Technical College, Waseca
University of Minnesota Bulletin
1985-87

Technical College, Waseca

Welcome

To Prospective Students:

The agricultural field has grown tremendously and continues to grow with new technological advances. Opportunities for UMW graduates have grown at the same pace and are stronger now than they have ever been. Agriculture needs more, not fewer, trained people as we look to the future. The tremendous productivity of agriculture in this country has not developed by chance but by technological developments, and this is due to research and education.

At UMW, we put our future and yours in agriculture, for successful agriculture helps assure the quality of life for all. 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.

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,

Edward C. Frederick, Chancellor

UMW ACADEMIC CALENDAR 1985-86[1]

Fall Quarter

September 25	Last day to pay fees without penalty
September 24-25	New student orientation—"start smart"
September 26	Fall quarter classes begin
October 10	Last day to add classes
October 31	Second half physical education classes begin
November 7	Last day to drop classes with "W"
November 28-29	Thanksgiving holidays; classes excused
December 6	End of fall quarter

Winter Quarter

January 3	Last day to pay fees without penalty
January 6	Winter quarter classes begin
January 17	Last day to add classes
January 20	Martin Luther King holiday; classes excused
February 6	Second half physical education classes begin
February 14	Last day to drop classes with "W"
March 15	End of winter quarter

Spring Quarter

March 26	Last day to pay fees without penalty
March 27	Spring quarter classes begin
April 9	Last day to add classes
May 3	Second half physical education classes begin
May 7	Last day to drop classes with "W"
May 26	Memorial Day holiday; classes excused
June 5	End of spring quarter
June 6	Commencement

Summer Quarter

June 27	Last day to pay fees without penalty
June 28-29	New student orientation
June 30	Summer quarter classes begin
July 4	Independence Day holiday; classes excused
July 11	Last day to add classes
August 6	Second half physical education classes begin
August 8	Last day to drop classes with "W"
September 1	Labor Day holiday; classes excused
September 9	End of summer quarter

[1]*The 1986-87 UMW academic calendar was not finalized at the time of printing this bulletin, but is expected to closely follow the 1985-86 calendar.*

Introduction

Resources

This biennial bulletin describes the offerings of the Technical College on the Waseca campus of the University of Minnesota.

Bulletin Use—The contents of this bulletin and other University bulletins, publications, or announcements are subject to change without notice. University offices can provide current information about possible changes.

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, religion, color, sex, national origin, handicap, age, or veteran status. 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; by Executive Order 11246, as amended: 38 U.S.C. 2012; by the Vietnam Era Veterans Readjustment Assistance Act of 1972, as amended; and by other applicable statutes and regulations relating to equality of opportunity.

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

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 enrollment and enrollment termination, college and class, major, adviser, academic awards, honors received, 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 records office on his or her campus.

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, and at records offices on other campuses of the University. Questions may be directed to that office.

Postal Statement

Volume VIII, Number 1
August 8, 1985

University of Minnesota
Technical College
Waseca Bulletin

Third-class postage paid at Waseca, Minnesota. POSTMASTER: Send address changes to University of Minnesota Bulletin, Office of Admissions and Records, University of Minnesota Technical College, Waseca, Waseca, MN 56093.

General Information

General Information

The University of Minnesota Technical College, Waseca (UMW) is accredited by the North Central Association of Colleges and Schools. UMW offers an exciting approach to agricultural education in Minnesota—the technical college approach. Representatives of 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 operators to computer 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 programs: 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:

- to help students attain competence in a specific area defined by the college and required for employment in the industry;
- to help students broaden their base of understanding so they may live fully, deeply, and usefully;
- to help students understand the fundamentals of the biological, physical, and social sciences important to agriculture today.

The college operates on a four-quarter, year-round educational system. The quarters are approximately 10 weeks in length. Students may start during any quarter and may attend continuously or intermittently.

For additional information about the college, contact the Office of Admissions and Records, University of Minnesota Technical College,Waseca, Waseca, MN 56093 (1-800-862-1997).

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 twice-a-week 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 memberships 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

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. A new livestock laboratory and a mechanized agriculture facility have been built in the past two years.

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 progams 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 UMW 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 selected on the basis of high school grades.

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, Waseca, MN 56093. The completed form should be sent to the Office of Admissions and Records. Each application submitted must be accompanied by a nonrefundable application fee of $20, 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.

Under terms of reciprocity agreements with Wisconsin, North Dakota, and South Dakota, residents of these states may attend public educational institutions in Minnesota without paying nonresident tuition rates. 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—Reciprocity Program, North Dakota State Board of Higher Education, 10th Floor, State Capitol Building, Bismarck, ND 58501.

South Dakota Residents—Reciprocity Program, South Dakota Board of Regents, Box 41, Brookings, SD 57007.

Wisconsin Residents—Reciprocity Program, State of Wisconsin Higher Educational Aids Board, 115 West Wilson Street, Madison, WI 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 Admissions Office 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, DC 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.
3. Two letters from character references.
4. A $20 nonrefundable application 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.

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 all 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.

Preadmission Counseling—A member of the staff of UMW will establish personal contact with each applicant. An attempt will be made to visit with the applicant and his/her parents in their 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. Also, materials concerning the college are provided and questions about UMW are answered.

Orientation

A major objective of the orientation program at UMW is to enable students to become acquainted with faculty members, civil service 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 from high school to college and adjust more satisfactorily to life at UMW.

New students receive invitations specifying the dates and time of orientation activities. The orientation fee includes materials and refreshments. Meals and housing are a part of the residence hall contract. Students who will be living off campus will be responsible for their own meals and housing.

Registration

New students complete registration during special days scheduled prior to the beginning of each quarter. 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.

Per-Credit Tuition and Tuition Plateau—For 1-14 credits, students will be charged for each credit according to the per-credit tuition rate for the particular year involved. If a student registers for 15, 16, 17, or 18 credits, she/he will be assessed tuition equal to a 14 credit assessment. This is the 14-18 credit tuition plateau. Each credit above 18 will be charged additionally on a per credit basis starting at 18½ credits.

Expenses

Tuition and other fees for the 1985-86 academic year were not set at the time of this printing. See the Special Supplement On Fees inserted with this bulletin, or contact the Office of Admissions and Records.

Installment Payment Option—Students have the option of paying 50% (or more) of tuition and fees by the due date(s) on their fee statement(s) received when they register. Students are billed for the balance of all tuition and fees plus a $10 installment option fee, and this amount is due on Friday of the 5th week of the quarter. (The due date of the second payment will be shown on the fee statement.)

Late Fee—A late fee of $20 is assessed on fees that are not paid by the due date shown on the fee statement. For the installment option, a late fee of $20 is assessed if the first payment is late and an additional $20 is charged if the second payment is late.

Graduation Fee—A fee of $16 is payable prior to graduation.

Orientation Fee—A fee to $10 is charged for the new student orientation program.

Records Service Fee—A one-time fee of $6 is charged each new entering student for unofficial transcripts and processing. Official transcripts cost $2 each.

Board and Room—*Residence Halls*—Fees in the residence halls include both room and board. *Apartments*—Fees include only room. Board fees are optional. Single rooms are available only if space allows.

Estimated Expenditures—Estimate costs for attending UMW by adding tuition, student services fees, board and room (if applicable), books (approximately $100 per quarter), and supplies (approximately $50 per quarter).

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. The effective week is based on the date the official cancel/add form is presented to the Records Office

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, MN 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. UMW Scholarships
7. National Direct Student Loans
8. Student employment on campus or in the Waseca community

Standards of Satisfactory Progress for Financial Aid—Section 484 of the Higher Education Act (HEA), as amended, requires that a student maintain satisfactory progress in the course of study in which he or she is enrolled in order to receive financial aid under the student financial assistance programs authorized by Title IV of the HEA. In order to be eligible for financial assistance under Title IV, a student must maintain a 2.00 GPA and satisfactorily complete a minimum cumulative yearly (3 quarters) number of credits as follows: freshmen, 27 credits; seniors, 36 credits.

Other Sources—Students are also encouraged to seek financial aid on their own from 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.

Student Affairs

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 education. For this reason, the services and programs 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 and a television/lounge are located in this area.

Various meal plans are available in the Dining Hall to anyone wishing to purchase one. The cost of food is based on an absentee factor that has been established based on years of experience.

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 must have health insurance coverage. A low-cost group insurance plan is available to students not covered by another policy. Evidence of insurance coverage must be provided.

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

Learning Resources Center—The UMW Library and the audiovisual, graphic/duplication, mail, computer center and word processing departments are all located in the Learning Resources Center, which supports the needs of the curriculum, faculty, and students. The main objective of the center is to serve its users. The UMW Library is open daily, except Saturday. Hours are varied to accommodate student needs.

The Library collection contains books, periodicals, newsletters, government documents, computer software, 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 Graphics/Duplication Department serves the class-related needs of students as well as the needs of student clubs.

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

The Computer Center operates a computer lab for students taking classes in which computing is involved. Numerous programs that require minimal previous computer experience are available to demonstrate the computer uses. Students may use the college's computer facilities to work on class-related projects or individual research pertaining to agriculture or for their personal use.

College Bookstore—The college bookstore sells textbooks, school supplies, miscellaneous items used by students, supplies for staff, and coordinates rental of commencement gowns and other items.

Instructor-Counselors—To assure a positive experience in contact between faculty and students, UMW has an instructor-counselor advising program. Each student is assigned to a faculty member who provides guidance in program planning and course selection through a curriculum planning guide 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 are 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. Personal development and biofeedback training programs are offered each quarter. Students are encouraged to use the various counseling services whenever a need arises, or to enhance their personal development. Appointments can be made with the counseling secretary.

Learning Skills—The learning skills program provides academic support services to UMW students as they pursue their personal and vocational goals. These services include 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, notetaking, 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 persons with handicaps will be honored.

Immediately upon acceptance, new students should request any needed accommodations. Students should contact the Coordinator of Handicap Services, University of Minnesota Technical College, Waseca, Waseca, MN 56093 (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 deals with campus access concerns.

Career Services—The Career Services Office 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. Appointments can be made with the counseling secretary.

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 two quarters prior to graduation. 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 government 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, MN 56093.

Tutoring Services—Individual or small-group tutoring services are available to students experiencing difficulty in courses at UMW because of inadequate preparation, handicaps, or other learning difficulties. Students needing assistance are encouraged to contact the coordinator of tutoring services in the student development office. A peer tutor will normally be assigned to qualified students within two weeks.

International Student Services—The unique needs of international students attending UMW are handled by the coordinator of international student services. Transportation arrangements, basic orientation to U.S. culture and UMW college life, host family arrangements, special seminars, Cosmopolitan Club activities, and other necessary services are provided. Further information may be obtained by contacting the student activities office.

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 Phi Theta Kappa 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, Spring Activities Day, 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.

Participation in out-of-class activities can be a very important part of a student's college 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 kept for each student. The purpose of this transcript is to document the many positive experiences in which students become involved while attending UMW.

Information concerning a student's participation in intercollegiate athletics, recreational sports, student organiza-

tions, judging teams, and other types of participation are recorded each quarter on a student development transcript. This information is summarized quarter by quarter so that it produces a transcript similar to an academic transcript. This enables students who have been active in the UMW involvement curriculum to have a verified record of these involvements.

When a student graduates from UMW, the Student Development Transcript is transferred to the Placement Office. Each student has the option of including this with other placement resume credentials.

Student Union Recreation Center—A snack bar and recreational facility is located in the student union. The 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.

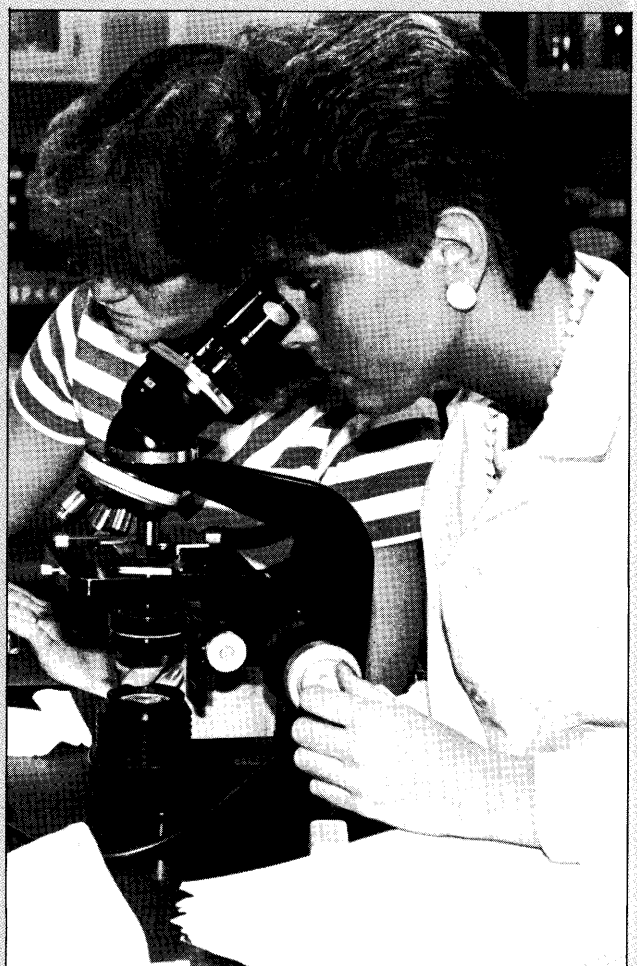
The college is a member of the Minnesota Community College Athletic Association and the National Junior College Athletic Association, and participates in Region 13 athletic activities. Region 13 includes community, junior, and university two-year colleges in Minnesota, North Dakota, upper Michigan, and 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. The majority of activities are held in the evenings on campus and at nearby community locations.

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 series of winter meetings, a summer reunion, and an annual meeting and reunion at Homecoming each year, and provides information for a quarterly college newsletter. Membership is encouraged in order to foster continuing relationships with fellow classmates and UMW.

Academic Policies and Procedures



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.

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 coodinator 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.

Transfer

Many students choose to continue their education upon completing all or part of the requirements of the associate in applied science degree at UMW. Experience to date indicates that most of these students have earned their bachelor's degree in agricultural programs at the University's St. Paul campus or agricultural programs in neighboring states. 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.

A student who wishes to change to another campus of the University of Minnesota must meet the requirements of the unit to which he or she is transferring. Application for transfer should be made at the Office of Admissions and Records on the campus where the student is currently or was last registered. The student should apply as far in advance of the date of transfer as possible.

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 director 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 $30 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.

Directed Studies Courses—Students may enroll in a Directed Studies course directed by an appropriate member of the faculty. The maximum credits allowed per directed study course are three credits. One credit requires a minimum of ten hours of instructor-supervised study. Four credits per quarter and seven credits toward the AAS degree are maximums without receiving special consent from the instructor/counselor and the division director.

Experimental Courses—In addition to the courses listed in the bulletin, all new proposed courses are offered as experimental courses with an 1800 series number. These courses may be selected as electives or substituted according to the standard substitution policy.

Student Classification

Full Time—A student enrolled for at least three-fourths of a normal load or 12 quarter credits.

Part Time—A student enrolled for less than three-fourths of a normal load.

Freshman—A student who has completed fewer than 45 quarter credits of college work at the time of registration.

Senior—A student who has completed more than 45 quarter credits of college work at the time of registration.

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. A, B, C, and N grades are used for all courses with the exception of a few approved courses where S or N grades may be given. Minicourses will generally use S or N grades. 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:

Grade	*Grade Points Earned*
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. 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 head 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 the Curricular Offerings section of this bulletin and to the curriculum planning guide for your major, available from instructor-counselors.

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 head, and vice chancellor 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—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 and is initiated with the instructor-counselor.

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."

Change of Major or Double Major—Students interested in either changing from their initial choice of a major or selecting two majors should consult with their instructor-counselor to discuss plans and obtain the necessary forms and procedures to initiate this process.

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.

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.

Curricular Offerings

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
Agricultural Sales and Marketing
  Agricultural Finance Emphasis

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
  Sheep Emphasis
  Swine Emphasis

Animal Health Technology
Animal Health

Food Industry and Technology
Food Marketing and Distribution
Food Products and Inspection

Home and Family Services
Child Care Services
Merchandising Technology
Rural Home Services
  Services for the Rural Elderly Emphasis[1]
  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 Design 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 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 ap-

[1]*Pending approval by the Board of Regents.*
**There is a temporary hold on admissions for these majors; contact the Director of Admissions and Records for further information.*

proved 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, 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 is for students wanting 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 a farm analysis computer system, 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 1809 (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 this series of classes to complete the program. This series of classes are a substitute for Applied Farm Accounting, AgAc 1565. Students

and parents make this decision before winter quarter of the first year on campus to complete the program before graduation.

Centers

To support special needs of a particular student clientele, UMW has developed an Agricultural Management Center, a Rural Family Life Center, and a Cooperative Midmanagement Center.

The Agricultural Management Center is a focus for special programs to promote management education in agriculture. Industry, agriculture, and other resources are coordinated to focus attention on the role of management.

The Rural Family Life Center is a service and resource effort of UMW. The intention is to reach rural women and families by offering college credit classes on campus and in communities where sufficient interest is indicated.

The Cooperatives Midmanagement Center provides a focal point for education, career opportunities, and leadership development for students interested in agricultural cooperatives.

Related Education Division

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

To relate this course content to students ' interests and occupational goals, efforts are made to use instructional examples from the fields of agriculture. One of the goals of UMW is to help each student develop as a "whole person" and to obtain a background that supports further development in life. These goals are 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.

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 agricultural experience, or to 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.

The office scene has changed considerably over the past few years. Business has grown, more transactions are taking place, and certain incidents have occurred that require most offices to hire a new

type of employee—the office manager. His or her duties mainly are to see that the office is run as efficiently as possible. Because of the development of highly automated equipment, the new employee must be highly skilled in the use of automatic equipment and thoroughly understand the techniques and uses of data processing. The area of office management as a career can be profitable and productive. UMW has the specialized courses available to help students meet the demands of new technology in the business office.

Noted below are the typical job titles graduates in each major have recently taken; students, in fact, are trained for a cluster of jobs even more diverse than those noted.

Agricultural Business Management

Agricultural Business Proprietor
Agricultural Business Management Trainee
Agricultural Cooperative Management Trainee
Agricultural Business Department Manager (Feed, Fertilizer, Petroleum)
Agricultural Business Counter Salesperson
Agricultural Business Accounting Clerk
Dairy or Livestock Marketing Representative
Elevator Management Trainee
Fertilizer or Feed Management Trainee
Agricultural Business Bookkeeper

Agricultural Office Management

Agricultural Executive Assistant
Agricultural Office Supervisor
Agricultural Administrative Assistant
Agricultural Bookkeeper/Receptionist/Office Manager
Agricultural Word Processing Assistant Supervisor
Agricultural Cooperative Executive Assistant
Agricultural Credit Association Assistant Office Supervisor
Agricultural Fertilizer, Feed, and Chemical Office Assistant
Agricultural Extension Administrative Assistant
Agricultural Government Executive Assistant
Agricultural Education Office Assistant
Agricultural Retail Business Assistant

Agricultural Sales and Marketing

Advertising Salesperson
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
Seed Salesperson
Territory Sales Manager
Agricultural Loan Officer
Loan Appraiser-Real Estate
Bank Teller
Credit Representative-Agricultural Business
Leasing Trainee
Financial Institutions Bookkeeper

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. Credits follow each course listed.

Program Requirements

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
	50

Agricultural Business Management

Major Competency Requirements

AgAc 1214 Principles of Agricultural Accounting—II	4
AgAc 1423 Introduction to Data Processing	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
	46

Electives—12 credits

Suggested Program

First Quarter

AgAc 1014 Prin of Ag Acct—I	4
AgAc 1423 Ag Data Proc Fund	3
AgBM 1013 Intro to Ag Bus	3
AgSc 1011 Ag Orientation	1
Agro 1153 Intro to Crop Science	3
Comm 1103 Intro to Comm	3
	17

Second Quarter

AgAc 1214 Prin Ag Acct—II	4
AgMk 1253 Ag Salesmanship	3
AnSc 1053 Intro to An Science	3
Comm 1203 Intro to Tech Rep	3
Econ 1023 Prod & Bus Econ	3
	16

Third Quarter

AgMk 1053 Prin Ag Mkt	3
Econ 1013 Nat Econ Issues	3
Math 1063 Applied Math	3
PhEd 1100 Phy Ed	1
Psyc 1114 General Psychology	4
	14

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgBM 1363 Ag Bus Law	3
AgBM 1473 Small Bus Mgmt	3
AgMk 1333 Adv & Disp Merch	3
AgMk 1373 Prin of Merch	3
Chem 1105 Tech Chemistry	5
	17

Sixth Quarter

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

Seventh Quarter

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

Agricultural Office Management—Administrative Assistant Emphasis

Major Competency Requirements

AgAc 1052 Office Machine Calculation	2
AgAc 1214 Principles of Agricultural Accounting—II	4
AgAc 1423 Introduction to Data Processing	3
AgBM 1013 Introduction to Agricultural Business	3
AgBM 1553 Personnel Management	3
AgOM 1113 Beginning Typewriting	3
AgOM 1213 Intermediate Typewriting	3
AgOM 1252 Records Management	2
AgOM 1333 Advanced Typewriting	3
AgOM 1382 Word Processing Applications	2
AgOM 1564 Machine Transcription Word Processing	4
AgOM 1574 Word Processing Procedures	4
AgOM 1674 Word Processing Administration	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
	46 or 47

Electives—11 or 12 credits

Suggested Program

First Quarter

AgAc 1014 Prin Ag Acct—I	4
AgBM 1013 Intr Ag Bus	3
AgOM 1113 Beg Typewriting	3
AgOM 1213 Inter Typewriting	3
AgSc 1011 Ag Orientation	1
Comm 1103 Intro to Comm	3
	17

Second Quarter

AgAc 1052 Office Mach Calc	2
AgAc 1214 Prin Ag Acct II	4
AgOM 1252 Records Mgmt	2
Chem 1105 Tech Chemistry	5
Comm 1203 Intro Tech Rep	3
PhEd 1100 Phy Ed	1
	17

Third Quarter

AgAc 1423 Intro to Data Proc	3
AgOM 1333 Adv Typewriting	3
AgOM 1382 Word Proc Applications	2
AgOM 1574 Word Proc Procedures	4
PhEd 1200 Phy Ed	1
One of addtl req courses	3 or 4
	16 or 17

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgBM 1363 Intr Ag Bus	3
Comm 1303 Agribus Comm	3
Econ 1013 Nat Econ Issues	3
Math 1063 Applied Math	3
Electives	4
	16

Sixth Quarter

AgBM 1553 Pers Mgmt	3
AgOM 1674 Word Proc Admin	4
BiSc 1044 Gen Biology I	4
Electives	5
	16

Seventh Quarter

AgOM 1564 Mach Trans Word Proc	4
Psyc 1114 General Psychology	4
Sec of addtl req courses	3 or 4
Electives	2-3
	13-15

Agricultural Sales and Marketing

Major Competency Requirements

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) AgBM 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 Farm-Level 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

Suggested Program

First Quarter

AgAc 1014 Prin Ag Acct—I	4
AgBM 1013 Intro to Ag Bus	3
AgSc 1011 Ag Orientation	1
Agro 1153 Intro to Crop Sci	3
Comm 1103 Intro to Comm	3
Econ 1013 Nat Econ Issues	3
	17

Second Quarter

AgAc 1214 Prin Ag Acct—II	4
AgBM 1363 Ag Business Law	3
AgMk 1253 Ag Salesmanship	3
AnSc 1053 Intro to AnSci	3
Psyc 1114 General Psychology	4
	17

Third Quarter

AgMk 1053 Prin of Ag Mkt	3
AgMk 1333 Adver & Displ Merch	3
AgMk 1373 Prin of Merch	3
Comm 1303 Agribus Comm	3
Math 1063 Applied Math	3
PhEd 1100 Phy Ed	1
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgMk 1573 Adv Ag Comm Mkt	3
BiSc 1044 Gen Biology I	4
Comm 1603 Speaking Skills	3
Econ 1023 Prod & Bus Econ	3
Electives	3
	16

Sixth Quarter

AgBM 1513 Ag Sales Mgmt	3
AgBM 1716 Pre-Occ Prep II	6
(or) AgMk 1059 Spec Prob in Ag	1-3
AgMk 1353 Adv Salesmanship	3
Agro 1433 Grain Grading	3
Chem 1105 Tech Chemistry	5
	15-20

Seventh Quarter

AgBM 1652 Seminar	2
Comm 1203 Intro to Tech Rep	3
PhEd 1200 Phy Ed	1
Soil 1054 Soil Science	4
Electives	0-5
	10-15

Agricultural Sales and Marketing—Agricultural Finance Emphasis

Major Competency Requirements

AgAc 1214 Principles of Agricultural Accounting-II	4
AgAc 1565 Applied Farm Accounting	5
AgAc 1423 Introduction to Data Processing	3
AgBM 1013 Introduction to Agricultural Business	3
AgBM 1312 Agricultural Appraisal	2
AgBM 1443 Credit and Collections	3
AgBM 1652 Seminar: Agricultural Business	2
AgBM 1716 Pre-Occupational Preparation II	6
or	
AgBM 1059 Directed Study	1-3
AgMk 1053 Principles of Agricultural Marketing	3
AgMk 1253 Agricultural Salesmanship	3
AgMk 1273 Money and Financial Institutions	3
AgMk 1573 Farm-Level Commodity Marketing	3
AgMk 1634 Agricultural Finance	4
Comm 1603 Speaking Skills	3
Select two courses from:	
Agro 1153 Introduction to Crop Science	3
AnSc 1053 Introduction to Animal Science	3
MeAg 1333 Agricultural Machinery	3
Soil 1054 Soil Science	4
	43-50

Electives—8-15 credits

Suggested Program

First Quarter

AgAc 1014 Prin Ag Acct-I	4
AgBM 1013 Intro to Ag Bus	3
AgMk 1053 Prin of Ag Mkt	3
AgSc 1011 Ag Orientation	1
Comm 1103 Intro to Comm	3
Econ 1013 Nat Econ Issues	3
	17

Second Quarter

AgAc 1214 Prin Ag Acct-II	4
or	
AgAc 1565 Appl Farm Acct	5
AgAc 1423 Intro Data Proc	3
AgBM 1363 Ag Business Law	3
AgMk 1253 Ag Salesmanship	3
Comm 1203 Intro to Tech Rep	3
	16-17

Third Quarter

AgBM 1312 Ag Appraisal	2
AgMk 1634 Ag Finance	4
Comm 1303 Agribus Comm	3
Math 1063 Applied Math	3
PhEd 1100 Phy Ed	1
One of two reqd courses	3-4
	16-17

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken between 3rd & 6th qtrs	
	12

Fifth Quarter

AgMk 1273 Money Financ Inst	3
AgMk 1573 Adv Ag Comm Mkt	3
BiSc 1044 Gen Biology I	4
Comm 1603 Speaking Skills	3
One of two reqd courses	3-4
	16-17

Sixth Quarter

AgBM 1443 Credit Collections	3
AgBM 1716 Pre-Occ Prep II	6
or	
AgBM 1059 Directed Study	1-3
Chem 1105 Tech Chemistry	5
Electives	1-6
	10-20

Seventh Quarter

AgBM 1652 Seminar	2
Psyc 1114 General Psychology	4
PhEd 1200 Phy Ed	1
Electives	2-8
	9-15

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. Noted below are the typical job titles graduates in each major have recently taken; students, in fact, are trained for a cluster of jobs even more diverse than those noted.

Agricultural Communications

Advertising and Marketing Technician
Agricultural Communications Technician
Agricultural Public Relations Assistant
Agricultural Reporter

Agricultural Mechanization Technology—Power and Machinery

Agricultural Machinery Field Service Technician
Agricultural Machinery Maintenance Worker
Agricultural Machinery Maintenance Supervisor

Agricultural Mechanization Technology—Structures and Equipment

Agricultural Buildings Sales Representative
Agricultural Equipment Sales Representative
Agricultural Equipment Installation Technician
Farm Materials Handling Technician

Agricultural Research Technology—Animal

Agricultural Experiment Farm Technician
Feed Research Technician
Livestock Research Technician

Agricultural Research Technology—Crop

Laboratory Technician
Plant Breeding Technician
Seed Research Technician
Soil Research Technician

Animal-Industry Related Technology

Animal Supplies Salesperson
Artificial Breeding Technician
Breed Association Fieldworker
Commission Firm Buyer
Dairy Herd Improvement Association Supervisor
Livestock Fieldworker
Livestock Marketing Technician
Feed Salesperson
Feed Company Representative

Crop-Industry Related Technology

Grain Marketing Technician
Grain By-Products Sales Representative
Seed and Grain Inspector
State Grain Inspector

Soils and Chemicals Technology

Agricultural Chemicals Fieldworker
Fertilizer and Chemical Sales Representative
Fertilizer Plant Technician
Irrigation Technician
Soil Conservation Technician
Soil Testing 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. Credits follow each course listed.

Program Requirements

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
Econ 1013 National Economic Issues	3
Math 1063 Applied Mathematics	3
PhEd 1100 Physical Education	1
PhEd 1200 Physical Education	1
	38

Agricultural Communications

There is a temporary hold for this major; contact the Director of Admissions and Records for further information.

Major Competency Requirements

AgCm 1059 Special Problems	1-3
AgCm 1223 Introduction to Photography	3
AgCm 1313 Audiovisual Techniques	3
AgCm 1333 Introduction to Mass Communications	3
AgCm 1533 Agricultural Reporting	3
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
BiSc 1014 Principles of Biology	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
	52-54

Electives—16-18 credits

Suggested Program

First Quarter

AgCm 1223 Intro to Photo	3
AgSc 1011 Ag Orientation	1
AgCm 1059 Special Problem	2
Comm 1103 Intro to Comm	3
PhEd 1100 Phy Ed	1
Psyc 1114 Gen Psychology	4
Electives	2-3
	16-17

Second Quarter

AgCm 1533 Ag Reporting	3
Comm 1203 Intro Tech Rep	3
Comm 1603 Speaking Skills	3
Econ 1013 Nat Econ Iss	3
PhEd 1200 Phy Ed	1
Electives	3
	16

Third Quarter

AgCm 1333 Intro to Mass Comm	3
AgCm 1663 Intro to Radio	3
AgMk 1053 Prin Ag Mkt	3
BiSc 1014 Prin of Bio	4
Comm 1303 Agribus Comm	3
Math 1063 Applied Math	3
	19

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgCm 1563 Ag Mag/Jrnl Writ	3
AgMk 1253 Ag Salesmanship	3
AnSc 1053 Intro to An Sci	3
Comm 1303 Agribus Comm	3
SocS 1053 Rural Sociology	3
Electives	2
	17

Sixth Quarter

AgCm 1663 Intro to Radio	3
AgMk 1353 Adv Salesmanship	3
Agro 1153 Intro Crop Prod	3
Chem 1105 Tech Chemistry	5
Electives	4-5
	18-19

Seventh Quarter

AgCm 1313 Audiovis Tech	3
SocS 1273 Prin Leadership	3
Soil 1054 Soil Science	4
Electives	5
	15

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
MeAg 1024 Technical Drawing	4
MeAg 1034 Introduction to Mechanized Agriculture	4
MeAg 1043 Agricultural Metals and Welding	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
Soil 1054 Soil Science	4
	44

Electives—26 credits

Suggested Program

First Quarter

Agro 1153 Intro Crop Prod	3
AgSc 1011 Ag Orientation	1
Comm 1103 Intro to Comm	3
Math 1063 Applied Math	3
MeAg 1034 Intro to Mech Ag	4
MeAg 1333 Ag Machinery	3
	17

Second Quarter

BiSc 1044 Gen Biology I	4
Comm 1203 Intro to Tech Rep	3
MeAg 1024 Tech Drawing	4
MeAg 1043 Ag Metals	3
MeAg 1523 Basic Hydraulics	3
	17

Third Quarter

AnSc 1053 Intro to An Sci	3
Chem 1105 Tech Chemistry	5
MeAg 1443 Ag Gas Power	3
PhEd 1100 Phy Ed	1
Electives	3
	15

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgMk 1253 Ag Salesmanship	3
MeAg 1633 Adv Ag Machinery	3
PhEd 1200 Phy Ed	1
Soil 1054 Soil Science	4
Electives	6
	17

Sixth Quarter

AgAc 1014 Prin Ag Acct I	4
Econ 1013 Nat Economics Iss	3
MeAg 1453 Ag Diesel Power	3
Electives	5
	15

Seventh Quarter

Comm 1603 Speaking Skills	3
Electives	12
	15

Agricultural Mechanization Technology—Structures and Equipment

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
MeAg 1024 Technical Drawing	4
MeAg 1034 Introduction to Mechanized Agriculture	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
Soil 1054 Soil Science	4
	53

Electives—17 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orientation	1
Chem 1105 Tech Chemistry	5
MeAg 1024 Tech Drawing	4
MeAg 1034 Intro to Mech Ag	4
MeAg 1043 Ag Metals	3
	17

Second Quarter

Agro 1153 Intro Crop Prod	3
BiSc 1044 Gen Biology I	4
Comm 1103 Intro to Comm	3
MeAg 1083 Fund Power	3
MeAg 1253 Ag Elect Equip	3
	16

Third Quarter

AgMk 1253 Ag Salesmanship	3
AnSc 1053 Intro to An Sci	3
Comm 1203 Intro tn Tech Rep	3
Math 1063 Applied Math	3
MeAg 1664 Ag Prod Handling	4
	16

Fourth Quarter

AgSc 709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

Econ 1013 Nat Econ Issues	3
MeAg 1404 Fund Surveying	4
PhEd 1100 Phy Ed	1
Soil 1054 Soil Science	4
Electives	4
	16

Sixth Quarter

MeAg 1374 Ag Structures	4
MeAg 1523 Basic Hydraulics	3
MeAg 1543 Ag Waste Mgmt	3
Electives	6
	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

There is a temporary hold for this major; contact the Director of Admissions and Records for further information.

Major Comptency Requirements

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

Suggested Program

First Quarter

Agro 1153 Intro Crop Prod	3
AgSc 1011 Ag Orientation	1
AnSc 1053 Intro An Sci	3
BiSc 1105 Animal Biology I	5
Math 1063 Applied Math	3
PhEd 1100 Phy Ed	1
	16

Second Quarter

AgSc 1554 Research Tech	4
AnSc 1523 Intro An Dis	3
BiSc 1205 Animal Biology II	5
Chem 1105 Tech Chemistry	5
	17

Third Quarter

AgAc 1423 Ag Data Proc	3
AnSc 1122 Lvstk Evaluation	2
AnSc 1623 Lvstk Mgmt Tech	3
Chem 1224 Organic	4
Comm 1103 Intro to Comm	3
PhEd 1200 Phy Ed	1
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AnSc 1332 Artificial Insem	2
AnSc 1353 An Nutrition I	3
Comm 1203 Intro Tech Rep	3
MeAg 1664 Ag Prod Handling	4
Electives	4
	16

Sixth Quarter

AgAc 1052 Office Mach Cal	2
AnSc 1362 Prin An Breeding	2
AnSc 1443 An Nutrition II	3
AnSc 1483 Meat, Lvstk Prod	3
(or) Food 1573 Milk, Dairy Prod	3
Electives	6
	16

Seventh Quarter

AnSc Appl Breeding	1
AnSc 1682 Seminar: An Sci	2
Chem 1374 Meth Chem Anal	4
Comm 1473 Tech Rep Writing	3
Econ 1013 Nat Econ Issues	3
Electives	2
	15

Agricultural Research Technology—Crop

There is a temporary hold for this major; contact the Director of Admissions and Records for further information.

Major competency requirements

AgAc 1423 Agricultural Data Processing Fundamentals	3
AgSc 1064 Integrated Pest Management	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

Suggested Program

First Quarter

Agro 1153 Intro Crop Prod	3
AgSc 1011 Ag Orientation	1
AgSc 1064 Pest Management	4
Comm 1103 Intro to Comm	3
Math 1063 Applied Math	3
Electives	2
	16

Second Quarter

AgSc 1554 Research Tech	4
BiSc 1115 Plant Biology I	5
Chem 1105 Tech Chemistry	5
Electives	3
	17

Third Quarter

Agro 1383 Grain Crop Prod	3
Comm 1203 Intro to Tech Rep	3
PhEd 1100 Phy Ed	1
Soil 1054 Soil Science	4
Electives	5
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgSc 1053 Intro to An Sci	3
BiSc 1215 Plant Biology II	5
PhEd 1200 Phy Ed	1
Soil 1643 Ag Chemicals	3
Electives	4
	16

Sixth Quarter

Agro 1253 Forages	3
Agro 1652 Seminar: Agro	2
Chem 1224 Organic	4
Comm 1473 Tech Rep Writing	3
Soil 1333 Soil Fertility	3
	15

Seventh Quarter

AgAc 1423 Ag Data Proc	3
Agro 1362 Weed Ident	2
Chem 1374 Meth Chem Anal	4
Econ 1013 Nat Econ Issues	3
Electives	4
	16

Animal Industry-Related Technology —Service Emphasis

Major Competency Requirements

AgAc 1014 Principles of Agricultural Accounting—I	4
AgAc 1423 Introduction to Data Processing	3
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 1363 Principles of Animal Breeding	3
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
AnSc 1623 Livestock Management Techniques	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
MeAg 1543 Agricultural Waste Management	3
MeAg 1664 Agricultural Products Handling	4
	55

Electives—22 credits

Suggested Program

First Quarter

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

Second Quarter

AgAc 1423 Intro Data Proc	3
AnSc 1483 Meat, Lvstk Prod	3
(or) Food 1573 Milk, Dairy Prod	3
Chem 1105 Tech Chemistry	5
MeAg 1543 Ag Waste Mgmt	3
PhEd 1200 Phy Ed	1
	15

Third Quarter

AgAc 1014 Prin of Ag Acct I	4
AnSc 1122 Lvstk Evaluation	2
AnSc 1623 Lvstk Mgmt Tech	3
Math 1063 Applied Math	3
MeAg 1664 Ag Prod Handling	4
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgBM 1013 Intro to Ag Bus	3
AnSc 1332 Artificial Insem	2
AnSc 1353 An Nutrition I	3
Comm 1203 Intro to Tech Rep	3
Econ 1013 Nat Econ Issues	3
Electives	3
	17

Sixth Quarter

Agro 1253 Forages	3
AnSc 1363 Prin An Breeding	3
AnSc 1443 An Nutrition II	3
AnSc 1523 Intro An Dis	3
Comm 1603 Speaking Skills	3
Electives	2
	17

Seventh Quarter

AgMk 1053 Prin Ag Mkt	3
AnSc Appl Breeding	1
AnSc 1682 Seminar: An Sci	2
Electives	10
	16

Crop Industry-Related Technology

Major Competency Requirements

AgMk 1053 Principles of Agricultural Marketing	3
AgMk 1573 Farm-Level Commodity Marketing	3
AgSc 1064 Integrated Pest Management	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 1643 Agricultural Chemicals	3
Agro 1652 Seminar: Crops Soils	2
BiSc 1115 Plant Biology I	5
BiSc 1215 Plant Biology II	5
MeAg 1664 Agricultural Products Handling	4
Soil 1054 Soil Science	4
Soil 1222 Soil and Plant Testing	2
Soil 1333 Soil Fertility	3
	49

Electives—21 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orientation	1
Agro 1153 Prin Crop Prod	3
BiSc 1115 Plant Biology I	5
Chem 1105 Tech Chemistry	5
Comm 1103 Intro to Comm	3
	17

Second Quarter

Agro 1253 Forages	3
BiSc 1215 Plant Biology II	5
PhEd 1100 Phy Ed	1
Soil 1054 Soil Science	4
Electives	2
	15

Third Quarter

AgMk 1053 Prin Ag Mkt	3
AgSc 1064 Pest Management	4
Agro 1362 Weed Ident	2
Agro 1383 Grain Crop Prod	3
Econ 1013 Nat Econ Issues	3
PhEd 1200 Phy Ed	1
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be take btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AnSc 1053 Intro to An Sci	3
Soil 1222 Soil Plant Test	2
Electives	11
	16

Sixth Quarter

AgMk 1573 Farm-Level 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
	17

Seventh Quarter

Agro 1643 Ag Chemicals	3
MeAg 1664 Ag Prod Handling	4
Electives	8
	15

Soils and Chemicals Technology

Major Competency Requirements

AgMk 1053 Principles of Agricultural Marketing	3
Agro 1362 Weed Identification and Control	2
Agro 1383 Grain Crop Production	3
Agro 1643 Agricultural Chemicals	3
Agro 1652 Seminar: Agronomy-Soils	2
AgSc 1064 Integrated Pest Management	4
BiSc 1044 General Biology I	4
MeAg 1043 Agricultural Metals and Welding	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
	48

Electives—22 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orientation	1
Agro 1153 Intro Crop Prod	3
BiSc 1044 General Biology I	4
Chem 1105 Tech Chemistry	5
Soil 1222 Soil Plant Test	2
	15

Second Quarter

Comm 1103 Intro to Comm	3
Math 1063 Applied Math	3
PhEd 1100 Phy Ed	1
Soil 1054 Soil Science	4
Electives	4
	15

Third Quarter

AgMk 1053 Prin Ag Mkt	3
Agro 1362 Weed Ident	2
Agro 1383 Grain Crop Prod	3
Agro 1643 Ag Chemicals	3
PhEd 1200 Phy Ed	1
Soil 1553 Soil Conserv	3
	15

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgSc 1064 Pest Management	4
AnSc 1053 Intro An Sci	3
Comm 1203 Intro to Tech Rep	3
Econ 1013 Nat Econ Issues	3
MeAg 1404 Fund Surveying	4
	17

Sixth Quarter

Agro 1652 Seminar: Agro	2
MeAg 1043 Ag Metals	3
Soil 1331 Fertilizers	1
Soil 1333 Soil Fertility	3
Electives	8
	17

Seventh Quarter

MeAg 1333 Ag Machinery	3
MeAg 1664 Ag Prod Hand	4
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. Noted below are the typical job titles graduates in each major have recently taken; students, in fact, are trained for a cluster of jobs even more diverse than those noted.

Crop Production

Canning Crop Field Rep
Cash Crop Farmer
Crop Scout

Elevator Technician
Seed Company Field Rep
Specialty Crop Farmer

Diversified Agricultural Production

Diversified Farmer
Diversified Farm Manager
Diversified Farm Technician
Farm Manager Adviser

Light Horse Management

Horse Showperson-Groom
Horse Technician
Horse Trainer
Stable Manager

Livestock Production

A. I. Technician
Beef Herd Technician
Dairy Herd Technician
Feedlot Supervisor
Livestock Farmer
Sheep Herd Manager
Swine Herd Manager

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. Credits follow each course listed.

Program Requirements

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

AgAc 1565 Applied Farm Accounting	5
(or) Home Farm POP Accounting Series	8
AgMk 1573 Farm-Level Commodity Marketing	3
AgSc 1064 Integrated Pest Management	4
Agro 1153 Introduction to Crop Science	3
Agro 1362 Weed Identification and Control	2
Agro 1383 Grain Crop Production	3
Agro 1643 Agricultural Chemicals	3
Agro 1652 Seminar: Crops Soils	2
BiSc 1044 General Biology I	4
BiSc 1053 General Biology II	3
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
	57-60

Electives—16 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orientation	1
Agro 1153 Intro Crop Prod	3
BiSc 1044 Gen Biology I	4
Comm 1103 Intro to Comm	3
Econ 1013 Nat Econ Issues	3
PhEd 1100 Phy Ed	1
	15

Second Quarter

BiSc 1053 Gen Biology II	3
Chem 1105 Tech Chemistry	5
Math 1063 Appied Math	3
Agro Electives	2
Electives	3
	16

Third Quarter

AgBM 1333 Farm Mgmt	3
AgSc 1064 Pest Management	4
Agro 1362 Weed Ident	2
Soil 1054 Soil Science	4
MeAg Electives	3
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 4th qtrs	
	12

Fifth Quarter

AgMk 1573 Farm-Level Comm Mkt	3
Agro 1383 Grain Crop Prod	3
Comm 1203 Intro Tech Rep	3
Electives	7
	16

Sixth Quarter

AgAc 1565 Appl Farm Acct	5
Agro 1652 Seminar: Agro	2
Soil 1333 Soil Fertility	3
AgBM/AgMk Electives	6
	16

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

Seventh Quarter

Agro 1643 Ag Chemicals	3
MeAg 1333 Ag Machinery	3
MeAg 1664 Ag Prod Handling	4
PhEd 1200 Phy Ed	1
Electives	6
	17

Diversified Agricultural Production

Major Competency Requirements

AgAc 1565 Applied Farm Accounting	5
AgMk 1573 Farm-Level Commodity Marketing	3
(or) Home Farm Pop Accounting Series	8
AgSc 1064 Integated Pest Management	4
Agro 1153 Introduction to Crop Science	3
Agro 1253 Forage, Pasture, and Grassland Production	3
(or) Agro 1383 Grain Crop Production	3
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 an Environment	4
MeAg 1443 Agricultural Gasoline Power Mechanics and Maintenance	3
Soil 1054 Soil Science	4
Agro/AnSc/Soil Minimum of 9 additional credits	9
	57-60

Electives—16 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orientation	1
Agro 1153 Intro Crop Prod	3
AnSc 1053 Intro to An Sci	3
BiSc 1044 Gen Biology I	4
Math 1063 Applied Math	3
PhEd 1100 Phy Ed	1
	15

Second Quarter

Agro 1253 Forages	3
(or) Agro 1383 Grain Crop Prod	3
AnSc 1353 An Nutr I	3
BiSc 1053 Gen Biology II	3
Chem 1105 Tech Chemistry	5
Comm 1103 Intro to Comm	3
	17

Third Quarter

AgBM 1333 Farm Mgmt	3
AgSc 1064 Pest Mgmt	4
AnSc 1443 An Nutr II	3
MeAg 1333 Ag Machinery	3
Electives/Additional Credits	3
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

Comm 1203 Intro Tech Rep	3
MeAg 1443 Gas Power	3
Soil 1054 Soil Science	4
Electives/Additional Credits	6
	16

Sixth Quarter

AgAc 1565 Appl Farm Acct	5
AgMk 1573 Farm-Level Comm Mkt	3
PhEd 1200 Phy Ed	1
Electives/Additional Credits	7
	16

Seventh Quarter

Econ 1013 Nat Econ Issues	3
MeAg 1374 Ag Structures	4
Electives	9
	16

Light Horse Management

Major Competency Requirements

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 1363 Principles of Animal Breeding	3
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
	52

Electives—21 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orientation	1
AnSc 1192 Fund Riding	2
AnSc 1193 Light Horse Mgmt	3
BiSc 1044 Gen Biology I	4
Comm 1103 Intro to Comm	3
Math 1063 Applied Math	3
	16

Second Quarter

Agro 1253 Forages	3
AnSc 1053 Intro to An Sci	3
AnSc 1091 Horse Husbandry	1
AnSc 1292 Stable Mgmt	2
BiSc 1053 Gen Biology II	3
PhEd 1100 Phy Ed	1
Electives	3
	16

Third Quarter

AgBM 1333 Farm Mgmt	3
AnSc 1363 Prin Breeding	3
AnSc 1592 Western Equitation	2
AnSc 1593 Farrier Sci	3
Chem 1105 Tech Chemistry	5
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgAc 1014 Prin Ag Acct I	4
AnSc 1353 An Nutr I	3
AnSc 1591 Adv Horse Husbandry	1
AnSc 1693 Care & Train	3
Comm 1203 Intro Tech Rep	3
Electives	2
	16

Sixth Quarter

AnSc 1443 An Nutr II	3
AnSc 1523 An Diseases	3
AnSc 1772 Dev Riding	2
Electives	8
	16

Seventh Quarter

AnSc 1431 Horse Breeding	1
AnSc 1491 Horse Eval	1
AnSc 1682 Seminar: An Sci	2
Econ 1013 Nat Econ Iss	3
PhEd 1200 Phy Ed	1
Electives	8
	16

Livestock Production—Beef Emphasis

Major Competency Requirements

AgAc 1565 Applied Farm Accounting	5
(or) Home Farm POP Accounting Series	8
AgMk 1573 Farm-Level 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 1363 Principles of Animal Breeding	3
AnSc 1411 Applied Beef Breeding	1
AnSc 1443 Animal Nutrition II—Applied Nutrition	3
AnSc 1473 Beef Production and Management	3
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
	59-62

Electives—14 credits

Suggested Program

First Quarter

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

Second Quarter

AgMk 1573 Farm-Level Comm Mkt	3
Agro 1253 Forage	3
AnSc 1353 An Nutr I	3
AnSc 1523 An Diseases	3
BiSc 1053 Gen Biology II	3
	15

Third Quarter

AnSc 1363 Prin Breeding	3
AnSc 1443 An Nutr II	3
Chem 1105 Tech Chemistry	5
Comm 1203 Intro Tech Rep	3
Econ 1013 Nat Econ Iss	3
	17

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgBM 1333 Farm Mgmt	3
AnSc 1411 Beef Breeding	1
AnSc 1473 Beef Prod	3
Soil 1054 Soil Science	4
MeAg credits	3
Electives	3
	17

Sixth Quarter

AgAc 1565 Appl Farm Acct	5
Math 1063 Appl Math	3
MeAg credits	3
Electives	5
	16

Seventh Quarter

AnSc credits	6
PhEd 1200 Phy Ed	1
Electives	9
	16

Livestock Production—Dairy Emphasis

Major Competency Requirements

AgAc 1565 Applied Farm Accounting	5
(or) Home Farm POP Accounting Series	8
AgMk 1573 Farm-Level 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 1363 Principles of Animal Breeding	3
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
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
	60-63

Electives—13 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orientation	1
Agro 1153 Intro Crop Prod	3
AnSc 1053 Intro to An Sci	3
AnSc 1353 An Nutrition I	3
AnSc 1471 Dairy Cattle Eval	1
BiSc 1044 Gen Biology I	4
	15

Second Quarter

Agro 1253 Forage	3
AnSc 1443 An Nutrition II	3
AnSc 1523 An Diseases	3
BiSc 1053 Gen Biology II	3
Comm 1103 Intro to Comm	3
Math 1063 Applied Math	3
	18

Third Quarter

AgBM 1333 Farm Mgmt	3
AnSc 1322 Physiology	2
AnSc 1363 Prin Breeding	3
Chem 1105 Tech Chemistry	5
Econ 1013 Nat Econ Iss	3
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AnSc 1513 Dairy Prod	3
Comm 1203 Intro Tech Rep	3
PhEd 1100 Phy Ed	1
MeAg credits	3
Soil 1054 Soil Science	4
Electives	2
	16

Sixth Quarter

AgAc 1565 Appl Farm Acct	5
AgMk 1573 Farm-Level Comm Mkt	3
AnSc 1421 Dairy Breeding	1
Food 1573 Milk Dairy Prod	3
MeAg credits	3
PhEd 1200 Phy Ed	1
	16

Seventh Quarter

AnSc 1332 Art Insemin	2
AnSc 1612 Current Issues	2
Electives	11
	15

Livestock Production—Sheep Emphasis

Major Competency Requirements

AgAc 1565 Applied Farm Accounting	5
(or) Home Farm POP Accounting Series	8
AgMk 1573 Farm-Level 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 1363 Principles of Animal Breeding	3
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
	59-62

Electives—14 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orientation	1
AnSc 1053 Intro to An Sc	3
AnSc 1353 An Nutr I	3
BiSc 1044 Gen Biology I	4
Comm 1103 Intro to Comm	3
PhEd 1100 Phy Ed	1
	15

Second Quarter

AgMk 1573 Farm-Level Comm Mkt	3
Agro 1253 Forages	3
AnSc 1443 An Nutr II	3
AnSc 1523 An Diseases	3
BiSc 1053 Gen Biology II	3
	15

Third Quarter

AnSc 1363 Prin Breeding	3
AnSc 1583 Sheep Prod	3
Chem 1105 Tech Chemistry	5
Comm 1203 Intro Tech Rep	3
Econ 1013 Nat Econ Iss	3
	17

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgBM 1333 Farm Mgmt	3
Agro 1153 Intro Crop Prod	3
AnSc credits	3
MeAg credits	3
Soil 1054 Soil Science	4
	16

Sixth Quarter

AgAc 1565 Appl Farm Acct	5
Math 1063 Applied Math	3
MeAg credits	3
Electives	6
	17

Seventh Quarter

AnSc 1441 Sheep Breeding	1
PhEd 1200 Phy Ed	1
AnSc credits	6
Electives	8
	16

Livestock Production—Swine Emphasis

Major Competency Requirements

AgAc 1565 Applied Farm Accounting	5
(or) Home Farm Pop Accounting Series	8
AgMk 1573 Farm-Level 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 1363 Principles of Animal Breeding	3
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 6 additional credits	6
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
	53-56

Electives—20 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orientation	1
AnSc 1053 Intro to An Sci	3
AnSc 1353 An Nutr I	3
BiSc 1044 Gen Biology I	4
Comm 1103 Intro to Comm	3
PhEd 1100 Phy Ed	1
	15

Second Quarter

Agro 1153 Intro Crop Prod	3
AnSc 1443 An Nutr II	3
AnSc 1523 An Diseases	3
BiSc 1053 Gen Biology II	3
Math 1063 Applied Math	3
PhEd 1200 Phy Ed	1
	16

Third Quarter

AgBM 1333 Farm Mgmt	3
AnSc 1363 Prin Breeding	3
Chem 1105 Tech Chemistry	5
Electives	5
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AnSc 1383 Swine Prod	3
AnSc 1451 Swine Breeding	1
Comm 1203 Intro Tech Rep	3
MeAg credits	3
Soil 1054 Soil Science	4
Electives	3
	17

Sixth Quarter

AgAc 1565 App Farm Acct	5
AgMk 1573 Farm-Level Comm Mkt	3
AnSc credits	6
Electives	2
	16

Seventh Quarter

Econ 1013 Nat Econ Iss	3
MeAg credits	3
Electives	10
	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, zoos, 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 the care of large and small animals as well as laboratory and zoo animals. Areas stressed include medical terminology and proper handling of equipment and instruments used in surgery. Radiology and X-ray techniques for animal health technicians and medical record keeping are studied both in theory and practice. 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 studied in detail. Course work relies heavily on practical laboratory experiences. Students assist in examination, treatment, and surgery on live animals that are the property of the University. Referral animals are also studied.

Medical nursing and diseases and pharmacology courses acquaint students with the symptoms of disease, vaccination procedures, drug administration, preventive care, and humane methods of euthanasia. Surgical nursing courses prepare the student in standard procedures of presurgical preparation, instrument sterilization, surgical assisting, postsurgical care, sterile technique, and anesthesiology.

Animal grooming and breed identification are covered in seminars.

In addition to three months training on-the-job with a veterinary clinic, laboratory, or zoo, each student spends three months in animal hospital practice rotation at the University of Minnesota College of Veterinary Medicine in St. Paul, Minnesota.

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

Noted below are the typical job titles graduates in each major have recently taken; students, in fact, are trained for a cluster of jobs even more diverse than those noted.

Animal Health

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
Large Animal Practice Assistant
Laboratory Animal Technician
Laboratory Animal Research Assistant
Biological and Pharmaceutical Laboratories Technician
Zoo Technician
State and Federal Civil Service Worker
Veterinary Drug Salesperson

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. Credits follow each course listed.

Program Requirements

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
	24

Animal Health

Major Competency Requirements

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 1443 Pathogenic Microbiology and Parasitology	3
AnHe 1454 Clinical Laboratory I	4
AnHe 1554 Clinical Laboratory II	4
AnHe 1555 Animal Diseases and Pharmacology	5
AnHe 1593 Small Animal Medical Nursing	3
AnHe 1623 Radiologic Techniques	3
AnHe 1723 Large Animal Medical Nursing	3
AnHe 1809 Internship in Animal Hospital Practice	14
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
CVM 1809 Internship in Animal Hospital Practice	4
	84

Electives—0
AnHe 1809 and CVM 1809 are offered at the University of Minnesota, College of Veterinary Medicine, St. Paul, Minnesota.

Suggested Program

(fall quarter start)

First Quarter

AgSc 1011 Ag Orientation	1
AnHe 1022 Intro An He	2
BiSc 1105 Animal Biology I	5
Chem 1105 Tech Chemistry	5
Math 1063 Applied Math	3
PhEd 1100 Phy Ed	1
	17

Second Quarter

AnSc 1053 Intro to AnSc	3
BiSc 1205 Animal Biology II	5
Chem 1224 Organic	4
Comm 1103 Intro Comm	3
	15

Third Quarter

AgAc 1013 Bookkeeping	3
AnHe 1395 Clin Anatomy	5
AnHe 1593 Small An Med Nursing	3
BiSc 1255 Microbiology	5
	16

Fourth Quarter

AnHe 1443 Path Micro	3
AnHe 1454 Clin Lab I	4
AnHe 1555 An Diseases	5
AnHe 1723 Large Med Nursing	3
	15

Fifth Quarter

AnHe 1424 Surg Nursing	4
AnHe 1554 Clin Lab II	4
AnHe 1623 Radiologic Tech	3
Comm 1203 Tech Rep	3
PhEd 1200 Phy Ed	1
	15

Sixth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
or	
AnHe 1809 Intern in Hosp Pract	14
CVM 1809 Intern in Hosp Pract	4
	12 or 18

Seventh Quarter

AgSc 1709 Pre-Occ Prep Unit	12
or	
AnHe 1809 Intern in Hosp Pract	14
CVM 1809 Intern in Hosp Pract	4
	12 or 18

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 government 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. Noted below are the typical job titles graduates in each major have recently taken; students, in fact, are trained for a cluster of jobs even more diverse than those noted.

Food Marketing and Distribution

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

Food Products and Inspection

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. Credits follow each course listed.

Program Requirements

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 1059 Directed Study	2
Food 1113 Introduction to the Food Industry	3
Food 1204 Food Product Evauation	4
Food 1344 Food Preservation	3
Food 1413 Food Industry Operations	3
Food 1433 Food and Family Nutrition	3
Food 1612 Food Industry Seminar	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
	75

Food Marketing and Distribution

Major Competency Requirements

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
Food 1523 New Product Development	3
	18

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

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

Third Quarter

AgMk 1373 Prin of Merch	3
BiSc 1255 Microbiology	5
Comm 1203 Intro Tech Rep	3
Food 1413 Food Ind Oper	3
Electives	2
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken between 3rd & 6th qtrs	
	12

Fifth Quarter

Comm 1603 Speaking Skills	3
Econ 1023, Prod, Bus Econ	3
Food 1059 Directed Study	2
Food 1344 Food Preservation	4
PhEd 1200 Phy Ed	1
Electives	3
	16

Sixth Quarter

AgBM 1553 Pers Mgmt	3
AgBM 1623 Ag Dist Systems	3
Food 1253 Food Prod Mkt	3
Food 1433 Food/Family Nutr	3
Electives	5
	17

Seventh Quarter

Food 1523 New Prod Dev	3
Food 1612 Food Ind Seminar	2
Psyc 1114 General Psychology	4
SocS 1273 Prin Leadership	3
Electives	4
	16

Food Products and Inspection

Major Competency Requirements

Chem 1454 Food Chemistry	4
Food 1322 Food Product Inspection	2
Food 1523 New Product Development	3
Food 1645 Food Microbiology	5
	14

Electives—19 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

Second Quarter

Chem 1105 Tech Chemistry	5
Comm 1203 Intro Tech Rep	3
Food 1204 Food Prod Eval	4
Math 1063 Applied Math	3
Electives	1
	16

Third Quarter

BiSc 1255 Microbiology	5
Chem 1454 Food Chemistry	4
Food 1322 Food Prod Insp	2
Food 1413 Food Ind Oper	3
Electives	2
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken between 3rd & 6th qtrs	
	12

Fifth Quarter

Comm 1603 Speaking Skills	3
Econ 1023 Prod, Bus Economics	3
Food 1344 Food Preservation	4
PhEd 1200 Phy Ed	1
Electives	6
	17

Sixth Quarter

Econ 1059 Directed Study	2
Food 1433 Food/Family Nutr	3
Food 1645 Food Microbiology	5
Electives	6
	16

Seventh Quarter

Food 1523 New Prod Dev	3
Food 1612 Food Ind Seminar	2
Psyc 1114 General Psychology	4
SocS 1273 Prin Leadership	3
Electives	4
	16

Home and Family Services

The Home and Family Services division addresses a very important part of the total sphere of agriculture. The division's programs focus not on the actual production of food and fiber, but on the broader environment in which agricultural industries exist and, most importantly, on the people who are a part of this environment.

There is a strong demand for qualified, educated 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 apparel, fabrics, and home interiors retail businesses can obtain the skills necessary for these positions through home and family services programs.

Four majors are offered through the Home and Family Services division:

Child Care Services educates students for jobs working with children—so important today when increasing numbers of mothers are finding it advantageous to work outside the home and place their children under professional care. Students enrolled in this program explore the social, emotional, physical, and cognitive development of infants, toddlers, and preschool children.

Merchandising Technology trains students to provide quality retail service in fashion merchandising of fabrics, apparel, and accessories, and in home furnishings. Background in areas such as textiles, apparel selection, interior decorating, marketing, salesmanship, management, advertising, and display provide a well-rounded educational experience. A yearly highlight of this program is the Annual Fashion Show.

Services for the Rural Elderly (Rural Home Services) provides students with skills required to work as direct service providers to the elderly. Because of the constantly increasing adult population, work with this age group is becoming one of the fastest growing fields in human services. Courses provide knowledge in the

understanding of the biological, sociological, and physiological changes which occur in the process of aging. Techniques are learned in working creatively with the elderly to enhance their quality of life.

The *Rural Youth and Recreation* major prepares students for positions with organizations serving youth. Courses in this major include family relationships, leadership, public relations, first aid, psychology, and communications. There is a temporary hold on admissions for this major; contact the Director of Admissions and Records for further information.

Noted below are the typical job titles graduates in each major have recently taken; students, in fact, are trained for a cluster of jobs even more diverse than those noted.

Child Care Services
Assistant Teacher in:
- Group Day Care Centers
- Nursery Schools
- Special Education Classrooms
- Head Start Programs

Head Teacher
Family Day Care Provider

Merchandising Technology
Salesperson
Assistant Manager
Department Manager
Advertising Manager
Special Events Coordinator

"Services for the Rural Elderly" (Rural Home Services)
Activity Director in Nursing Home
Home Care Aide
Transportation or Volunteer Coordinator
Senior Citizens Center Director

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. Credits follow each course listed.

Program Requirements

AgSc 1011 Agricultural Orientation	1
AgSc 1709 Pre-Occupational Preparation Unit	12
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

Child Care Services

Major Competency Requirements

AgBM 1013 Introduction to Agricultural Business	3
Comm 1603 Speaking Skills	3
Food 1433 Family and Food Nutrition	3
HFSc 1122 Child Development I (0-3 Years)	2
HFSc 1223 Child Development II (3-5 Years)	3
HFSc 1303 First Aid and Emergency Care	3
HFSc 1323 Preschool Child Practicum	3
HFSc 1354 Cognitive and Creative Activities for Children	4
HFSc 1363 Teacher-Parent Interaction	3
HFSc 1423 Pre-Kindergarten Child Practicum	3
HFSc 1433 Preschool Classroom Management	3
HFSc 1453 Home Management	3
HFSc 1533 Food Management and Preparation	3
HFSc 1523 Administration and Licensing of Preschool Programs	3
HFSc 1654 Exceptional Individual	4
Humn 1313 Introduction to Humanities	3
SocS 1053 Rural Sociology	3
SocS 1273 Principles of Leadership and Public Relations	3
	55

Electives—14 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orientation	1
HFSc 1052 Orient Fam Environ	2
HFSc 1122 Child Development I	2
HFSc 1303 First Aid	3
HFSc 1433 Preschool Classroom Mgmt	3
Psyc 1114 General Psychology	4
PhEd 1100 Phy Ed	1
	16

Second Quarter

AgBM 1013 Intro to Ag Bus	3
Comm 1103 Intro to Comm	3
Food 1433 Food/Family Nutr	3
HFSc 1223 Child Development II	3
Math 1063 Applied Math	3
	15

Third Quarter

BiSc 1014 Prin of Biology	4
Comm 1203 Intro Tech Rep	3
Econ 1103 Consumer Economics	3
HFSc 1323 Preschool Child Practicum	3
HFSc 1354 Cognaitive and Creative Activities	4
	17

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit 12
May be taken between 3rd & 6th qtrs
12

Fifth Quarter

Comm 1603 Speaking Skills 3
HFSc 1423 Pre-Kindergarten Child Practicum 3
HFSc 1453 Home Management 3
HFSc 1533 Food Management and Preparation ... 3
SocS 1053 Rural Sociology 3
15

Sixth Quarter

HFSc 1363 Teacher-Parent Interaction 3
HFSc 1654 Exceptional Individual 4
Humn 1313 Intro to Humanities 3
PhEd 1200 Phy Ed 1
SocS 1273 Prin Leadership 3
Electives 3
17

Seventh Quarter

HFSc 1623 Admin and Lic of Preschool Prog 3
HFSc 1672 Seminar: HFSc 2
Electives 11
16

Merchandising Technology

Major Competency Requirements

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
AgMk 1333 Advertising and Displaying Merchandise 3
AgMk 1373 Principles of Merchandising 3
Comm 1603 Speaking Skills 3
HFSc 1114 Textiles 4
HFSc 1152 Clothing Analysis 2
HFSc 1234 Apparel and Accessory Selection 4
HFSc 1324 Home Furnishings 4
HFSc 1564 Interior Decorating 4
HFSc 1694 Fashion Merchandising 4
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
52 or 53

Electives—16 or 17 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 1114 Textiles 4
HFSc 1152 Cloth Analysis 2
15

Second Quarter

AgMk 1253 Ag Sales 3
HFSc 1234 Apparel Acc 4
Math 1063 Applied Math 3
PhEd 1100 Phy Ed 1
Select one of two addtl business req 2-3
Electives 3-4
16-18

Third Quarter

AgMk 1333 Adv & Disp Merch 3
AgMk 1373 Prin of Merch 3
Comm 1603 Speaking Skills 3
HFSc 1324 Home Furnishings 4
Electives 3-4
16-17

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit 12
May be taken btwn 3rd & 6th qtrs
12

Fifth Quarter

AgBM 1473 Small Bus Mgmt 3
Comm 1203 Inro Tech Rep 3
Econ 1103 Consumer Econ 3
Electives 7
16

Sixth Quarter

AgAc 1014 Prin of Ag Acct—I 4
HFSc 1564 Interior Decorating 4
PhEd 1200 Phy Ed 1
Psyc 1114 General Psychology 4
Select one of two addtl business reg ..... 2 or 3
15 or 16

Seventh Quarter

BiSc 1014 Prin of Biology 3
HFSc 1672 Seminar: HFSc 2
HFSc 1694 Fashion Merchandising 4
SocS 1273 Prin of Leadership 3
Electives 3-4
16 or 17

Rural Home Services—Services for the Rural Elderly Emphasis[1]

Major Competency Requirements

AgAc 1014 Principles of Agricultural Accounting—I 4
(or) AgAc 1565 Applied Farm Accounting 5
(or) Home Farm POP Accounting Series 8
AgBM 1363 Agricultural Business Law 3
Food 1432 Nutrition Through the Life Cycle 2

[1]*Pending approval by the Board of Regents.*

Food 1433 Food and Family Nutrition	3
HFSc 1122 Child Development I (0-3 Years)	2
HFSc 1184 Introduction to Gerontology	4
HFSc 1223 Child Development II (3-5 Years)	3
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 1483 Health and Recreation for the Elderly	3
HFSc 1533 Food Management and Preparation	3
HFSc 1582 Death and Dying	2
Hort 1313 Home Horticulture	3
Humn 1313 Introduction to Humanities	3
SocS 1053 Rural Sociology	3
Select two courses from:	
AgBM 1473 Small Business Management	3
AgBM 1543 Tax Management	3
AgBM 1553 Personnel Management	3
AgOM 1252 Records Management	2
AgOM 1674 Word Processing Administration	4
	56-74

Electives—0-13 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orientation	1
Comm 1103 Intro to Comm	3
HFSc 1052 Orient Fam Environ	2
HFSc 1122 Child Development I	2
HFSc 1184 Intro Geront	4
PhEd 1100 Phy Ed	1
Electives	2-3
	15-16

Second Quarter

AgBM 1363 Ag Business Law	3
Food 1432 Nutrition	2
HFSc 1223 Child Development II	3
HFSc 1283 Creat Activities	3
Psyc 1114 Gen Psychology	4
	15

Third Quarter

AgAc 1014 Prin Ag Acct—I	4
(or) AgAc 1565 Appl Farm Acct	5
(or) Home Farm POP Accounting Series	8
BiSc 1014 Prin of Biology	4
HFSc 1384 Practicum	4
Hort 1313 Home Hort	3
Electives	2-3
	17-18

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken between 3rd & 6th qtrs	
	12

Fifth Quarter

HFSc 1303 First Aid	3
HFSc 1453 Home Mgmt	3
HFSc 1533 Food Management and Preparation	3
Math 1063 Applied Math	3
Electives	3-4
	15-16

Sixth Quarter

One of two reqd courses	2-4
Comm 1203 Tech Rep Writ	3
Food 1433 Food/Family Nutr	3
HFSc 1483 Health Rec Eld	3
HFSc 1672 Seminar: HFSc	2
Electives	1-3
	13-18

Seventh Quarter

One fo two reqd courses	2-4
Econ 1103 Cons Economics	3
HFSc 1582 Death and Dying	2
Humn 1313 Intro to Humn	3
SocS 1053 Rural Sociology	3
PhEd 1200 Phy Ed	1
	14-16

Rural Home Services—Rural Home Management Emphasis

There is a temporary hold for this major; contact the Director of Admissions and Records for further information.

Major Competency Requirements

AgAc 1014 Principles of Agricultural Accounting—I	4
(or) AgAc 1565 Applied Farm Accounting	5
(or) Home Farm POP Accounting Series	8
AgBM 1363 Agricultural Business Law	3
Agro 1153 Introduction to Crop Science	3
AnSc 1053 Introduction to Animal Science	3
Comm 1603 Speaking Skills	3
Food 1433 Food and Family Nutrition	3
HFSc 1114 Textiles	4
HFSc 1125 Development of the Preschool Child	5
HFSc 1184 Introduction to Gerontology	4
HFSc 1303 First Aid and Emergency Care	3
HFSc 1323 Home Furnishings	3
HFSc 1453 Home Management	3
HFSc 1634 Family Food Management and Preparation	4
SocS 1053 Rural Sociology	3
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
	53-56

Electives—1-16 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orientation	1
HFSc 1052 Orient Family	2
HFSc 1114 Textiles	4
HFSc 1125 Dev Preschool	5
HFSc 1184 Intro Geront	4
	16

Second Quarter

AgBM 1363 Ag Bus Law	3
Agro 1153 Intro to Crop Sci	3
Math 1063 Applied Math	3
Psyc 1114 Gen Psychology	4
	16

Third Quarter

AnSc 1053 Intro to An Sci	3
BiSc 1014 Prin of Biology	4
Comm 1203 Tech Rep Writ	3
One of two reqd courses	2 or 3
PhEd 1100 Phy Ed	1
Electives	2-3
	15-17

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken between 3rd & 6th qtrs	
	12

Fifth Quarter

Comm 1603 Speaking Skills	3
Econ 1103 Cons Economics	3
Food 1433 Food Fam Nutr	3
HFSc 1453 Home Mgmt	3
HFSc 1634 Fam Food Mgmt	4
PhEd 1200 Phy Ed	1
	17

Sixth Quarter

AgAc 1014 Prin Ag Acct—I	4
(or) AgAc 1565 Appl Farm Acct	5
(or) Home Farm POP Accounting Series	8
HFSc 1672 Seminar: HFSc	2
One of four reqd courses	2-4
Electives	8-10
	14-20

Seventh Quarter

HFSc 1303 First Aid	3
HFSc 1323 Home Furn	3
SocS 1053 Rural Sociology	3
One of two reqd courses	2 or 3
Electives	3 or 5
	14-17

Rural Youth and Recreation

There is a temporary hold for this major; contact the Director of Admissions and Records for further information.

Major Competency Requirements

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	3
	41

Electives—28 credits

Suggested Program

First Quarter

AgMk 1053 Prin Ag Mkt	3
AgSc 1011 Ag Orientation	1
Comm 1103 Intro to Comm	3
HFSc 1052 Orient Fam Env	2
Math 1063 Applied Math	3
Psyc 1114 General Psychology	4
	16

Second Quarter

Comm 1203 Intro Tech Rep	3
Food 1204 Food Prod Eval	4
PhEd 1100 Phy Ed	1
Electives	6
	14

Third Quarter

AgMk 1333 Advert Displ Merch	3
BiSc 1014 Prin of Biology	4
HFSc 1303 First Aid	3
Hort 1313 Home Hort	3
Electives	6
	19

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken between 3rd & 6th qtrs	
	12

Fifth Quarter

Econ 1103 Consumer Economics	3
HFSc 1453 Home Mgmt	3
HFSc 1634 Fam Food Mgmt	4
PhEd 1200 Phy Ed	1
Electives	5
	16

Sixth Quarter

Comm 1473 Tech Rep Writing	3
Econ 1013 Nat Economic Issues	3
HFSc 1672 Seminar: HFSc	2
SocS 1273 Prin Leadership	3
Electives	5
	16

Seventh Quarter

AgCm 1313 Audiovisual Tech	3
Comm 1603 Speaking Skills	3
SocS 1053 Rural Sociology	3
Electives	7
	16

Horticultural Technology

During the past two decades, horticulture has grown and developed at an amazing pace. Within the agricultural economy, it has been the fastest growing segment on a dollar- volume basis. Today's customers of horticulture products and services are much more knowledgeable and demanding. They seek not only new products, but enlarged and better services.

Well-trained personnel are needed to meet the customer demands of goods and services in the horticulture field. These demands are the propelling force behind existing employment opportunities in horticultural technology. Specialization and departmentalization have created a need for skillfully trained personnel. The field allows for fast advancing opportunities in managerial and supervisonal positions. Large conglomerate retail operations often have well defined horticulture departments that require skilled managers and assistant managers to be successful. Horticulture remains as one of the few realistic owner-operator opportunities. There are many one-person and family operated horticulture businesses. Horticulture also provides the ideal background for those seeking further education in plant science or plant biology.

Noted below are the typical job titles graduates in each major have recently taken; students, in fact, are trained for a cluster of jobs even more diverse than those noted.

Floriculture, Greenhouse, and Garden Center Technology

Floral Designer
Flower Grower
Floral Shop Manager
Floral Supply Salesperson
Garden Center Floral Technician
Garden Center Manager
Garden Center Owner-Operator
Garden Center Plant Buyer
Garden Center Salesperson
Greenhouse Owner-Operator
Greenhouse Section Technician
Horticultural Equipment and Supplies
Horticulture Office Manager
Salesperson
Plant Propagator
Retail Florist
Wholesale Florist

Landscape-Nursery Technology

Arboretum Maintenance Supervisor
Cemetery Superintendent
City Forester
Golf Course Superintendent
Grounds Maintenance Owner-Operator
Grounds Manager for Private Estates
Landscape Construction Foreman
Landscape Contractor
Landscape Designer
Landscape Design Illustrator
Landscape Designer and Salesperson
Landscape Equipment Salesperson
Landscape Materials Salesperson
Nursery Field Technician
Nursery, Garden Center Wholesale Supplier
Nursery Owner-Operator
Nursery Propagator
Nursery Stock Inspector
Nursery Stock Section Supervisor
Park Superintendent
Public Recreation Grounds Superintendent
Turf and Sod Retailer
Turf Grower

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 64 credits in agriculture and related education courses. The remaining credits are completed in major competency courses and electives appropriate for each major. Credits follow each course listed.

Program Requirements

AgBM 1473 Small Business Management	3
AgSc 1011 Agricultural Orientation	1
AgSc 1064 Integrated Pest Management	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 1333 Annuals and Perennials	3
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
	64

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

Major Competency Requirements

AgAc 1014 Principles of Agricultural Accounting—I	4
AgAc 1423 Introduction to Data Processing	3
AgMk 1253 Agricultural Salesmanship	3
AgMk 1333 Advertising and Displaying Merchandise	3
AgMk 1373 Prin of Merchandising	3
Hort 1254 Greenhouse Operations	4
Hort 1263 Vegetable Production	3
Hort 1272 Fruit Production	2
Hort 1321 Evergreen Woody Plants	1
Hort 1323 Deciduous Woody Plant Materials	3
Hort 1443 Landscape Maintenance	3
Hort 1531 Horticultural Retail Management	1
	33

Electives—11 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orient	1
BiSc 1115 Plant Biol I	5
Hort 1113 Intro Hort	3
Hort 1323 Woody Plants (D)	3
Hort 1443 Land Maint	3
	15

Second Quarter

AgAc 1423 Intro to Data Proc	3
AgMk 1253 Sales	3
Hort 1254 Ghse Oper	4
Hort 1321 Evergreens	1
Math 1063 Applied Math	3
Electives	3
	17

Third Quarter

AgSc 1709 Pre-Occ Pre	12
May be taken btwn 3rd & 6th qtrs	
	12

Fourth Quarter

AgBM 1473 Sm Bus Mgmt	3
Comm 1103 Intro Comm	3
Hort 1263 Veg Prod	3
Hort 1272 Fruit Prod	2
Hort 1333 Annuals/Per	3
PhyE 1100 Phy Ed	1
	15

Fifth Quarter

AgMk 1333 Adv & Disp	3
AgMk 1373 Prin/Market	3
AgSc 1064 Pest Mgmt	4
BiSc 1215 Plant Bio II	5
Hort 1531 Garden Center Mgmt Lab	1
	16

Sixth Quarter

AgAc 1014 Acct I	4
Chem 1105 Tech Chem	5
Comm 1203 Tech Rept	3
Hort 1343 Plant Prop	3
Electives	2
	17

Seventh Quarter

Hort 1651 Seminar	1
Psyc 1114 General Psychology	4
Soil 1054 Soil Sci	4
PhEd 1200 Phy Ed	1
Electives	6
	16

Floriculture, Greenhouse, and Garden Center Technology—Production Emphasis

Major Competency Requirements

AgAc 1014 Principles of Agricultural Accounting—I	4
AgAc 1423 Introduction to Data Processing	3
Agro 1362 Weed Identification and Control	2
Hort 1232 Basic Flower Arrangement and Floral Design	2
Hort 1254 Greenhouse Operations	4
Hort 1352 Foliage and Flowering Pot Plants	2
Hort 1513 Fall Greenhouse Crops	3
Hort 1533 Winter and Spring Greenhouse Crops	3
Hort 1613 Commercial Floriculture Management	3
Soil 1222 Soil and Plant Testing	2
	28

Electives—16 credits

Suggested Program
(fall quarter start)

First Quarter

AgSc 1011 Ag Orientation	1
BiSc 1115 Plant Biology I	5
Hort 1113 Intro to Hort	3
Hort 1352 Foliage Plants	2
Math 1063 Applied Math	3
PhEd 1100 Phy Ed	1
	15

Second Quarter

AgAc 1423 Intro Data Proc	3
Chem 1105 Tech Chemistry	5
Comm 1103 Intro to Comm	3
Hort 1254 Greenhouse Operations	4
	15

Third Quarter

AgAc 1014 Prin of Acct-I	4
Comm 1203 Intro to Tech Rep	3
Hort 1333 Annuals & Perennials	3
PhEd 1200 Phy Ed	1
Electives	6
	17

Fourth Quarter

AgBM 1473 Small Bus Mgmt	3
Agro 1362 Weed Ident	2
Psyc 1114 General Psychology	4
Soil 1054 Soil Science	4
Electives	3
	16

Fifth Quarter

AgSc 1064 Pest Management	4
BiSc 1215 Plant Biology II	5
Hort 1232 Basic Flower Arrang	2
Hort 1513 Fall Greenhouse Crops	3
Soil 1222 Soil Plant Test	2
	16

Sixth Quarter

Hort 1343 Plant Propagation	3
Hort 1533 Winter and Spring Greenhouse Crops	3
Hort 1613 Comm Flor Mgmt	3
Hort 1651 Seminar	1
Electives	7
	17

Seventh Quarter

AgSc 1709 Pre-Occ Prep Unit	12
	12

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

Major Competency Requirements

AgAc 1014 Principles of Agricultural Accounting—I	4
AgAc 1423 Introduction to Data Processing	3
AgMk 1253 Agricultural Salesmanship	3
AgMk 1333 Advertising and Displaying Merchandise	3
AgMk 1373 Principles of Merchandising	3
Hort 1232 Basic Flower Arrangement and Floral Design	2
Hort 1254 Greenhouse Operations	4
Hort 1341 Cut Flowers and Greens	1
Hort 1352 Foliage and Flowering Pot Plants	2
Hort 1413 Advanced Floral Design	3
Hort 1521 Floriculture Retail Management Lab	1
	29

Electives—15 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orient	1
BiSc 1115 Plant Bio I	5
Hort 1113 Intro Hort	3
Hort 1232 Basic Floral	2
Hort 1352 Foliage	2
Math 1063 Applied Math	3
PhEd 1100 Phy Ed	1
	17

Second Quarter

AgAc 1423 Intro Data Proc	3
AgMk 1253 Ag Sales	3
Hort 1254 Grhs Oper	4
Hort 1341 Cut Fl and Gr	1
Hort 1413 Adv Floral	3
Electives	2
	16

Third Quarter

AgSc 1709 Pre-Occ Prep	12
May be taken btwn 3rd & 6th qtrs	
	12

Fourth Quarter

AgBM 1473 Sm Bus Mgmt	3
Comm 1103 Intro to Comm	3
Hort 1333 Annuals/Per	3
Psyc 1114 General Psychology	4
PhEd 1200 Phy Ed	1
Electives	2
	16

Fifth Quarter

AgMk 1373 Prin Merch	3
AgSc 1064 Pest Mgmt	4
BiSc 1215 Plant Bio II	5
Hort 1521 Floriculture Rt Mgmt	1
Electives	3
	16

Sixth Quarter

AgAc 1014 Ag Acct I	4
Chem 1105 Tech Chem	5
Hort 1343 Plant Prop	3
Electives	3
	15

Seventh Quarter

AgMk 1333 Adv Display	3
Comm 1203 Tech Report	3
Hort 1651 Seminar	1
Soil 1054 Soil Science	4
Electives	5
	16

Landscape-Nursery Technology—Landscape Maintenance Emphasis

Major Competency Requirements

AgAc 1014 Principles of Agricultural Accounting—I	4
Agro 1362 Weed Identification and Control	2
Hort 1321 Evergreen Woody Plants	1
Hort 1323 Deciduous Woody Plant Materials	3
Hort 1373 Arboriculture	3
Hort 1443 Landscape Maintenance	3
Hort 1554 Landscape Planning	4
Hort 1643 Turf Management	3
Hort 1673 Grounds Management	3
Hort 1681 Nursery Field Operations	1
Hort 1683 Nursery Management and Operations	3
MeAg 1032 Principles of Equipment Maintenance	2
	32

Electives—12 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orient	1
BiSc 1115 Plant Bio I	5
Hort 1113 Intro Hort	3
Hort 1323 Woody Pl (D)	3
Hort 1443 Land Maint	3
PhEd 1100 Phy Ed I	1
	16

Second Quarter

Chem 1105 Tech Chem	5
Comm 1103 Intro to Comm	3
Hort 1321 Evergreen Woody Plants	1
Hort 1554 Land Plan	4
Math 1063 Applied Math	3
	16

Third Quarter

AgAc 1014 Ag Acct I	4
Agro 1362 Weed Ident	2
Hort 1333 Annuals/Per	3
Hort 1643 Turf Mgmt	3
PhEd 1200 Phy Ed	1
Electives	3
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgSc 1064 Pest Mgmt	4
BiSc 1215 Plant Bio II	5
Hort 1373 Arboriculture	3
Hort 1681 Nursery Field Operations	1
Electives	3
	16

Sixth Quarter

Comm 1203 Tech Report	3
Hort 1343 Plant Prop	3
Hort 1673 Grounds Mgmt	3
MeAg 1032 Prin Equip	2
Soil 1054 Soil Science	4
	15

Seventh Quarter

AgBM 1473 Sm Bus Mgmt	3
Hort 1651 Seminar	1
Hort 1683 Nursery Management and Operations	3
Psyc 1114 General Psychology	4
Electives	6
	17

Landscape-Nursery Technology—Landscape Design Emphasis

Major Competency Requirements

AgAc 1014 Principles of Agricultural Accounting—I	4
AgMk 1253 Agricultural Salesmanship	3
Hort 1321 Evergreen Woody Plant	1
Hort 1323 Deciduous Woody Plant Materials	3
Hort 1443 Landscape Maintenance	3
Hort 1554 Landscape Planning	4
Hort 1634 Landscape Construction	4
Hort 1663 Advanced Landscape Planning	3
Hort 1681 Nursery Field Operations	1
Hort 1683 Nursery Management and Operations	3
MeAg 1024 Technical Drawing	4
	33

Electives—11 credits

Suggested Program

First Quarter

AgSc 1011 Ag Orient	1
BiSc 1115 Plant Biol I	5
Hort 1113 Intro Hort	3
Hort 1323 Woody (D)	3
Hort 1443 Land Maint	3
PhEd 1100 Phy Ed I	1
	16

Second Quarter

Chem 1105 Tech Chem	5
Comm 1103 Intro Comm	3
Hort 1321 Woody (Ev)	1
Hort 1554 Land Plan	4
Math 1063 Ap Math	3
	16

Third Quarter

AgAc 1014 Ag Acct I	4
Hort 1333 Annuals/Per	3
Hort 1634 Land Const	4
PhEd 1200 Phy Ed	1
Electives	4
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgSc 1064 Pest Mgmt	4
BiSc 1215 Plant Bio II	5
Hort 1681 Nursery Field Operations	1
MeAg 1024 Tech Drawing	4
Electives	3
	17

Sixth Quarter

AgMk 1253 Ag Sales	3
Comm 1203 Tech Report	3
Hort 1343 Plant Prop	3
Hort 1663 Adv Land Planning	3
Soil 1054 Soil Science	4
	16

Seventh Quarter

AgBM 1473 Sm Bus Mgmt	3
Hort 1651 Seminar	1
Hort 1683 Nursery Management and Operations	3
Psyc 1114 General Psychology	4
Electives	4
	15

Landscape-Nursery Technology—Nursery Production Emphasis

Major Competency Requirements

AgAc 1014 Principles of Agricultural Accounting—I	4
Agro 1362 Weed Identification and Control	2
Hort 1254 Greenhouse Operations	4
Hort 1272 Fruit Production	2
Hort 1321 Evergreen Woody Plants	1
Hort 1323 Deciduous Woody Plant Materials	3
Hort 1443 Landscape Maintenance	3
Hort 1554 Landscape Planning	4
Hort 1681 Nursery Field Operations	1
Hort 1683 Nursery Management and Operations	3
MeAg 1032 Principles of Equipment Maintenance	2
Soil 1222 Soil and Plant Testing	2
	31

Electives—13 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
Hort 1443 Landscape Maint	3
PhEd 1100 Phy Ed	1
	16

Second Quarter

Chem 1105 Tech Chemistry	5
Comm 1103 Intro to Comm	3
Hort 1321 Evergreens	1
Hort 1554 Landscape Planning	4
Math 1063 Applied Math	3
	16

Third Quarter

AgAc 1014 Ag Acct—I	4
Agro 1362 Weed Ident	2
Hort 1272 Fruit Production	2
Hort 1333 Annuals/Per	3
PhEd 1200 Phy Ed	1
Soil 1054 Soil Science	4
	16

Fourth Quarter

AgSc 1709 Pre-Occ Prep Unit	12
May be taken btwn 3rd & 6th qtrs	
	12

Fifth Quarter

AgSc 1064 Pest Mgmt	4
BiSc 1215 Plant Bio II	5
Hort 1681 Nursery Field Operations	1
Soil 1222 Soil Plant Test	2
Electives	4
	16

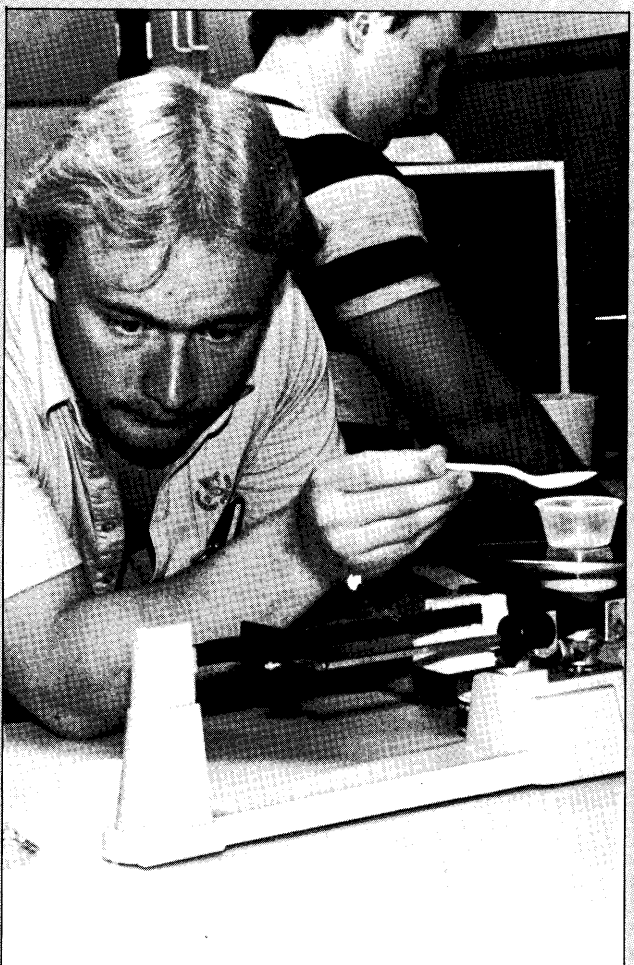
Sixth Quarter

Comm 1203 Intro to Tech Rep	3
Hort 1254 Grhs Oper	4
Hort 1343 Plant Prop	3
MeAg 1032 Prin Equip Maint	2
Electives	4
	16

Seventh Quarter

AgBM 1473 Small Bus Mgmt	3
Hort 1651 Seminar	1
Hort 1683 Nursery Management and Operations	3
Psyc 1114 General Psychology	4
Electives	5
	16

Course Descriptions



Course Descriptions

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 that the course is offered in fall, winter, spring, or summer quarters.

Offered 1985-86 (1986-87) and alt yrs indicates the course will be offered in 1985-86 (1986-87) and every other year thereafter.
Offered on demand indicates courses which will not be offered unless there is sufficient student demand for the course; many of these courses are for majors presently not being offered.

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 agribusiness environment.

1052w. OFFICE MACHINE CALCULATION. (2 cr; 4 hrs per wk; offered 1986-87 and alt yrs)
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.

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.

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 1986-87 and alt yrs; 3 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. Home farm accounts may be kept on micro-computer using accounting software available.

1423f,w,s,su. INTRODUCTION TO DATA PROCESSING. (3 cr; 4 hrs per wk)
A general introduction to computers and their uses. Students use general purpose software on microcomputers.

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. Computer software has a tax estimate print-out.

1433s. COMPUTER PROGRAMMING IN BASIC. (3 cr; prereq consent; 4 hrs per wk)
Students develop intermediate and advanced programming skills in the BASIC language. File input-output; menu design; conversational design; sorting; report writing; and creating flow charts.

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. Cash data for four analysis input sheets can be taken off computer print-outs.

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. 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. DIRECTED STUDY. (1 cr; hrs ar)
Individual study or a project in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.

1312f,s. 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. Local county offices provide information related to agricultural real estate. The Debt Servicing Capacity and Crop Equivalency Rating approaches to value explored.

1333f,s. PRINCIPLES OF FARM MANAGEMENT. (3 cr; 4 hrs per wk)
Organization, operation, decision-making process, and principles of production economics applied to agricultural enterprises. Several farms visited. Resource people used to explore credit and estate planning decisions.

1343w. COOPERATIVE BUSINESS ORGANIZATION. (3 cr; 4 hrs per wk; offered on demand)
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. AGRICULTURAL BUSINESS LAW. (3 cr; 4 hrs per wk)
Basic legal principles involved in contracts, negotiable instruments, bailments, insurance, partnerships, corpora tions, real property, wills, and rural community relationships particularly applicable to farm and agribusinesses.

1443w. CREDIT AND COLLECTIONS. (3 cr; 4 hrs per wk; offered 1986-87 and alt yrs)
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. Entrepreneurship will be highlighted early in the course. Focus on economic and social environment affecting the small firm; financing, marketing, legal, and governmental influences will be studied from a practical viewpoint.

1513w. 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. Acquisition of personnel for the work place; supervision; unions and labor-management relations; and wages and salaries, job security, and benefits.

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, purchasing, warehousing, order processing, packaging, and material handling.

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.

1633w. 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.

1652w,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.

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)

1223f. INTRODUCTION TO PHOTOGRAPHY. (3 cr; 4 hrs per wk; offered on demand)
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.

1313. AUDIOVISUAL TECHNIQUES. (3 cr; 3 hrs per wk; offered on demand)
Lecture and laboratory work in the use of audiovisual equipment; production of materials and visuals; principles involved in effective presentations.

1333. INTRODUCTION TO MASS COMMUNICATIONS. (3 cr; 4 hrs per wk; offered on demand)
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.

1423. ADVANCED PHOTOGRAPHY—PHOTOJOURNALISM. (3 cr; 5 hrs per wk; offered on demand)
Advanced use of photography for agricultural publications and news media using darkroom techniques, and special projects.

1533. AGRICULTURAL REPORTING. (3 cr; prereq Comm 1103, 1203; 4 hrs per wk; offered on demand)
Practice in gathering and writing agricultural information appropriate for company news releases or for news stories in agricultural news sections of newspapers and bulletins.

1563. AGRICULTURAL MAGAZINE/JOURNAL WRITING. (3 cr; prereq Comm 1103, 1203; 4 hrs per wk; offered on demand)
Practice in researching, writing, and layout for periodical articles. At least one article will be submitted to an agricultural periodical for publication.

1663. INTRODUCTION TO RADIO AND TELEVISION BROADCASTING. (3 cr; 4 hrs per wk; offered on demand)
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.

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.

1273f. MONEY AND FINANCIAL INSTITUTIONS. (3 cr; 5 hrs per wk)
A basic introduction to the procedures used in modern banking. Emphasis on bank accounting, marketing of services, check processing, and teller and deposit functions.

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. (2-3 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. FARM-LEVEL 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)

1113f,w,s. 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.

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.

1273. BEGINNING SHORTHAND. (3 cr; prereq 1113 or consent; offered on demand; 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; offered 1986-87 and alt yrs)
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.

1382f,w,s. WORD PROCESSING APPLICATIONS. (2 cr; prereq 1113; 4 hrs per wk)
Will develop expertise in typing typical correspondence and related business documents that are produced in word processing centers. Through simulated word processing practice materials, students get an in-depth feel for the kinds of activities that are performed in word processing centers. Individualized study.

1564s. MACHINE TRANSCRIPTION WORD PROCESSING. (4 cr; 6 hrs per wk; offered 1986-87 and alt yrs)
Designed to develop competency in machine transcription. Language arts skills of spelling, punctuation, and grammar integrated into the production of usable business documents via machine dictation. Students spend several weeks transcribing specialized business communications in the area of their own choice such as agricultural technical areas. Effective dictation techniques and procedures developed as students are given an opportunity to dictate their own material and later transcribe the same material.

1574s. WORD PROCESSING PROCEDURES. (4 cr; 6 hrs per wk; offered 1985-86 and alt yrs)
Stresses administrative procedures for the electronic office. General office procedures and job tasks performed by administrative support specialists in automated offices. Overview of telecommunications, electronic mail, and other sophisticated communication systems. (The job preparation package is a culminating unit of instruction.)

1674w. WORD PROCESSING ADMINISTRATION. (4 cr; 6 hrs per wk)
Comprehensive study of word processing and its role in the information management process of modern business. Developing and evaluating feasibility studies, analyzing and implementing a word processing system, human relations and staffing, production standards and work measurement, office layout and design for word processing, and interfacing word processing with related office systems. Field trips and guest lecturers help students see how word processing can be used in conjunction with data processing and related technological areas. A detailed comparison of word processing systems is a required assignment.

Agricultural Science (AgSc)

1011f,w,s,su. AGRICULTURAL ORIENTATION. (1 cr; 1 hr 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. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.

1064f,s,su. INTEGRATED PEST MANAGEMENT. (4 cr; prereq BiSc 1044 or equivalent or consent; 5 hrs per wk)
Introduction to the theory and practice of solving problems that affect agronomic and horticultural crops. A basic foundation in entomology, plant pathology, physiological nutrition, mechanical and environmental factors affecting plants. Control methods include detection, scouting procedures, economic thresholds, cultural and biological control.

1081s. INTRODUCTION TO AGRICULTURAL EDUCATION. (1 cr; 1 hr per wk)
Orientation to employment and service opportunities in agricultural education. An overview of agricultural education programs in Minnesota and the nation.

1213f. THE FUTURES OF AGRICULTURE. (3 cr; 4 hrs per wk; offered on demand)
Examination of the possible, probable, and planned futures for agriculture in the next 20 years.

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.

1809f,s,su. PRE-OCCUPATIONAL PREPARATION (HOME FARM). (12 cr; prereq AgAc 1213, 1321; entails work equivalent to 1 qtr's time)
On-the-job internship experience on the home farm designed to make the student better prepared for a full-time farming occupation.

Agronomy (Agro)

1059. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project 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.

1253w,su. FORAGE, PASTURE, AND GRASSLAND PRODUCTION. (3 cr; 4 hrs per wk)
Economical 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)
Economical 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 US standards for grain and factors that influence the quality of grain.

1452s. 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.

1643f,s,su. AGRICULTURAL CHEMICALS. (3 cr; prereq Soil 1054 or consent; 4 hrs per wk)
Introduction to the use of agricultural chemicals. Safety and legal aspects of applications. Interaction with soils, water, organic matter, and crop varieties. Foliar and soil application, incorporation, drift control, and compatibility. Currently recommended herbicides, insecticides, fungicides, and growth regulators.

1652w. SEMINAR: CROPS-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. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.

1253s,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.

1443s,su. PATHOGENIC MICROBIOLOGY AND PARASITOLOGY. (3 cr; taken with BiSc 1255; 5 hrs per wk)
Laboratory procedures and techniques used to isolate and identify pathogenic microorganisms from tissues, body fluids, and milk. Laboratory procedures used to identify internal and external parasites of animals. Life cycles of the common parasites of animals.

1454f,su. CLINICAL LABORATORY I. (4 cr; prereq BiSc 1105; 6 hrs per wk)
Fundamentals of blood morphology and laboratory techniques concerned with the solid blood components.

1554f,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.

1555w, 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.

1723s,su. 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. 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.

1809f,w,s,su. INTERNSHIP IN ANIMAL HOSPITAL PRACTICE. (14 cr; prereq satisfactory completion of first 4 quarters of Animal Health curriculum; hrs ar)
Laboratories devoted to the principles and techniques of medical and surgical nursing care, examination, diagnostic and therapeutic procedures, and applied procedures in anesthesiology and radiology. Rotations in Small Animal Medicine and Surgery, Large Animal Medicine and Surgery, Anesthesiology, Radiology and Intensive Care. Taken in conjunction with CVM 1809 Internship in Animal Hospital Practice at the College of Veterinary Medicine for a total of 18 credits during the enrolled quarter.

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. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.

1092f,w,s,su. HORSE HUSBANDRY. (2 cr; 1193 recommended; hrs ar)
Feeding and caring for the college's horses under a practical management "on-the-job" situation. Students assigned horses for the quarter.

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. FUNDAMENTAL 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,su. 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 informa tion 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.

1363w,s. PRINCIPLES OF ANIMAL BREEDING. (3 cr; prereq BiSc 1053 or consent; 4 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. 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, health 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, standardiza tion 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.

1441s. APPLIED SHEEP BREEDING. (1 cr; prereq 1362 or consent; 2 hrs per wk; offered 1984-85 and alt yrs)
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.

1491su. HORSE EVALUATION. (1 cr; prereq 1193 or consent; 2 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.

1563. POULTRY PRODUCTION AND MANAGEMENT. (3 cr; prereq 1053 or consent; 4 hrs per wk; offered on demand)
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.

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.

1773w,su. DEVELOPMENT OF THE RIDING AND DRIVING HORSE. (3 cr; prereq 1693; 6 hrs per wk)
Principles and practices in the care and training of the riding and driving horse. Further development of horse handling, training, grooming, fitting, and showing skills. Proper methodology for introducing various types of bits, training and driving equipment.

1794s. CARE AND TRAINING OF THE RACE HORSE. (4 cr; prereq 1693 or consent, 1773; 4 hrs per wk)
Application of the practices and skills used in the care, conditioning, and training of race horses. Development of skills in exercise riding, bandaging, and leg and hoof care. Introduction of racing equipment and its proper usage.

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.

1052. MAN, AGRICULTURE, AND ENVIRONMENT. (2 cr; 3 hrs per wk; offered on demand)
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. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project 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,su. PLANT BIOLOGY I. (5 cr; 7 hrs per wk)
Fundamental principles of plant biology with emphasis on cytology, morphology, 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, Chem 1105 or consent; 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. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project 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 structures, ionic and molecular compounds, solutions and reactions in solutions, acids and bases, chemical nomenclature, and an introduction to organic chemistry and biochemistry.

1224f,w,s. ORGANIC AND BIOCHEMISTRY. (4 cr; prereq 1105; 6 hrs per wk)
Study of hydrocarbons, alcohols, ethers, aldehydes, ketones, carboxylic acids, esters, amines and amides. Chemistry 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 instru mental 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. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project 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; 3 hrs per wk)
Practical applications of four communication skills: reading, writing, speaking, and listening. Emphasis on writing.

1203f,w,s,su. INTRODUCTION TO TECHNICAL REPORTING. (3 cr; prereq 1103 or consent; 3 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; 3 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; 3 hrs per wk)
Introduction to objective, informative writing designed to develop effective written communication skills for agricultural and agriculturally related industries.

1603f,w,s. 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. PRODUCTION AND BUSINESS ECONOMICS. (3 cr; 4 hrs per wk)
Economics of the firm; supply and demand analysis; theory of production, consumption, and distribution.

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. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.

1113f. 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. Evalution of dairy products, fruits, vegetables, meats, poultry, and eggs. The role of labeling as related to the food industry including rules and regulations, especially those of the Food and Drug Administration.

1253w. 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; offered 1985-86 and alt yrs)
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. 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; 5 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.

1433w,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 1344, 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. Types of packaging materials and economic factors.

1573f,w,su. 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.

1612s. 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)
Further evaluation of food products, factors affecting the safety, shelf life, and microbial quality of food products. The role of microorganisms in the food industry. Sanitation aspects of microbial quality of food.

Home and Family Services (HFSc)

1052f,su. ORIENTATION TO FAMILY ENVIRONMENT. (2 cr; 3 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 lifestyles.

1059. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.

1114f. TEXTILES. (4 cr; 5 hrs per wk)
Characteristics, use, and care of fibers, yarns, fabrics, and finishes used in today's fabrics. Current trends and developments in textiles surveyed.

1122f. CHILD DEVELOPMENT I (0-3 YEARS). (2 cr; 3 hrs per wk)
Introduction to early childhood education. Focus on conception, pregnancy, and birth through three years of age. The social, emotional, physical, and intellectual development of the infant and toddler.

1152f. CLOTHING ANALYSIS. (2 cr; 3 hrs per wk)
Comparison and analysis of ready-to-wear and custom-made clothing. Quality evaluation of garment components including materials, construction methods, sizing, and fit. Fundamentals of basic clothing construction techniques.

1184f. 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.

1223w. CHILD DEVELOPMENT II (3-5 YEARS). (3 cr; prereq 1122; 4 hrs per wk)
Examine years three through five in human cycle, and physical development of preschool age. Emphasis on developing physical competence; fostering emotional health; developing social competence; enhancing intellectual growth in children. Major child development theories.

1234w. APPAREL AND ACCESSORY SELECTION. (4 cr; 5 hrs per wk)
Dynamics of fashion. Social, psychological, physical, and visual considerations in the selection of clothing. Fashion terminology. Fashion apparel and accessory industries. Selection and selling knowledge of apparel and accessory merchandise.

1252su. TAILORING. (2 cr; prereq 1154 or consent; 3 hrs per wk; alt yrs)
Fundamentals of fabric selection, construction techniques, and fitting of tailored garments. Emphasis on speed tailoring methods.

1283f. 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,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.

1323f,w,s. PRESCHOOL CHILD PRACTICUM. (3 cr; prereq 1122, 1223; 5 hrs per wk)
Practical experience in guidance and care of preschool children; planning and participation in activities, and routines with preschool children under supervision of the head teacher. Focus on staff, roles in child care centers, effects of curriculum and classroom environment.

1324s. HOME FURNISHINGS. (4 cr; 5 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.

1354s. COGNITIVE AND CREATIVE ACTIVITIES FOR CHILDREN. (4 cr; 6 hrs per wk)
Planning, structuring, and implementing cognitive and creative activities appropriate for young children in early childhood programs. Cognitive activities include language development, pre-reading and math activities, literature and outdoor activities. Creative activities include art, science, music, dramatic play, story-telling, and creative movement.

1363w. 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.

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.

1403su. SEWING FOR THE HOME. (3 cr; 4 hrs per wk; alt yrs)
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.

1423f,w,s. PRE-KINDERGARTEN CHILD PRACTICUM. (3 cr; prereq 1122, 1223, 1323; 5 hrs per wk)
Practical experience in guidance and care of pre-kindergarten (4 and 5 year old) children. Planning and participation in activities and routines with pre-kindergarten children under the supervision of head teacher. Emphasis on preparing unit lesson plans, daily activities, and teaching.

1433f. PRESCHOOL CLASSROOM MANAGEMENT. (3 cr; 4 hrs per wk)
Philosophy and techniques in working with preschool children in a child care center. Study of different behavioral theories, the major philosophical concepts and methods of preschool education. Identification and implementation of a variety of child guidance and discipline techniques.

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.

1483w. HEALTH AND RECREATION FOR THE ELDERLY. (3 cr; 4 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 in methods and rules of games, tournaments, and activities. Major health problems of the elderly and consideration of the "Wellnesss" program.

1533f. FOOD MANAGEMENT AND PREPARATION. (3 cr; 4 hrs per wk)
Development of techniques in food preparation. Standards of evaluation of food products. Fundamentals of menu planning, food purchasing, safe preparation, and meal service with emphasis on foods for young children and foods for the elderly.

1564w. INTERIOR DECORATING. (4 cr; 5 hrs per wk)
Elements and principles of design as applied to decoration of living spaces. Emphasis on organization of floor plans and current fashion trends in interior decorating. Creative selection of appropriate home furnishings, textiles, and small accessories. Individual and family needs considered.

1582s. DEATH AND DYING. (2 cr; 4 hrs per wk)
The significance of death in human life—individual as well as social. Emphasis on understanding the students' own feelings and attitudes toward death and dying and others who are experiencing it.

1623s. ADMINISTRATION AND LICENSING OF PRESCHOOL PROGRAMS. (3 cr; 4 hrs per wk)
Analysis of the process of administration and operation of preschool programs as mandated by current licensing regulations. Focus on finances, space and equipment, staff management, enrollment, health, nutrition, safety, parent programming, and community relationships in a variety of settings.

1654w. EXCEPTIONAL INDIVIDUAL. (4 cr; 5 hrs per wk)
Study of exceptional individuals with emphasis on curriculum and materials used in the education of exceptional preschool children. Mental retardation, learning disabilities, visual and auditory disabilities, physical and emotional disabilities, speech impairments, and the gifted and talented.

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.

1694s. FASHION MERCHANDISING. (4 cr; 6 hrs per wk)
Comprehensive study of various major aspects of fashion merchandising including current trends, fashion buying, fashion promotion and fashion consulting. A major fashion production is planned and executed.

Horticulture (Hort)

1059. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.

1113f,su. INTRODUCTORY HORTICULTURE. (3 cr; 4 hrs per wk)
Survey of the total horticultural field including employment opportunities. Introduction to the environmental considerations for planning, producing, and using ornamental plants. Introduction to the horticulture program.

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.

1254w. GREENHOUSE OPERATIONS. (4 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, and use of 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.

1321w. EVERGREEN WOODY PLANTS. (1 cr; 2 hrs per wk)
Identification, cultural characteristics, and use of evergreen trees and shrubs, suitable for Minnesota.

1323f. DECIDUOUS WOODY PLANT MATERIALS (3 cr; 4 hrs per wk)
Identification, cultural characteristics, and use of deciduous trees, shrubs, and vines, suitable for Minnesota.

1333s,su. ANNUALS AND PERENNIALS. (3 cr; 5 hrs per wk)
Identification, description, uses, cultural requirements, and adaptability and maintenance 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.

1343w,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, micro propagation and divisions.

1352f,w. FOLIAGE AND FLOWERING POT PLANTS. (2 cr; 3 hrs per wk)
Identification, description, uses, aesthetic qualities, environmental requirements, and adaptabilty of selected indoor ornamental foliage and flowering pot plants.

1373f,s. ARBORICULTURE. (3 cr; prereq 1443; 5 hrs per wk)
Principles and practices involved in caring for mature trees. Emphasis on tree climbing, aerial rescue, large limb removal, cabling, fertilizing, and current integrated pest manasgement.

1413f,w. ADVANCED FLORAL DESIGN. (3 cr; prereq 1232; 5 hrs per wk)
Theory and practice of designing with emphasis on funeral work, weddings, and special functions.

1421s. WILD FLOWERS. (1 cr; 2 hrs per wk)
Identification, cultural requirements, use of wild flowers in landscaping, and legal restrictions of wild flowers commonly found in Minnesota.

1443f,su. LANDSCAPE MAINTENANCE. (3 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 cover including edging, watering, mulching, fertilizing, and weed, insect, and disease control.

1513f. FALL GREENHOUSE CROPS. (3 cr; prereq consent; 4 hrs per wk)
Culture and management of selected cut flowers, potted flowering plants, and foliage plants. Poinsettia, Easter Lily, cut Mums and Pompons, winter bulb crops, Azaleas, Cyclamen, Kalanchoe, Freesias, Snapdragons, and foliage plants.

1521f,w. FLORICULTURE RETAIL MANAGEMENT LAB. (1 cr; prereq or concurrent AgBM 1473, AgMk 1373, or consent; 2 hrs per wk)
Emphasis on operating a retail flower outlet on campus. Activities will include pricing, wire service, bidding and installation.

1531f. GARDEN CENTER MANAGEMENT LAB. (1 cr; prereq or concurrent AgBM 1473, AgMk 1373, or consent; 2 hrs per wk)
Emphasis on operating a garden center on campus. Activities will include care and winterizing plant materials, pricing, layout, services, and guarantees.

1533w. WINTER AND SPRING GREENHOUSE CROPS. (3 cr; 4 hrs per wk)
A continuation of Hort 1513. Culture, management, and marketing of the following crops: Alstroemeria, Anemones, Asiatic Lilies, bedding plants, Begonias, Caladiums, Calceolaria, Cineraria, Exalum, Geranium, Gerbera, Gloxinia, Hibiscus, Hydrangea, Primulas, Roses, Streptocarpus, and Violets.

1554w. LANDSCAPE PLANNING. (4 cr; prereq 1323, 1443; 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; residential; microcomputer assisted instruction.

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.

1621s. ADVANCED WOODY PLANT MATERIALS. (1 cr; prereq 1323 or consent; 2 hrs per wk)
Identification, culture, and use of exotic woody plant materials and ground covers beyond the scope of Hort 1323 and 1321. Improves capabilities for using these woody plants in a landscape setting.

1634s. LANDSCAPE CONSTRUCTION AND MANAGEMENT. (4 cr; prereq 1554 or consent; 6 hrs per wk)
Practical assignments in developing landscape sites. Introductory techniques of surveying and ground prepara tion. Bidding, pricing, estimating, cost effectiveness.

1643s. 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. Golf courses, athletic fields, large institutional grounds, and commercial sod production.

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.

1663w. ADVANCED LANDSCAPE PLANNING. (3 cr; 5 hrs per wk)
Advanced landscape design. Includes basic architectural and graphic techniques and isometrics. Guest lecturers will offer critique of various design techniques. Residential and commercial; microcomputer assisted instruction.

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.

1681f. NURSERY FIELD OPERATIONS. (1 cr; 2 hrs per wk)
Techniques used in planting and harvesting commercial nursery stock. Bare root, ball and burlap, and container stock.

1683s,su. NURSERY MANAGEMENT AND OPERATIONS. (3 cr; 5 hrs per wk)
Management skills used in nursery stock production. Nursery organizations, laws, financial management, inventory, and marketing. Also fieldwork in planting and cultural practices.

Humanities (Humn)

1313w. INTRODUCTION TO HUMANITIES. (3 cr; 4 hrs per wk)
Introduction to the study of values and aspirations as revealed in the arts.

1423. HUMANITIES—SPECIAL PROBLEMS. (3 cr; 4 hrs per wk; offered on demand)
Topic course that investigates special areas in the humanities, such as theater or music, or explores particular problems relevant to the humanities.

1533. HUMANITIES OF THE MODERN ERA. (3 cr; 4 hrs per wk; offered on demand)
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, organization of an effective paragraph, grammatical structure, punctuation, and word usage.

1059. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.

Mathematics (Math)

1013f. 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.

1014w. INTERMEDIATE ALGEBRA. (4 cr; prereq grade of at least C in an introductory or elementary algebra course or consent; 5 hrs per wk)
Basic operations with real numbers, polynomials, linear equations, and inequalities; word problems; algebraic fractions; functions; the straight line; exponents and radicals.

1059. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project 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)
Practical application of the mathematics of whole numbers, common and decimal fractions, percentages, ratios and proportions, square root, scientific notation; algebraic expressions and equation solving; English and metric linear, area and volume measurements; averages, tables and graphs. Applied problems are agriculturally oriented.

1254s. COLLEGE ALGEBRA. (4 cr; prereq 1014 or equiv; 5 hrs per wk)
Complex numbers, second degree equations, and inequalities; roots of polynomials, exponential and logarithmic functions; analytic geometry and the conic sections; systems of equations, matrices, and determinants; arithmetic and geometric progressions; permutation and combination.

Mechanized Agriculture (MeAg)

1012f,w. 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. 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.

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.

1034f. INTRODUCTION TO MECHANIZED AGRICULTURE. (4 cr; 6 hrs per wk)
Survey of the mechanization field, career opportunities; basic machines, power and torque, fluid flow, heat transfer, refrigeration, psychrometrics, electricity, computer use in the industry, alternative energy potentials, surveying fundamentals and use of college resources.

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. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project 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. 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; 5 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. 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.

1412. AGRICULTURAL FUELS AND LUBRICANTS. (2 cr; 3 hrs per wk; offered on demand)
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.

1443w,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,su. BASIC HYDRAULICS. (3 cr; 4 hrs per wk; offered 1983-84 and alt yrs)
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; 4 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 in a block) and may select an additional two credits as elective courses.

1101f,w,s,su. ARCHERY—BEGINNING. (1/2 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. (1/2 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. BOWLING—BEGINNING. (1/2 cr; 1 hr per wk)
Designed for the beginning bowler. Rules, terminology, bowling techniques, and scoring stressed. Sessions held off-campus and a fee is charged.

1131s,su. CANOEING. (1/2 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. (1/2 cr; 1 hr per wk)
Designed for the student interested in learning the fundamentals of social dance. Foxtrot, waltz, polka, schottische, and lindy.

1151f,w,s. EXERCISE FOR LIFE. (1/2 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, swimming, tennis, badminton, rope skipping, weight training, and many others. Facilities and some equipment furnished by UMW.

1161f,s. BEGINNING GOLF. (1/2 cr; 1 hr 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, address and swing of clubs, woods, irons, and putter stressed. Sessions in gymnasium or on range.

1181f,w,s,su. SWIMMING—BEGINNING. (1/2 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. (1/2 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.

1211s,su. SOFTBALL. (1/2 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. (1/2 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. (1/2 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. (1/2 cr; 1 hr 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. (1/2 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. (1/2 cr; 1 hr per wk)
Body control and eye-hand coordination. Rules, terminology, strokes, serves, and strategy stressed.

1271f,s. INTERMEDIATE GOLF. (1/2 cr; prereq 1161; 1 hr 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. Sessions held off-campus and a fee is charged.

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. (1/2 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. (1/2 cr; 1 hr per wk)
Basic techniques, equipment selection, safety, and skills. Sessions held off-campus and a fee is charged.

1311f,w,s. WEIGHT TRAINING AND CONDITIONING. (1/2 cr; 1 hr per wk)
Designed for the student interested in a beginning program of personal conditioning. Various programs of resistive training and techniques.

1312f,w,s. ADVANCED WEIGHT TRAINING. (1/2 cr; prereq 1311 or consent; 1 hr per wk)
Designed for the student interested in a continuing program of resistive conditioning. Geared for individual needs of strength, endurance, and body shaping.

1341w. SQUARE DANCE. (1/2 cr; 1 hr per wk)
Designed for the student interested in learning the fundamentals of contemporary square dance.

1351w. BOWLING—INTERMEDIATE. (1/2 cr; prereq 1121 or consent; 1 hr per wk)
Designed for the student who has had 1121 or has participated in league or can demonstrate a 120 average. Refinement of skills and spare techniques. Sessions held off-campus and a fee is charged.

1363w. INTERMEDIATE DOWNHILL SKIING. (1/2 cr; prereq 1301 or consent; 1 hr per wk)
Intermediate and advanced techniques of downhill skiing with instruction given in the American Teaching Method with emphasis on skiing terrains of greater difficulty. Sessions held off-campus and a fee is charged.

1541w,s. AEROBIC DANCE/SLIMNASTICS. (1/2 cr; 1 hr per wk)
Designed for the student interested in developing body tone and physical fitness as well as cardiovascular efficiency and endurance.

Physics (Phys)

1059. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.

1104. TECHNICAL PHYSICS. (4 cr; prereq Math 1063; 6 hrs per wk; offered on demand)
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. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project 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)

1013. AMERICAN INSTITUTIONS. (3 cr; 4 hrs per wk; offered on demand)
Survey of cultural, social, political, and economic institutions and their impact on development of our nation.

1053f,s,su. RURAL SOCIOLOGY. (3 cr; 3 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. DIRECTED STUDY. (1-3 cr; hrs ar)
Individual study or a project in some field related to this discipline, directed and adapted to any program area by appropriate members of the faculty.

1173. AMERICAN GOVERNMENT. (3 cr; 4 hrs per wk; offered on demand)
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)
Leadership techniques, concepts, responsibilities, and opportunities at work and in organization. Public relations tools used in creating goodwill. Group dynamics, communication, motivation, and supervision.

1303. MAJOR CURRENTS IN AMERICAN HISTORY. (3 cr; 4 hrs per wk; offered on demand)
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.

1222f. SOIL AND PLANT TESTING. (2 cr; prereq 1054 or consent; 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.

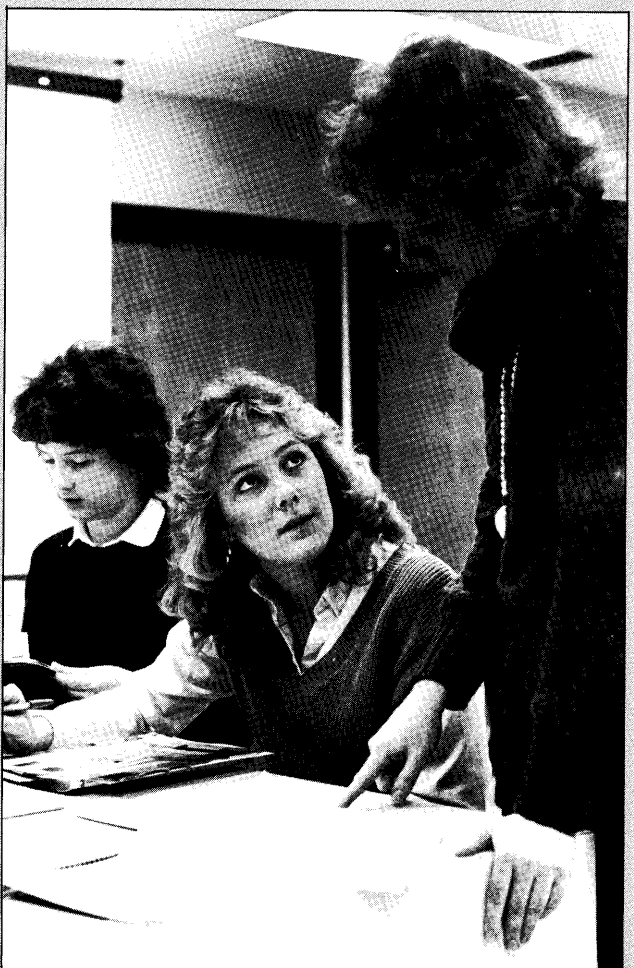
1251s. SOIL AND LAND EVALUATION. (1 cr; prereq 1054; 2 hrs per wk)
Field instruction in important properties of soil and land that lead to land capability ratings, and management practices needed. Elementary soil genesis and classifications.

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.

Administration and Faculty



Administration and Faculty

University Regents

Charles F. McGuiggan, Marshall, Chair
David M. Lebedoff, Minneapolis, Vice Chair
Wendell R. Anderson, Wayzata
Charles H. Casey, West Concord
Willis K. Drake, Edina
Erwin L. Goldfine, Duluth
Wally Hilke, St. Paul
Verne E. Long, Pipestone
Wenda W. Moore, Minneapolis
David K. Roe, Minneapolis
Stanley D. Sahlstrom, Crookston
Mary T. Schertler, St. Paul

University Administrators

Kenneth H. Keller, President
Stanley B. Kegler, Vice President for Institutional Relations
David M. Lilly, Vice President for Finance and Operations
V. Rama Murthy, Acting Vice President for Academic Affairs
Neal A. Vanselow, Vice President for Health Sciences
Frank B. Wilderson, Vice President for Student Affairs

Waseca Administrators

Edward C. Frederick, Chancellor
Thomas J. Lindahl, Vice Chancellor for Academic Affairs
Gary L. Sheldon, Vice Chancellor for Student Affairs
Thomas J. Fider, Vice Chancellor for Operations and Financial Affairs

Faculty

Agricultural Business, Food Industry and Technology, and Home and Family Services Division

William Nelson, M.S., Associate Professor and Division Director

Agricultural Business

Associate Professor

Boyd Fuller, M.S.
Ward Nefstead, M.S.

Assistant Professor

William Beckman, Ph.D.
David Harmon, M.S.
James Kaufman, M.A.
Howard Olien, M.B.A.

Food Industry and Technology

Assistant Professor

William Stoll, Ph.D.

Home and Family Services

Assistant Professor

Karen Chia-Yu Liu, Ph.D.

Agricultural Industries and Services and Agricultural Production Division

Byron Harrison, M.S., Associate Professor and Division Director

Agricultural Industries and Services

Associate Professor

David A. McCarthy, Ph.D.

Assistant Professor

Robert Cobb, M.Ed.
Ron Haney, M.S.
Robert Ritter, Ph.D.

Agricultural Production

Professor

William Anderson, Ph.D.
Robert Collins, Ph.D.

Associate Professor

James Gibson, Ph.D.
Myron Guthrie, M.S.
Mark Wilson, Ph.D.

Assistant Professor

Roy Johnson, M.S.
Anthony Seykora, Ph.D.
David Stanley, Ph.D.
Roger Walker, Ph.D.

Animal Health Technology, Horticultural Technology, and Related Education Division

Robert Krumwiede, M.S., Assistant Professor and Division Director

Animal Health Technology

Associate Professor

Wilbur Leibbrand, D.V.M.

Assistant Professor
Carlos Contag, D.V.M.
Janet Donlin, D.V.M.

Horticultural Technology

Professor
Phil Allen, M.P.S.

Assistant Professor
John Ball, Ph.D.
Bradley Pedersen, M.Ed.

Related Education

Professor
Clayton Oslund, Ph.D.
Prabhu Rawate, Ph.D.

Associate Professor
Peter Fog, M.S.
John Fulkrod, Ph.D.
Clifford Hokanson, M.A.
Duane Kaas, Ph.D.
James Waddell, Ph.D.

Assistant Professor
Kathryn Hanna, M.A.
Paul Montgomery, M.A.
Shirley Ochsner, M.A.
Robert Pichert, M.S.
Jacqueline Storby, M.S.
Douglas Warring, Ph.D.

Temporary Academic Appointments

Sandra Allaire, M.S., Home and Family Services
Charles Biggar, M.S., Agricultural Production
Wayne Olson, M.S., Related Education
Marlene Pockass, M.A., Related Education

Emeritus Faculty

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

Associate Professor
Harland Hasslen, M.S.
Harold Matson, M.A.

Assistant Professor
Elaine Schwarz, M.S.

Professional/Administrative Staff

Academic Affairs

Animal Health Technology
Mona Henkels, A.A.S., Junior Student Personnel Worker
Karin Miller, B.S., Assistant Education Specialist

Horticultural Technology
Gerald Nelson, B.S., Landscape Maintenance Supervisor

Library and Academic Support
Nan Wilhelmson, M.S., Director, Library and Academic Support
Kathryn Rynders, M.S., Librarian

Related Education
Vivian Neseth, B.A., Assistant Education Specialist

Operations and Financial Affairs

Business Affairs
Sharon Gehloff, Bookstore Manager
Art Warszynski, Food Services Coordinator

Plant and Support Services
Lowell Rasmussen, B.S., Director
Bruce McKee, B.F.A., Media Resources Producer
Stan Schmidt, Building and Grounds Supervisor
Mark Swanson, B.S., Analyst/Programmer
Rod Terbeest, B.S., Media Resources Producer
Marv Wolthuis, M.S., Computer Center Coordinator

Student Affairs

Student Administrative Services
James Hesch, M.Ed., Director
Harvey Anderson, Sp.Ed., Prospective Student Information Coordinator
Jayne Hamilton-Dinse, A.A.S., Junior Student Personnel Worker

Student Life and Athletics
Donald Collins, M.S., Director
Herbert Atwood, M.Ed., Student Development Coordinator
Ronald Beckman, B.S., Head Resident for Men, Athletic Coach and Trainer
Cindy McVenes, B.A., Head Resident for Women
Robert Pickert, M.S., Housing Coordinator
Russell Vogt, B.S., Student Personnel Worker

Student Support Services
Allan Ward, M.A., Director
Robert Heflin, B.S., Student Personnel Worker
Robert Hendricks, M.S., (On Leave)
Lucy Oliver, M.A., Counseling Coordinator
Theresa Roesler, B.S.N., Nurse Practitioner

Institutional Advancement

Thomas C. Yuzer, M.A., Director
Karin Bock, B.A., Development Coordinator
Becky Austin, B.S., Information Representative

Advisory Committees

Overall College Advisory Committee

Willard Anderson; Watonwan Farm Service Co.; St. James
Martin Annexstad, Jr.; St. Peter
Jack Cashman, Cashman Seed and Fertilizer Co., Owatonna

Don Chapdelaine; Farmers Union Coop Oil Assn.; South St. Paul
Dennis Forsell; Farmers Union Enterprises, Inc.; St. Paul
Allen Gerber; Minnesota Association of Cooperatives; St. Paul
Sterling Gillingham; New Prague
Fred Halverson; Land O'Lakes, Inc.; Minneapolis
Leonard Harkness; St. Paul
Eugene Holmes; farmer; Waldorf
Layton Hoysler, Hoysler Real Estate, Faribault
Vern Ingvalson, Minnesota Farm Bureau, St. Paul
Keith Keltgen; Keltgen Seed Co.; Olivia
Orville Kvam; Farmer; Zumbrota
George Lorenz; farmer; Wells
Quentin Marsh; Northwestern National Bank; Mankato
Vern Moore, Land O' Lakes, Inc., Arden Hills
Joyce Ross; Community Child Care Center; Albert Lea
Brian Roth, Control Data, Minneapolis
Robert Rupp; *The Farmer*; St. Paul
Edgar Urevig; Tilney Farms; Lewisville
Donald Waltz, CENEX, St. Paul
Donald Wedge; Wedge Nursery; Albert Lea

Member Emeritus

Dean Curtiss; Faribault
E.S. Gandrud; Owatonna
Carl Pinney; Le Sueur

Agricultural Business

Oliver Ambroson; Production Credit Association; Mankato
Joan Barrett; Farmland Industries, Mankato
Kelly Cook, Monsanto, Inc., Owatonna
Clayton Ferrier; Ferrier Land and Investment Co.; Rochester
Gordon Jensen, Harvest Land Cooperative, Morgan
Gordon Klaseus; First National Bank; Waseca
Mary March, Cargill, Inc., Minneapolis
Ole Olson, Onduline, Albert Lea
Thomas Rusk; First National Bank of Minneapolis; Minneapolis
Dwayne Schmoll, Schmoll's Feed & Seed, Dodge Center
Roger Studnicka; Minnesota Valley Breeders Assn.; New Prague

Agricultural Industries and Services

Tim Claus, John Deere, Inc., Minneapolis
Bernie Gerold, Chaska
Ron Hardesty; St. Peter Area Conservation Service; St. Peter
John Jewison; Marzahn's; Waterville
Roger Joyce; Smith Mill Implement; Janesville
Glen Kanangeter, Owatonna Manufacturing Co., Owatonna
Archie Kocina; Central Livestock; New Prague
Ken Koshatka, Gehl Company, West Bend, WI
Dale Quiring; Glencoe Butter and Produce; Glencoe
Dr. Robert Rosenbrook; Pioneer Hi-Bred International, Inc.; Mankato
Doug Schneider; Schmidt Sales and Service; Winona
Russ Weir, Corchran, Inc., Waseca
Richard Wobschall; Midwest Breeders Coop; Faribault
Ron Wynkoop, Morton Building, Janesville

Agricultural Production

Harold Bartz; Sleepy Eye
Jim Becke, Winthrop
Paul Braun; Le Sueur
Dale Duncanson; Mapleton
Winfield Forsberg; Forsberg Agricultural Service; New Ulm
William Goette; Alden
Irvin Gunderson; St. Peter
Bruce Larson; Claremont
Dean Meixell; Lake Crystal
Curtis Russell; New Richland
Charles Schwartz; Le Sueur
Kenneth Sette, Owatonna
Keith Thurston; Madelia
Curt Watson; Renville

Animal Health Technology

Dr. Lynn Anderson, 3M, St. Paul
Dr. JoAnn Drees; Cullen Veterinary Clinic; Mankato
Dr. Griselda Hanlon; University of Minnesota; St. Paul
Stanley Lahm, National Veterinary Science Labs, Ames, IA
Dr. Joe Mollenkopf; Hubbard Milling Co.; Mankato
Dr. Theodore Rude, Salisbury Laboratories, Charles City, IA
Dr. James Rundquist; Animal Clinic of Waseca; Waseca
Dr. James Sweeney; Bloomington Veterinary Hospital; Bloomington
Dr. Mavven Trandem, Faribault Veterinary Clinic, Faribault
Dr. Paul Zollman; Mayo Clinic; Rochester

Food Industry and Technology

Ron Beaty, USDA, Mankato
Dale Betts, Owatonna Canning Co., Owatonna
Bob Broich, NOW Foods Corp., Minneapolis
Steve Fiedler; Land-O-Lakes; Faribault
Mary Johannes, Pillsbury Co., Minneapolis
Arlene Martin, Cheese Barn, Owatonna
Sally Michels; Minnegasco; Mankato
Jean Morrison, Pillsbury Co., Minneapolis
Sherri Sandoz; Big Stone, Inc.; Chaska
Kenneth Sevcik; Faribault Canning Co.; Faribault
Lee Williams; Le Sueur/Waseca Board of Health; Waseca

Home and Family Services

Jan Abbe; Owatonna
Nina Carlson; Senior Citizen Transportation Coordinator; Waseca
Yvonne Dovick, State Department of Welfare, St. Paul

Carolyn Enquist, LeSueur County DAC, Inc., Waterville
Pauline Holmen, Waseca
Harriet Johnson, Waterville Care Center, Waterville
D. W. Kaufman; Och's West Connection Inc.; Faribault
Russ Lee; Waseca County Welfare; Waseca
Toni Neisheim; Region Nine Agency of Aging; Mankato
Margaret Roth; Wayzata
Kari Simon; Jordan
Audrey Tolzmann; Extension Home Economist; St. Peter
Janet Wichmann; Waseca

Horticultural Technology

John Bergman; Bachman's Inc.; Farmington
Dale Caldwell, Town and Country Club, St. Paul
Richard Cross, Jr.; Cross Nurseries, Inc.; Lakeville
Francis DeVos; Landscape Arboretum; Chaska
George Grajkowski; Bailey Nurseries; Newport
John Hertog, Minneapolis
Chuck Klinefelter; Minnesota Tree, Inc.; Eden Prairie
J. Stephen McCulloch; Bachman's Inc.; Minneapolis
Charles Potter; Rochester
Marvin Saline; Hans Rosacker, Inc.; Minneapolis
Forrest Sargent; Sargent's Landscape Nursery; Rochester
Roger Schalow; Schalow's Nursery; Marshfield

Light Horse Management

Robert Bliss; Faribault
Cathy Cortright; Hamel
Leo Fourre; Decoy Quarterhorses; Lakeville
Phil Jenson; Broadway Farm; Albert Lea
Bob Klaus; Klaus's Quarterhorses; Hampton
Dale Kluver; Albert Lea
Linda Hagan Miller; Hampton
Milt Strand; Welch
Dr. Thomas Winter; Cannon Falls Vet Clinic; Cannon Falls

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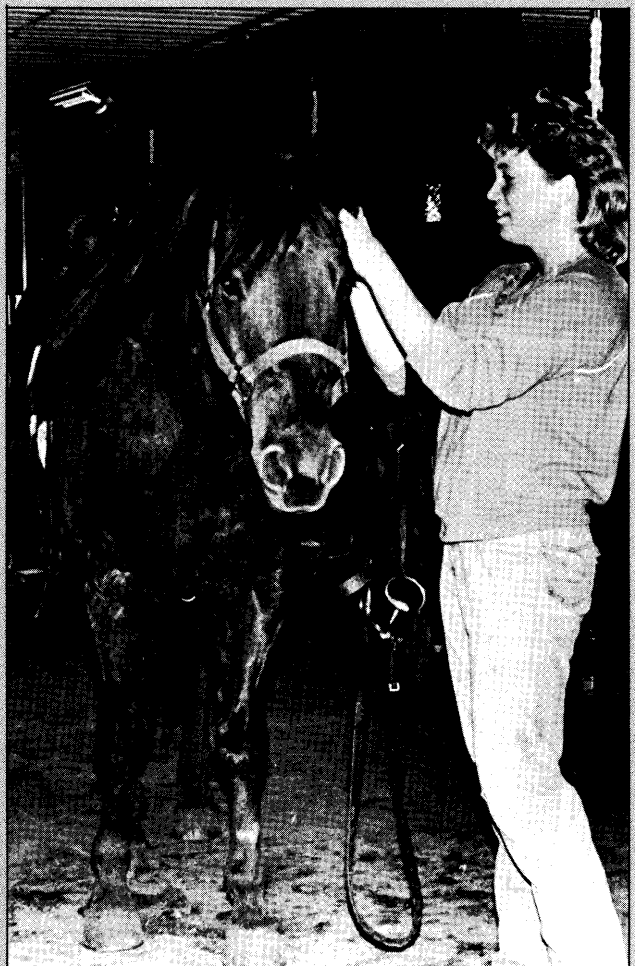

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University of Minnesota
Technical College

WASECA

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3— B Parking Lot
4— C Parking Lot
5— Handicap Parking
6— Firelane/Loading Zone
*— Entrances at Grade

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