS.** (½ cr; 1 hr per wk)
Designed for the student interested in developing body tone and physical fitness as well as cardiovascular efficiency and endurance.
- 1641s. CREATIVE DANCE.** (½ cr; 1 hr per wk)
Designed to acquaint the student with a variety of body movement experiences and how to combine them into a dance pattern. Various modern dance patterns.

Physics (Phys)

- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1104w. TECHNICAL PHYSICS.** (4 cr; prereq Math 1063; 6 hrs per wk)
Basic principles of physics dealing with measurement, mechanics of solids and fluids, force, work, energy, power and machines; temperature, heat, thermal expansion, gas laws and change of state.

Psychology (Psyc)

- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1114f,w,s,su. GENERAL PSYCHOLOGY.** (4 cr; 5 hrs per wk)
Basic methods and points of view involved in the scientific study of psychology; child and personality development, learning, perception, motivation, emotion, and social behavior; emphasis on practical application of theory.

Social Science (SocS)

- 1013s. AMERICAN INSTITUTIONS.** (3 cr; 4 hrs per wk)
Survey of cultural, social, political, and economic institutions and their impact on development of our nation.
- 1053f,s,su. RURAL SOCIOLOGY.** (3 cr; 4 hrs per wk)
Structure, function, and change in rural areas with emphasis on value orientations, institutions, political groups, and their function in rural communities.
- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1173f. AMERICAN GOVERNMENT.** (3 cr; 4 hrs per wk)
Processes and concepts within the broad scope of America's national government.
- 1273w,s. PRINCIPLES OF LEADERSHIP AND PUBLIC RELATIONS.** (3 cr; 4 hrs per wk)
The organization and structure of leadership, parliamentary procedure, and public relations.
- 1303w. MAJOR CURRENTS IN AMERICAN HISTORY.** (3 cr; 4 hrs per wk)
Major issues and events that have shaped our nation with emphasis on their effect on modern American society and on the history of agriculture.

Soil Science (Soil)

- 1054f,w,s,su. SOIL SCIENCE.** (4 cr; prereq Chem 1105 or consent; 5 hrs per wk)
Introduction to the physical and chemical properties of the soil system. Emphasis on functions of the soil as a medium to support plant life under varying biological, chemical, and physical conditions.
- 1059. SPECIAL PROBLEMS.** (1-3 cr; hrs ar)
Individual study in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.
- 1222f. SOIL AND PLANT TESTING.** (2 cr; 3 hrs per wk)
Sampling and preparation of soil and plant material, analysis of soil and plant material in order to generate data for making recommendations, and understanding the basic research needed in making recommendations.
- 1251s. SOIL AND LAND EVALUATION.** (1 cr; prereq 1054; 2 hrs per wk)
Field instruction in important properties of soil and land that lead to land capability ratings, and management practices needed. Elementary soil genesis and classifications.
- 1331w. FERTILIZERS.** (1 cr; prereq consent; 2 hrs per wk)
Differences in the chemical and physical properties of solid, liquid, and gaseous fertilizers and other soil amendments as related to handling, formulation, and usage.
- 1333w,su. SOIL FERTILITY.** (3 cr; prereq 1054 or consent; 4 hrs per wk)
Principles involved in supplying essential elements for growing plants; effects of other growth factors; nutrient requirements of plants; deficiency symptoms; methods of application and economics of fertilizers, amendments.
- 1553f,s. SOIL CONSERVATION AND WATER MANAGEMENT.** (3 cr; prereq 1054, Math 1063; 4 hrs per wk)
Principles of conservation and use of soil and water resources. Practical applications of surveying to open and tile drainage systems, contouring, farm ponds, terraces, and conservation planning.
- 1643f,s,su. AGRICULTURAL CHEMICALS.** (3 cr; prereq Chem 1105 or consent; 4 hrs per wk)
Types, properties, production, usage, and safety of herbicides, insecticides, fungicides, and plant regulators.



VI. FACULTY, PROFESSIONAL/ADMINISTRATIVE STAFF, AND ADVISORY COMMITTEES

Faculty

AGRICULTURAL BUSINESS

Associate Professor
Boyd Fuller, M.S.

Assistant Professor
Thomas Lindahl, Ph.D., *chairman*
Ward Nefstead, M.S.

Instructor
David Harmon, M.S.
William Nelson, M.A.
Howard Olien, M.B.A.

AGRICULTURAL INDUSTRIES AND SERVICES

Associate Professor
Peter Fog, M.S.

Assistant Professor
Robert Krumwiede, M.S., *chairman*
Robert Cobb, M.Ed.
Duane Kaas, Ph.D.
David A. McCarthy, Ph.D.

AGRICULTURAL PRODUCTION

Associate Professor
William Anderson, Ph.D.
Harland Hasslen, M.S.

Assistant Professor
Byron Harrison, M.S., *chairman*
Myron Guthrie, M.S.
Wesley Kezar, Ph.D.
Roger Walker, Ph.D.
Mark Wilson, Ph.D.

Instructor
Ron Haney, M.S.

ANIMAL HEALTH TECHNOLOGY

Professor
W. Clough Cullen, D.V.M., *chairman*

Assistant Professor
Wilbur Leibbrand, D.V.M.

FOOD INDUSTRY AND TECHNOLOGY

Assistant Professor
William Coleman II, M.S., *chairman*

Instructor
Marilyn Wolf, M.S.

HOME AND FAMILY SERVICES

Assistant Professor
Kenneth Counselman, M.S.

Instructor
Nancy Ryan, M.S., *chairman*

HORTICULTURAL TECHNOLOGY

Associate Professor
Phil Allen, M.P.S.

Assistant Professor
Charles Krueger, M.S., *acting chairman*

Instructor
Bradley Pedersen, M.Ed.

PHYSICAL EDUCATION, RECREATIONAL SPORTS, AND INTERCOLLEGIATE ATHLETICS

Assistant Professor
Donald Collins, M.S., *director*
Robert Pickert, M.S.
Jacqueline Storby, M.S.

RELATED EDUCATION

Associate Professor
Clayton Oslund, Ph.D., *chairman*
John Fulkrod, Ph.D.

Assistant Professor
Kathryn Hanna, M.A.
Clifford Hokanson, M.A.
Lora Means, M.S.
Paul Montgomery, M.A.
Ronald Nelson, Ph.D.
Prabhu Rawate, Ph.D.
Elaine Schwarz, M.S.

Instructor
Shirley Ochsner, M.A.

Advisory Committees

ADJUNCT FACULTY

Sandra Allaire, B.A., Home and Family Services
James Gauss, Ph.D., Horticultural Technology
Lynn Herrick, B.A., Related Education
Roy Johnson, B.S., Agricultural Production
James Kaufman, M.A., Agricultural Business
Joyce Malinowski, M.S., Horticultural Technology
Lili Rice, B.S., Agricultural Production
Vivian Neseth, B.A., Related Education
Karen Vetter, A.A.S., Animal Health Technology
Anita Wiener, B.S., Agricultural Business

Professional/Administrative Staff

ACADEMIC AFFAIRS

Patrice Abbe, A.D.N., Coordinator, Rural Family Life Center
Gerald Nelson, B.S., Landscape Maintenance Supervisor
William Nelson, M.A., Part-time Student Coordinator

BUSINESS AFFAIRS

Karin Bock, B.A., Development Coordinator
Sharon Mokoff, Bookstore Manager
Arthur Warszynski, Food Services Director

LEARNING RESOURCES CENTER

Kathleen Ashe, M.A., Technical Services Librarian
Kathryn Rynders, M.S., Librarian
Marven Wolthuis, M.S., Computer Center Director

STUDENT AFFAIRS

Harvey Anderson, Sp.Ed., Prospective Student Information Coordinator
Herbert Atwood, M.Ed., Director of Student Development
Ronald Beckman, B.S., Head Resident for Men
Robert Hendricks, M.S., Director of Placement and Alumni
James Hesch, M.Ed., Director of Admissions, Records, and Financial Aid
Sandra Nelson, B.S., Head Resident for Women
Lucy Oliver, M.A., Counselor
Robert Pickert, M.S., Housing Coordinator
Theresa Roesler, B.S.N., Nurse Practitioner
Sally Takala, B.A., Foreign Student Adviser
Allan Ward, M.A., Director of Counseling Services

Advisory Committees

OVERALL COLLEGE ADVISORY COMMITTEE

Willard Anderson; Watonwan Farm Service Co.; St. James
Cliff Benson; Land O'Lakes Agricultural Services Division; Hutchinson
Edward Caillier; Grain Terminal Association; St. Paul
Thomas Cashman; Northwest Agri-Dealers Association; Mankato
Dean Curtiss; KDHL Radio; Faribault
Dennis Forsell; Farmers Union Enterprises, Inc.; St. Paul
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Allen Gerber; Minnesota Association of Cooperatives; St. Paul
Sterling Gillingham; Minnesota Valley Breeders' Association; New Prague
Fred Halverson; Midland Cooperatives; Columbia Heights
Leonard Harkness; St. Paul

Faculty, Professional/Administrative Staff, and Advisory Committees

Eugene Holmes; farmer; Waldorf
Keith Keltgen; Keltgen Seed Co.; Olivia
Adeline Krenik; Madison Lake
George Lorenz; farmer; Wells
Quentin Marsh; Lake Crystal National Bank; Lake Crystal
Carl Pinney; farmer; Le Sueur
Robert Rupp; *The Farmer*; St. Paul
Edgar Urevig; Tilney Farms; Lewisville
Donald Wedge; Wedge Nursery; Albert Lea

AGRICULTURAL BUSINESS

Oliver Ambrosion; Production Credit Association; Mankato
Joan Barrett; Farmland Industries, Mankato
Clayton Ferrier; Ferrier Land and Investment Co.; Rochester
John Graff; La Salle Farmers Grain Co.; La Salle
Layton Hoysler; Hoysler Real Estate Service; Faribault
Gaylard Jorgens; National Molasses Co.; Owatonna
Don Ketcham; Cargill, Inc.; New Richland
Gordon Klaseus; First National Bank; Waseca
Harold Knudson; First Northwestern National Bank; Albert Lea
Jan Monahan; Green Giant Corporation; Le Sueur
Merlyn Petersen; National Federation of Independent Businessmen; Waseca
Thomas Rusk; First National Bank of Minneapolis; Minneapolis

AGRICULTURAL INDUSTRIES AND SERVICES

Jack Cashman; Cashman Seed and Fertilizer Co.; Owatonna
Don Chapdelaine; Farmers Union Coop Oil Association; South St. Paul
Dr. Ken Ekstrom; Cargill Research Farm; Elk River
Ron Hardesty; St. Peter Area Conservation Service; St. Peter
John Jewison; Marzahn's; Waterville
Robert Johnson; Owatonna Elevator Co.; Owatonna
Robert Jones; John Deere Company; Minneapolis
Archie Kocina; Central Livestock; New Prague
Dale Quiring; Midland Cooperative; Plato
Dr. Robert Rosenbrook; Pioneer Hi-Bred International, Inc.; Mankato
Doug Schneider; Schmidt Sales and Service; Winona
Richard Wobschall; Midwest Breeders Coop; Faribault

AGRICULTURAL PRODUCTION

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Harold Bartz; Sleepy Eye
Paul Braun; Le Sueur
Theodore Deml; Owatonna
Dale Duncanson; Mapleton
Winfield Forsberg; Forsberg Agricultural Service; New Ulm
William Goette; Alden
Irvin Gunderson; St. Peter
Orville Kvam; Zumbrota
Dean Meixell; Lake Crystal
Curtis Russell; New Richland
Charles Schwartz; Le Sueur
Joe Stransky, Jr.; Owatonna
Keith Thurston; Madelia
Curt Watson; Renville

ANIMAL HEALTH TECHNOLOGY

Dr. Carlos Contag; Schwermann and Contag; New Ulm
Dr. JoAnn Drees; Cullen Veterinary Clinic; Mankato
Claudia Durand; Owatonna Veterinary Hospital; Owatonna
Dr. Griselda Hanlon; University of Minnesota; St. Paul
Dr. James Hanson; University of Minnesota; St. Paul
Dr. Stanley Held; Buffalo Veterinary Clinic; Buffalo
Dr. James Henderson, Jr.; Supervisor, Riker Laboratories, Inc.; St. Paul
Dr. Joe Mollenkopf; Hubbard Milling Co.; Mankato

Dr. James Rundquist; Animal Clinic of Waseca; Waseca
Dr. Richard Searl; Directory, Fort Dodge Laboratories, Inc.; Fort Dodge
Dr. James Sweeney; Bloomington Veterinary Hospital; Bloomington
Dr. Paul Zollman; Mayo Clinic; Rochester

FOOD AND INDUSTRY TECHNOLOGY

Wesley Bryant; General Foods Corporation; Waseca
Roy Ginn; Dairy Quality Control Institute; St. Paul
Sally Michels; Minnegasco; Mankato
Glenn Oliphant; Owatonna Canning Co.; Owatonna
Clayton Rawhouser; Union Creamery Association; Blooming Prairie
Marion Ryan; Midwest Food Service Association; Minneapolis
Kenneth Sevcik; Quality Assurance, Faribault Canning Co.; Faribault
Lee Williams; Le Sueur/Waseca Board of Health; Waseca

HOME AND FAMILY SERVICES

Mary Jane Blethen; Golden Heart Day Care Center; North Mankato
Lucy Bullard; Bullard Nursery School; Owatonna
Gloria Butler; Butler's Office Supply and Shoes; Waseca
Nina Carlson; Senior Citizen Transportation Coordinator; Waseca
Vickie Hermanson; farm wife; Nicollet
D. W. Kaufman; Och's Department Store; Faribault
Randy Larson; Landkamer's Carriage House; Mankato
Russ Lee; Waseca County Welfare; Waseca
Evelyn Quesenberry; Agricultural Extension Service, University of Minnesota; St. Paul
Mrs. Joyce Ross; Director, Albert Lea Community Child Care Center; Albert Lea
Margaret Roth; University of Minnesota, Minneapolis
Audrey Tolzmann; Extension Home Economist; St. Peter

HORTICULTURAL TECHNOLOGY

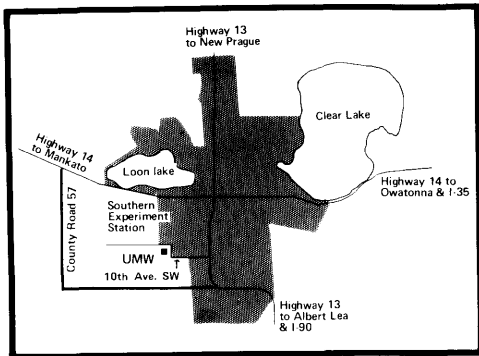
Mary Becker; Pearson's Flowers, Inc.; Shakopee
Richard Cross, Jr.; Cross Nurseries, Inc.; Lakeville
Francis DeVos; Landscape Arboretum; Chaska
George Grajkowski; Bailey Nurseries; Newport
Kathleen Haberman; St. Clair Country Gardens; Mankato
Dan Johnson; Johnson's Wholesale Florist; Austin
Chuck Klinefelter; Minnesota Tree, Inc.; Eden Prairie
Nick Lebens III; Lebens Flowers; St. Paul
Gen McCarthy; North Central Florist Association; St. Paul
Rob Muir; Flower Lane; Worthington
Dr. Harold Pellett; Landscape Arboretum; Chaska
K. E. Relyea; Farmers' Seed and Nursery; Faribault
Forrest Sargent; Sargent's Landscape Nursery; Rochester
Roger Schalow; Schalow's Nursery; Marshfield
Carlos Stimson; Brookings Country Club; Brookings
Stan Wittingham; Bachman's; Minneapolis

LIGHT HORSE MANAGEMENT

Robert Bliss; R. C. Bliss Ford-Mercury; Faribault
Cathy Cortright; Leawood Farm; Hamel
Susan Gehring; Mishek's Arabians; Ellendale
Phil Jenson; Broadway Farm; Albert Lea
Bob Klaus; Klaus's Quarter Horses; Hampton
Dale Kluver; Albert Lea
Colleen McQuay; McQuay Stable; Maple Plain
Linda Hagan Miller; Hampton
Alan Rieke; Morrow-Rieke, Inc.; Hastings
Milt Strand; Welch
Dr. Thomas Winter; equine practitioner; Inver Grove Heights

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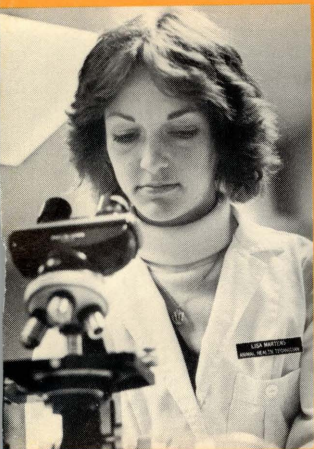
UM
 University of Minnesota
 Technical College
WASECA

- 1- Visitor Parking
- 2- A Parking Lot
- 3- B Parking Lot
- 4- C Parking Lot
- 5- Handicap Parking
- 6- Firelane/Loading Zone
- 7- Campus Directory
- *- Entrances at Grade

- A- A Residence Hall
- B- B Residence Hall
- C- Science Classroom, C-Wing
- D- Main Building
- E- Laboratories, S-Wing
- F- Horticulture Facilities
- G- G Residence Hall
- H- Light Horse
- I- Learning Resources Center
- J- Physical Education Facilities
- K- Horticulture Laboratories

- L- Special Purpose Laboratory
- M- U.S. Survey of Crops
- N- N Residence Hall
- O- Production Agricultural Laboratories
- P- Apartments
- R- Recreational Sports Area
- S- Speaker Units
- T- Classroom-Laboratory Building





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