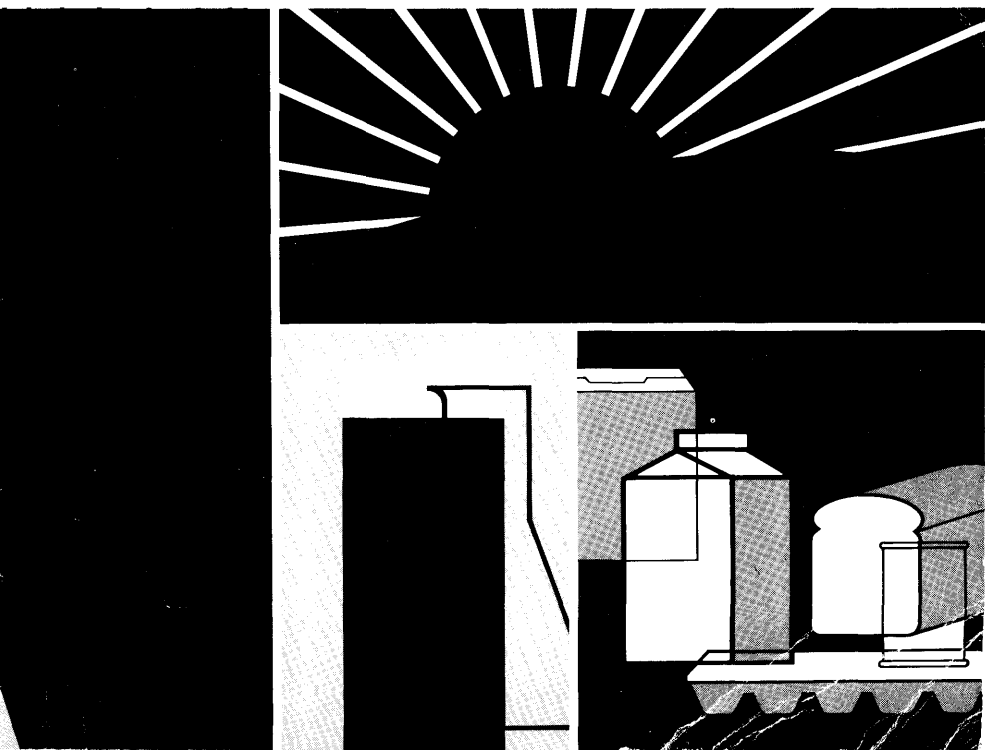


technical college-waseca



# UNIVERSITY OF MINNESOTA

## Board of Regents

The Honorable Elmer L. Andersen, St. Paul, Chairman; The Honorable Neil C. Sherburne, Lakeland Township, Vice Chairman; The Honorable Lyman A. Brink, Hallock; The Honorable Fred A. Cina, Aurora; The Honorable Daniel C. Gainey, Owatonna; The Honorable Herb L. Huffington, M.D., Waterville; The Honorable Fred J. Hughes, St. Cloud; The Honorable Josie R. Johnson (Mrs. Charles W.), Bloomington; The Honorable Lester A. Malkerson, Minneapolis; The Honorable George W. Rauenhorst, Olivia; The Honorable Loanne R. Thrane (Mrs. Ralph), Chanhassen; The Honorable John A. Yngve, Plymouth.

## General Administrative Officers

Malcolm Moos, President

Donald K. Smith, Vice President for Administration

Paul H. Cashman, Vice President for Student Affairs

Hale Champion, Vice President for Planning and Operations

Lyle A. French, Vice President for the Health Sciences

Laurence R. Lunden, Vice President and Consultant to the President

William G. Shepherd, Vice President for Academic Administration

Stanley J. Wenberg, Vice President for Coordinate Campuses and Educational Relationships

## TECHNICAL COLLEGE-WASECA

### Administration

Edward C. Frederick, Ph.D., Provost

Donald T. Collins, M.S., Athletic Director

Robert M. Collins, Ph.D., Academic Affairs

Thomas J. Fider, B.S., Business Manager

Harland B. Hasslen, M.S., Chairman, Agricultural Division

Harold C. Matson, M.A., Plant Services

Gary L. Sheldon, M.Ed., Student Affairs

---

---

Volume I

Number 1

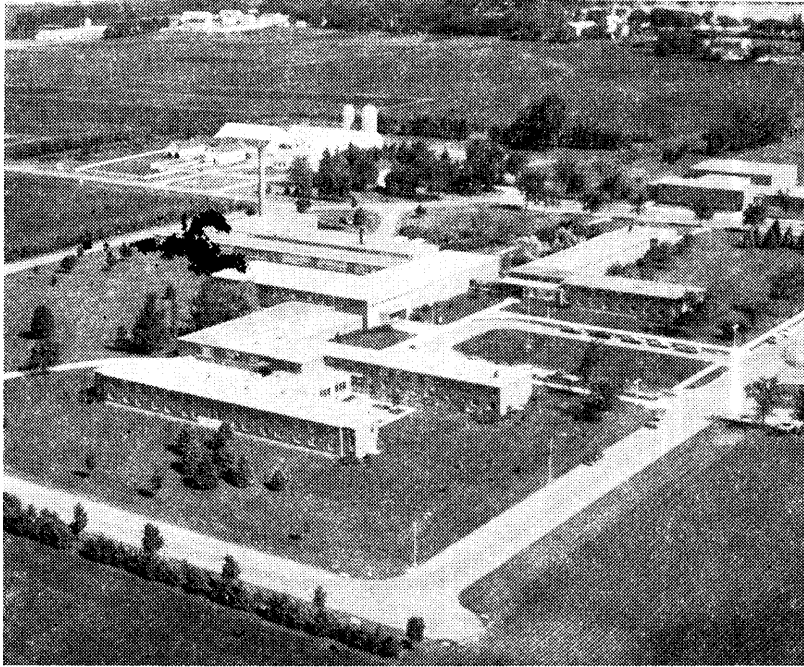
June, 1971

UNIVERSITY OF MINNESOTA TECHNICAL COLLEGE-WASECA BULLETIN

Third-class postage paid at Waseca, Minnesota. Send change of address notices and other communications to Office of Admissions and Records, University of Minnesota Technical College-Waseca, Waseca, Minnesota 56093.

The contents of this bulletin and of other University bulletins, publications, or announcements are subject to change.

UNIVERSITY OF MINNESOTA  
TECHNICAL COLLEGE-WASECA



**"THIS PLACE IS FOR STUDENTS"**



**Bulletin for 1971-72**

# Table of Contents

	Page
University of Minnesota .....	Inside Front Cover
General Information .....	5
Student Affairs Information .....	7
Admissions .....	7
Registration .....	8
Fees and Expenses .....	8
Financial Aids .....	10
Housing .....	10
Student Personnel Services .....	11
Academic Information .....	13
Graduation Requirements .....	13
Scholarship Requirements .....	13
Academic Progress .....	15
Curricular Information .....	17
Programs .....	19
Agricultural Production .....	19
Agricultural Industries and Services .....	24
Agricultural Business .....	30
Horticultural Technology .....	34
Food Technology .....	38
Home and Family Services .....	41
Course Descriptions .....	44
Agricultural Division Courses .....	44
Related Education Division Courses .....	55
Index .....	61

## FROM THE PROVOST . . .

The University of Minnesota Technical College—Waseca is a new and unique two year college scheduled to start in the fall of 1971.

The college has a single mission—that of preparing students for semi-professional, mid-management positions in the broad fields related to agriculture.

Agriculture—with its *input industries* of feed, seed, fertilizer, machinery and equipment; its *output industries* of processing, distributing and marketing and farming itself—is the most important industry in Minnesota. The needs in this industry for technically trained men and women are great and expanding. The staff is committed to help meet this need.

The total instructional program, the facilities and staff are directed toward agriculture. The course work includes approximately one-third related education such as communications, social studies, mathematics and basic sciences and two-thirds technical education. Examples used in the course work will be from agriculture. Laboratory and practical experiences are emphasized by utilizing the facilities of the Southern Experiment Station. A four-quarter, year round educational system has been adopted in order to make use of the agricultural laboratory during the summer months. The associate of applied science degree is granted upon satisfactory completion of the course of study.

The college operates on the policy that "THIS PLACE IS FOR STUDENTS." The staff is dedicated to helping students achieve at the semi-professional level.

You are invited to study the program and become a part of the college, if we can help you reach your objectives.

Edward C. Frederick  
Provost

UNIVERSITY OF MINNESOTA

# Technical College-Waseca

## SECTION 1

### GENERAL INFORMATION

The University of Minnesota Technical College-Waseca represents a new and exciting approach to higher education in Minnesota. The college was authorized by the 1969 Minnesota State Legislature to offer co-educational, two-year collegiate level programs in the broad field of agriculture and occupational areas related to agriculture.

The college was established to prepare graduates for employment entry at the semi-professional or mid-management level. The associate in applied science degree is awarded to students completing the course requirements as outlined in this bulletin.

The college operates on a four-quarter year round educational system. The quarters are approximately 12 weeks in length. Students may start at any quarter and go continuously or intermittently.

**Philosophy**—Technical education gives recognition to the fact that earning a living is a major propelling force in the lives of individuals. However, it is recognized that related education must supplement the technical education in order to broaden and deepen each student's base of understanding so that he may live fully, deeply, and usefully. Technical agricultural education, therefore, combines the related and technical education at a practical level.

**Purpose**—The purpose of the University of Minnesota Technical College-Waseca is to prepare students to earn a living as semi-professional or mid-management personnel in the broad fields related to agriculture. The programs offered at the college are designed to educate the individual, not only for immediate entrance level positions, but also for the possibility of job change which he may well experience during his working life. The curriculum includes opportunities for developing knowledge, skills, attitudes, and leadership abilities. It also offers a wide range of co-curricular activities which will contribute to the preparation of students for the roles they will undertake as responsible members of a democratic society.

While the primary objective of the college is to prepare graduates for employment, it is inevitable that there will be some students who will change their objectives and wish to continue their education beyond the associate program. The college requires work of such quantity and quality that those who seek admission to other institutions of higher learning may reasonably expect to obtain credit for work completed at this college. It should be recognized that the institution to which the transfer is made determines the amount of credits accepted.

### **Facilities for Instruction**

The college is ideally located and equipped to offer excellent programs in agriculture. The college facilities with its special purpose laboratories are all under one roof, except for the Physical Education Building.

The University's Southern Experiment Station, which adjoins the college, provides an excellent practical agricultural laboratory. The Experiment Station consists of 598 acres, 35,000 individual experimental and demonstration plots, and over 1,200 head of livestock. The livestock includes dairy, dairy beef, and swine. The crops grown include corn, soybeans, oats, legumes, and specialty crops. Demonstration and research gardens, orchards, turf plots, and the Hodgson Memorial Arboretum are located in the Horticultural area. Students have the opportunity to learn from the experimental and demonstration plots and have the opportunity to use the equipment, land, and livestock for study.

The location of the college in the heart of Minnesota's most productive agricultural area provides additional opportunities to utilize farms and agribusinesses in the area for instructional purposes.

### **Human Rights**

The Board of Regents has committed itself and the University of Minnesota to the policy that there shall be no discrimination in the treatment of persons because of race, creed, color, sex, or national origin. This is a guiding policy in the admission of students in all colleges and in their academic pursuits. It is also to be a governing principle in University-owned and University-approved housing, in food services, student unions, extracurricular activities, and all other student and staff services. This policy must also be adhered to in the employment of students either by the University or by outsiders through the University and in the employment of faculty and civil service staff.

## SECTION 2

# STUDENT AFFAIRS INFORMATION

## ADMISSIONS

Admission to the University of Minnesota Technical College–Waseca is granted on the basis of high school graduation or equivalent. Each applicant is considered on an individual basis using such items as aptitude, interest, and the ability of the student to profit from the programs being offered.

Application to the college can be made by obtaining a copy of the Minnesota College Admissions Form from either a principal or high school counselor or from the Office of Admissions and Records, University of Minnesota Technical College–Waseca, Waseca, Minnesota 56093. The first two pages of the admissions form should be completed by the student and the last two pages should be completed by the high school principal or counselor. The completed admissions form should be sent to the Office of Admissions and Records.

All students are required to take the American College Test (ACT). The test scores are used for aids in program planning and not for setting admission requirements. The ACT code number for the University of Minnesota Technical College–Waseca is 2097. This should be recorded on the answer sheet of the test for agencies that receive the test results.

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

## Admission of Non-Residents of the State of Minnesota

Students from outside the state of Minnesota will be considered for admission. Regular application procedures should be followed including the completion of the American College Test (ACT).

Non-resident 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 first registration at the University of Minnesota Technical College–Waseca. Residency refers to the establishment of a “permanent” family home in Minnesota for purposes other than attending a college. Residency classification can be changed at any time the student meets Minnesota residency requirements.

## Adult Special Student

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 the University of Minnesota Technical College–Waseca.

In the event an Adult Special Student wishes to apply for a degree, information concerning the change from Adult Special Student to a degree candidate can be obtained from the Office of Counseling Services.



## Student Affairs Information

---

### Pre-Admissions Counseling

A representative from the staff of the Technical College–Waseca will establish personal contact with each applicant. An attempt will be made to visit the applicant at his home. If this is not possible, the applicant will be asked to visit the campus at a pre-arranged time.

The purpose of this contact will be to discuss the educational objectives of the applicant and how they can be met by the program offerings of the Technical College at Waseca.

### Orientation

Orientation days will provide the new student with an opportunity to become acquainted with the campus activities and the staff of the Technical College. Meetings and discussion sessions will be conducted in an effort to familiarize the students and their parents with the procedures and operational principles of the Technical College–Waseca. The dates and times for all new applicants to appear on campus will be established for each quarter. All new students will receive invitations for orientation days.

## REGISTRATION

Registration will be completed during the orientation days for new students. All new applicants will be advised of the dates and times to appear on the campus in order to complete registration.

Pre-registration and course selection can be discussed during the pre-admissions counseling session, but official registration will come at the time the student arrives on campus for such purposes.

Registration is considered complete only after all fees have been paid. The deadline for complete registration is two weeks after classes begin.

Students who are permitted to enroll after the official registration day of each quarter, listed in the calendar section of the *General Information Bulletin*, must pay a late registration fee as follows:

Through the 1st week of classes	\$ 6
Through the 2nd week of classes	\$10

Registration must be completed by the end of the second week of the quarter.

## FEES AND EXPENSES

### Fees

(All University fees are subject to change by the Board of Regents)

#### Tuition—Full-time student (12 credits or more per quarter)

Resident	\$133
Non-resident	\$380

## Fees and Expenses

---

### Credit Hour Fee—(Less than 12 credits per quarter)

Resident	\$11.25
Non-resident	\$31.75

### Student Services Fee—(per quarter)

Health Service	\$ 5.00
Student Government	\$ 1.00
Concerts and Convocations	\$ 2.00
Intramurals and Athletics	\$ 7.00
Student Activities	\$15.00
	<u>\$30.00</u>

### Special Fees

Towel and equipment fee for certain physical education courses and a science laboratory breakage fee will be charged.

### Board and Room

Board and Room (per quarter)	
Resident	\$280
Non-resident	\$280
Board (per quarter)	
Resident	\$220
Non-resident	\$220

### Estimated Expenditures

The cost for a student living on campus includes tuition, board, room, fees, books, and supplies. Other expenses would include personal expenses such as clothing, entertainment, and travel.

The quarterly expenses for the average student are illustrated in the following table:

	<i>Resident</i>	<i>Non-resident</i>
Tuition	\$133	\$380
Student Services fee	30	30
Board and Room	280	280
Books and Supplies	47	47

### Refunds

If a student cancels registration before 6 weeks of any quarter have passed, the student is entitled to a refund of tuition, incidental and course fees on the following basis: students who do not attend classes at all will get a full refund provided they apply before the end of the first week. Students who have attended classes are granted refunds as follows:

First week .....	90%
Second week .....	80%
Third week .....	70%

## ***Student Affairs Information***

---

Fourth week .....	60%
Fifth week .....	50%
Sixth week .....	40%
After the 6th week, there is no refund.	

### **College Bookstore**

A college bookstore is available which handles all textbooks, school supplies, and miscellaneous items of concern to students.

### **FINANCIAL AIDS**

Students who can demonstrate a need, may apply for financial assistance. Those wishing to apply for aid are asked to complete Parents' Confidential Statement (PCS) Form of the College Scholarship Service (CSS). The University of Minnesota Financial Aid Application Form should be filled out and returned to the Office of Financial Aids, University of Minnesota Technical College-Waseca, Waseca, Minnesota 56093.

School counselors or principals will have copies of both the University of Minnesota Financial Aid Application Form and the Parents' Confidential Statement Form. The University of Minnesota Technical College-Waseca should be listed as an agency on the PCS form.

Financial aid sources are:

1. All University Scholarships
2. Regents Student Aid Funds
3. Educational Opportunity Grants (Title IV, Part A of the Higher Education Act of 1965)
4. College Work-Study Program (Title IV, Part C of the Higher Education Act of 1965)
5. Bob Hodgson Student Loan Fund Incorporated of Waseca
6. National Defense Student Loans
7. Student employment on campus or in the Waseca community

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

The financial awards made to students will be determined by the Office of Financial Aids, University of Minnesota Technical College-Waseca. Any questions regarding the awards should be directed to this office.

### **HOUSING**

Students who desire housing should contact the Office of Student Affairs for assistance. Dormitory housing on campus is available. Students wishing to

reside on campus should ask for a room reservation form. If off-campus housing is desired, the Office of Student Affairs will assist in locating appropriate housing in the Waseca area.

The dormitories on campus are developed into "Living-Learning Centers." They are a viable part of the total college environment and provide many advantages. Certain academic programs, discussion sessions and seminars, as well as specialized libraries, are included in the "Living-Learning Centers." Students are encouraged to consider housing on campus in order to take advantage of all the activities and organizations available.

The out-of-class activities can become a very important part of a student's collegiate life. Development in leadership, participation, and self-confidence can be gained through these activities.

## **STUDENT PERSONNEL SERVICES**

The Department of Student Affairs exists for the benefit of students. Various services are available to help students achieve a meaningful experience during their attendance at the University of Minnesota Technical College-Waseca. Several offices are staffed to help meet these individual needs. It is recognized that in many instances, co-curricular experiences are equally as important as the time spent in class. The total education of a student involves both in-class and out-of-class activities. For this reason, we consider our entire Student Affairs Department a part of the total educational environment of the college.

### **Instructor-Counselors**

Operating on the principle that "This Place Is For Students," the entire college staff is dedicated to be of assistance when needed. To assure a positive contact between staff and students, an instructor-counselor advisement program has been established. Each student will be assigned to a staff member who will give guidance in program planning and course selection, and be concerned with the general progress of the individual student.

### **Counseling Services**

The college recognizes that in the growth and development of its students, certain problems arise which seem to be of a very personal and important nature. The Office of Counseling Services is available to assist students when these serious concerns appear. Individual consulting and evaluation is available to help social conflicts, as well as in making decisions in educational and occupational areas.

### **Health Services**

College health services and facilities are available to students. A nurse will be available to aid students needing medical assistance. The nurse will also be on call for after-hours emergencies.

## ***Student Affairs Information***

---

The Health Service is equipped with a consultation room, a medical examination room and infirmary. Emergencies and illnesses requiring a doctor will be coordinated through the health services of the Technical College. Extended health care is available through the Waseca Medical Clinic and the Waseca Memorial Hospital. A group hospitalization plan through Blue Cross is available to University students.

All students accepted for enrollment at the University of Minnesota Technical College–Waseca are required to submit a completed physical examination form before registration is completed.

## **Student Activities**

Student conducted co-curricular activities and organizations are available at the Technical College–Waseca. Opportunities exist for participation in student government, religious activities, clubs, intramurals, music, and various other events. A committee of students and staff will plan concerts, lectures, programs and other special events of interest.

## **Intercollegiate Athletics**

The University of Minnesota Technical College–Waseca will be represented in intercollegiate athletic competition in football, basektball, wrestling, and possibly some spring sport in the first year.

The college is a member of the National Junior College Athletic Association and participates in Region 13 athletic activities. Region 13 includes two-year colleges in Upper Michigan, Northern Wisconsin, Minnesota, North Dakota, South Dakota, and Montana.

## **Placement Center**

In the second year of the college operation, a Placement Center will be established, however, the entire staff of the college will be available as consultants in placement guidance. The objective of this center is to assist students in coordinating job placement through scheduling interviews with prospective employers, preparing credentials of graduates, and giving occupational guidance in an effort to find employment positions best suited to the students' interests and abilities.

## SECTION 3

# ACADEMIC INFORMATION

## GRADUATION REQUIREMENTS

To qualify for the Associate in Applied Science degree, a student must complete a minimum of 108 credits in an approved sequence of courses or in a specific curriculum with a minimum grade of "C." Of the total credit hours required for graduation, 96 credits must be earned in academic course work with 12 credits earned in the Preoccupational Preparation Unit. A minimum of one-half of the credits required for graduation must be earned while a registrant at the University of Minnesota Technical College–Waseca. A student must be registered during the quarter in which he graduates.

Major field, related education, and elective requirements for graduation are outlined for majors under the programs of study. Please refer to the suggested majors of study under the curricular programs.

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

A student who completes a degree course of study with a minimum grade point average of not less than 3.00 is graduated "with distinction." Each student with a minimum grade point average of not less than 3.50 is graduated "with high distinction."

## SCHOLARSHIP REQUIREMENTS

### Credit Plan

The unit of measure is the quarter hour, representing one credit hour per quarter. It is equivalent to two-thirds of a semester hour. A unit of credit is characteristically awarded for each class hour per week for a quarter; laboratory work requires two or more hours of time for each credit.

### Student Classification

1. *Normal Student Load*—is 16 quarter credit hours.
2. *Full-time Student*—is one enrolled in at least three-fourths normal load or 12 quarter credit hours.
3. *Part-time Student*—is one enrolled in less than three-fourths normal load.
4. *Freshman*—is a student who has completed less than 45 quarter credit hours of college credit at the time of registration.
5. *Senior*—is a student who has completed more than 45 quarter credit hours of credit at the time of registration.
6. *Unclassified*—students who are not registered in a program but have fulfilled the requirements for matriculation or are enrolled in college level courses for audit.

## Academic Information

---

7. *Adult Special*—men and women who want individual courses or groups of courses to meet special personal needs. Usually these students are 24 years of age or older, of mature experience, or have bachelor degrees.

### Grades

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

1. A—Excellent Achievement  
B—Above Average Achievement  
C—Minimum Achievement for Occupational Competency  
S—Satisfactory Achievement Without Grade Point  
N—No Credit Granted if Performance is below a "C"  
Students will be required to achieve 108 credits to qualify for graduation. "N" grades do not count toward graduation. The student will be allowed to take the course as often as he wishes in order to obtain credit for the course. Each time a student takes a course, it will be recorded in his official record as an "N," "A," "B," "C," or "S," whichever he achieves. The student will be required to take the courses listed within the area of competency to qualify for graduation.
2. The symbol X may be reported in continuation courses for which a grade cannot be determined until the sequence is completed. Upon completion of the sequence, the X is replaced by a permanent grade.
3. The registration symbol V (visitor) indicates registration as an auditor or a visitor. A student may not receive University credit for courses taken as audit.
4. The symbol T (transferred) indicates credit transferred from another institution or from one college to another within the University. The symbol will be found immediately preceding the transferred grade in a course evaluation.

### Grade Points

Quality of work is indicated by grade points. Grade points are assigned to the permanent course grades. Grades carry the following grade points:

<i>Grade</i>	<i>Interpretation</i>	<i>Grade Points Earned</i>
A	Excellent	4 times the hours of credit
B	Above Average	3 times the hours of credit
C	Minimum Achievement for Occupational Competency	2 times the hours of credit
S	Satisfactory	None
N	No Credit Granted	None

The grades of S, N, X, and V do not carry grade point value.

### Grade Point Average

To obtain a numerical measure of the quality of a student's work, grade points are assigned to the various passing marks as indicated above. A Grade Point Average is then formed by dividing the number of grade points earned by the total number of credit hours for which the grade of A, B, or C have been recorded. For example, if a student earned 100 grade points and has

attempted 40 quarter hours of work, the grade point average is 100 divided by 40, or 2.50.

## **ACADEMIC PROGRESS**

Each student in the Technical College will be helped to make satisfactory progress in the curriculum he has selected. Since students who seek the Associate degree will be required to achieve at a 2.00 grade point average or above (*see graduation requirements*), every effort will be made to assist each student who might experience academic difficulty in reaching his personal goal.

### **Mid-Quarter Alert**

Deficiency reports will be mailed to all students whose academic progress is not considered satisfactory at midquarter. Students receiving a "mid-quarter alert" slip will be required to discuss their course difficulties with their adviser and their instructor issuing the alert. The adviser and instructor will sign the slip when they complete their conferences with the students. The signed slip will be returned to the Division Chairman's office.

### **Unsatisfactory Progress**

A student will be notified of "unsatisfactory progress" at the end of every quarter that N grades are issued for more than one-fourth of the quarter credits for which he registers. Upon receiving this notification, the student must clear his next quarters registration status before he will be admitted to class.

Permission to register will be issued by the student's adviser after consultation with the division chairman, and a member of the counseling center. Actions taken may include one of the following:

1. *Registration Unchanged*—The student's registration status will remain unchanged but he will be carefully counseled on the negative results of continued academic deficiency.
2. *Registration Altered*—The student may be requested to lower the number of credit hours taken or to change to more appropriate courses for that quarter.
3. *Registration with Compensatory Program*—The student may be requested to alter registration and accept assignment to a recommended compensatory program to be determined by the scholastic committee.

### **Transfer Credit**

Students who are admitted with "advanced standing" will have transferred credits evaluated by a committee composed of an admissions officer, the academic head, and the division chairman. Credits which substitute for courses in a required program or as prerequisite courses for this college must have received a grade of C or higher. Credits which are used for elective purposes may be accepted with an assigned grade of D or higher when approved by the Admissions Committee.



### **Proficiency Examinations**

When a student wishes to secure full credit for a course for which he has adequate training and preparation, regardless of where the course was taken, he may apply for permission to take a proficiency examination. Applications for these examinations may be obtained from the Office of Admissions and Records and submitted to the appropriate division office by the last day of the first week of a new quarter. A fee of \$10 is required for each test attempted.

Proficiency examinations in which a grade of C or better is earned are recorded with full credit and a grade of S (satisfactory) on the student's college record.

Not all courses can be recovered through the proficiency test process. Those that can will be determined by the division chairman and the instructors of the courses in question.

### **Credit Load**

The normal load of work for each quarter at registration is 16 credit hours. A credit hour requires on the average of 3 hours each week in lecture, laboratory, recitation, and/or preparation. Any student who wishes to carry more than 19 credit hours per quarter must have his registration forms signed by his adviser and the division chairman, before his registration will be recorded.

Any appeal from this decision will be heard by the scholastic standing committee.

## SECTION 4

# CURRICULAR INFORMATION

The purpose of the programs offered at the college is to prepare its students for semi-professional positions in the largest and most important segment of the American economy—agriculture. The curricular programs that follow are designed to provide routes toward a wide variety of personal and professional goals in this broad field. Each program has identifying characteristics, yet each has much in common with the others. Students may continue to explore their interests within the broad field of agriculture and move from one program to another with little loss of time.

### Opportunities

Agriculture today is dynamic and abounding with fascinating new technologies. It offers to young men and women the widest scope of opportunities ever known—from the private enterprise of farm ownership through the field of atomic science. Automation, chemistry and genetics have created the need for highly competent technicians in every agricultural industry. Many people consider agriculture to be solely the enterprise of farming. Actually, farming is only one of the many phases of agriculture. The business of agriculture in farm services and supplies, the science of agriculture in research extension and development, the area of food processing and distribution, the mechanization of agriculture as represented by many agricultural engineering services, and the esthetics of agriculture as represented in the horticultural fields and home and family services have created the need for highly trained technical and scientific personnel.

The Agriculture Division of the University of Minnesota Technical College—Waseca offers six programs which can lead to an Associate in Applied Science degree as follows:

	Total Credits
Agricultural Production .....	108
Agricultural Industries and Services .....	108
Agricultural Business .....	108
Horticultural Technology .....	108
Food Technology .....	108
Home and Family Services .....	108

### Preoccupational Preparation Unit

Of the total credit hours required for graduation, 96 credits must be earned in academic course work with 12 credits earned in the Preoccupational Preparation Unit.

A Preoccupational Preparation Unit is a program which will enable the student to obtain increased training as a means of preparing him to become more acceptable to industry within his chosen major or family of occupations. This preparation may be experienced in the classroom, in the college lab-

## Curricular Information

---

oratory, or as an on-the-job internship experience in industry. These units will be designed to fit the individual needs of the student as follows:

1. A faculty committee in each of the major areas after consultation with the student will make the final determination of where and how the Preoccupational Preparation Unit may be completed.
2. No student will be enrolled in the Preoccupational Preparation Unit until he has been enrolled for 2 quarters in his chosen major and for 30 credits of work satisfactorily completed in his chosen major.
3. In many cases students will probably fulfill their on-the-job internship program during the summer quarter between the first and second year of enrollment but may complete this requirement in any quarter. Students assigned to internship as a means of completing the Preoccupational Preparation Unit will be under the supervision of the instructional staff in cooperation with the employer. Every effort will be made to find suitable positions for all who are qualified. At least 12 weeks of employment will be required for satisfactory evaluation of the student's progress. Grades for the Preoccupational Preparation Unit will be determined by:
  - a. Supervisor's visits made to the student work station.
  - b. Reports submitted by the employer.
  - c. Other reports required by the supervising staff member or committee.
4. Students who fail to meet the Preoccupational Preparation Unit may continue their enrollment but will not be granted the associate in applied science degree.

The following suggested programs of study are designed to equip students for immediate employment in selected technical fields; a student pursuing one of these curricula will be graduated with the associate degree by meeting graduation requirements:

### *Agricultural Production*

Livestock Production  
Crop Production  
Diversified Agricultural Production  
Light Horse Management

### *Agricultural Industries and Services*

Animal Industry-Related Technology  
Crop Industry-Related Technology  
Soils and Chemicals Technology  
Agricultural Mechanization Technology

### *Agricultural Business*

Agricultural Business Management  
Agricultural Sales and Marketing  
Agricultural Secretarial Services

### *Horticultural Technology*

Floriculture  
Landscape Development  
Nursery, Greenhouse, and Garden Center Management

*Food Technology*

Food Processing  
Food Quality Control

*Home and Family Services*

Rural Home Management

**PROGRAMS**

**1. AGRICULTURAL PRODUCTION**

Agricultural production is extremely important in Minnesota. According to 1970 statistics, Minnesota ranks sixth among the states in total cash income derived from agricultural sales. While the number of employable persons required to perform the tasks of producing crops and livestock has diminished in more recent years, the qualities of education required in these vocations continue to increase at an accelerated rate. The investment in the modern farm enterprise is considerable and mistakes can be costly. New methods and information resulting from past experiences, modern research, and economic changes have made production agriculture increasingly technical, scientific, and competitive.

The concentration in this program is on the science and practice of increasing both the quality and quantity of farm production through scientific husbandry and management of crops and livestock.

Emphasis may be given to selected areas of livestock or crop production. Suggested lists of courses are given for Livestock Production, Crop Production, Diversified Agricultural Production, and Light Horse Management, but students interested in arranging a program for another emphasis in agricultural production may arrange with their adviser and the division chairman to do so.

**TYPICAL EMPLOYMENT OPPORTUNITIES**

**Agricultural Production**—Areas of emphasis in *Livestock Production, Crop Production, Diversified Agriculture Production, and Light Horse Management*:

Livestock Farm Owner  
Livestock Herdsman  
Livestock Farm Manager  
Livestock Feedlot Supervisor  
Dairy Herd Supervisor or Foreman

Crop Farm Owner  
Crop Farm Manager  
Canning Company Fieldman  
Specialty Crop Supervisor  
Cash Crop Specialist or Foreman

Diversified Farm Owner-Operator  
Farm Management Adviser  
Commercial Farm Management Service Operator  
Institutional Farm Manager  
Experimental Farm Manager-Operator

Horse Farm Owner  
Horse Farm Manager-Owner

## Curricular Information

---

Horse Trainer  
Horse Breeding Specialist  
Horse Riding Specialist  
Horse Showman-Groomsman  
Stable Supervisor

### GENERAL PROGRAM REQUIREMENT

To fulfill requirements for the associate in applied science degree in Agricultural Production, the candidate must satisfactorily complete a minimum of 108 credit hours of academic work including a common required core of 62 credit hours in agricultural and related education courses. An additional prescribed combination of 46 credit hours in competency courses and electives will be selected for each area of emphasis.

### AGRICULTURAL REQUIREMENTS

	Credits
AgAc 1-565 Applied Farm Accounting .....	5
AgBM 1-312 Agricultural Appraisal .....	2
AgBM 1-333 Principles of Farm Management .....	3
AgMk 1-573 Agricultural Commodity Marketing .....	3
AgSc 1-011 Agricultural Orientation .....	1
AgSc 1-243 Agricultural Genetics .....	3
AgSc 1-343 Economic Entomology .....	3
AgSc 1-709 Preoccupational Preparation Unit .....	12
Agro 1-153 Principles of Crop Production .....	3
MeAg 1-374 Agricultural Structures and Environment .....	4

### RELATED EDUCATION REQUIREMENTS

BiSc 1-104 General Biology .....	4
Chem 1-104 Technical Chemistry .....	4
Comm 1-103 Introductory Communications .....	3
Comm 1-203 Intermediate Communications .....	3
Econ 1-013 Introductory Economics .....	3
Math 1-054 Agricultural Technical Mathematics .....	4
PhEd 1-102 and 1-202 Physical Education .....	2
	<hr/>
	62

## Livestock Production

### COMPETENCY COURSE REQUIREMENT

	Credits
AgMk 1-053 Principles of Agricultural Marketing .....	3
AgSc 1-443 Introduction to Pathology .....	3
AnSc 1-053 Animal Production .....	3
AnSc 1-122 Livestock Evaluation .....	2
AnSc 1-352 Feeds and Feeding .....	2
AnSc 1-363 Principles of Animal Breeding .....	3
AnSc 1-443 Animal Nutrition .....	3
AnSc 1-471 Dairy Cattle Evaluation	
or	
AnSc 1-483 Livestock and Livestock Products .....	1 or 3
AnSc 1-513 Dairy Cattle Management	
or	
AnSc 1-584 Meat Animal Production .....	3 or 4
AnSc 1-522 Animal Diseases .....	2
AnSc 1-623 Livestock Management Techniques .....	3
AnSc 1-682 Seminar: Animal Science .....	2
MeAg 1-443 Agricultural Power Mechanics and Maintenance .....	3

---

33 or 36

## Agricultural Production

### ELECTIVES—10 to 13 credits

*Recommended Courses:* AgAc 1-014; AgBM 1-363; AgSc 1-383; Agro 1-383, 1-253; Hort 1-113; MeAg 1-234, 1-663; Soil 1-054, 1-333; BiSc 1-314; Comm 1-303; Econ 1-213, 1-313 and any related education course.

### SUGGESTED PROGRAM

#### First Quarter

Agro 1-153 Prin of Crop Prod .....	3
AgSc 1-011 Agricultural Orientation .....	1
AnSc 1-053 Animal Production .....	3
AnSc 1-122 Livestock Evaluation .....	2
BiSc 1-104 General Biology .....	4
Comm 1-103 Intro Communications .....	3
	16

#### Second Quarter

AgMk 1-053 Prin of Ag Marketing .....	3
AgSc 1-243 Agricultural Genetics .....	3
Chem 1-104 Technical Chemistry .....	4
Econ 1-013 Introductory Economics .....	3
PhEd 1-101 Physical Education I .....	1
Electives .....	2
	16

#### Third Quarter

AgBM 1-312 Agricultural Appraisal .....	2
AgBM 1-333 Prin of Farm Mgmt .....	3
AgSc 1-343 Economic Entomology .....	3
AnSc 1-352 Feeds and Feeding .....	2
AnSc 1-363 Prin of Animal Breeding .....	3
Math 1-054 Ag Technical Math .....	4
	17

#### Fourth Quarter

AgSc 1-709 Preoccupational Prep Unit 12	12
---	----

#### Fifth Quarter

AgSc 1-443 Intro to Pathology .....	3
AnSc 1-443 Animal Nutrition .....	3
AnSc 1-471 Dairy Cattle Eval .....	3
or	
AnSc 1-483 Lvstck & Lvstck Prod .....	1 or 3
Comm 1-203 Inter Communications .....	3
MeAg 1-443 Ag Power Mechanics .....	3
Electives .....	2 or 4
	17

#### Sixth Quarter

AgAc 1-565 Applied Farm Accounting ..	5
AnSc 1-513 Dairy Cattle Mgmt .....	3
or	
AnSc 1-584 Meat Animal Production 3 or 4	3 or 4
AnSc 1-522 Animal Diseases .....	2
PhEd 1-201 Physical Education II .....	1
AgMk 1-573 Ag Commodity Marketing ..	3
	14 or 15

#### Seventh Quarter

AnSc 1-623 Livestock Mgmt Tech .....	3
AnSc 1-682 Seminar: An Science .....	2
MeAg 1-374 Ag Structures & Environ ..	4
Electives .....	6 or 7
	15 or 16

## Crop Production

### COMPETENCY COURSE REQUIREMENT

	Credits
AgSc 1-443 Introduction to Pathology .....	3
Agro 1-253 Forage, Pasture, and Grassland Production .....	3
Agro 1-362 Weed Identification and Control .....	2
Agro 1-383 Grain Crop Production .....	3
Agro 1-433 Marketing Grain, Seeds, and Forages .....	3
Agro 1-652 Seminar: Agricultural Plants .....	2
MeAg 1-333 Agricultural Machinery .....	3
MeAg 1-443 Agricultural Power Mechanics and Maintenance .....	3
Soil 1-054 Soil Science .....	4
Soil 1-333 Soil Fertility .....	3
Soil 1-443 Soil and Crop Management .....	3
Soil 1-643 Agricultural Chemicals .....	3
	35

### ELECTIVES—11 credits

*Recommended Courses:* AgAc 1-014; AgBM 1-363; AgMk 1-053; AgSc 1-373; Hort 1-113; MeAg 1-234; BiSc 1-214; Comm 1-303; Econ 1-213, 1-313; and any related education course.

## Curricular Information

### SUGGESTED PROGRAM

#### First Quarter

AgSc 1-011 Agricultural Orientation .....	1
Agro 1-153 Prin of Crop Prod .....	3
BiSc 1-104 General Biology .....	4
Chem 1-104 Technical Chemistry .....	4
Soil 1-054 Soil Science .....	4
	<u>16</u>

#### Second Quarter

AgMk 1-053 Prin of Ag Marketing .....	3
AgSc 1-243 Agricultural Genetics .....	3
Agro 1-253 For, Past, Grshnd Prod .....	3
Comm 1-103 Intro Communications .....	3
Econ 1-013 Introductory Economics .....	3
PhEd 1-101 Physical Education I .....	1
	<u>16</u>

#### Third Quarter

AgBM 1-312 Agricultural Appraisal .....	2
AgBM 1-333 Prin of Farm Mgmt .....	3
AgSc 1-343 Economic Entomology .....	3
Agro 1-362 Weed Ident & Control .....	2
Agro 1-383 Grain Crop Production .....	3
Soil 1-333 Soil Fertility .....	3
	<u>16</u>

#### Fourth Quarter

AgSc 1-709 Preoccupational Prep Unit .....	12
--	----

#### Fifth Quarter

Agro 1-433 Mktg Grain, Seeds & For .....	3
AgSc 1-443 Intro to Pathology .....	3
Comm 1-203 Inter Communications .....	3
MeAg 1-443 Ag Pwr Mech & Maint .....	3
PhEd 1-201 Physical Education II .....	1
Soil 1-443 Soil and Crop Mgmt .....	3
	<u>16</u>

#### Sixth Quarter

AgAc 1-565 Applied Farm Accounting .....	5
Math 1-054 Ag Technical Math .....	4
Electives .....	7
	<u>16</u>

#### Seventh Quarter

Agro 1-652 Seminar: Ag Plants .....	2
MeAg 1-333 Agricultural Machinery .....	3
MeAg 1-374 Ag Structures & Environ .....	4
Soil 1-643 Agricultural Chemicals .....	3
Electives .....	4
	<u>16</u>

## Diversified Agricultural Production

### COMPETENCY COURSE REQUIREMENT

	Credits
Agro 1-253 Forage, Pasture, and Grassland Production .....	3
AnSc 1-053 Animal Production .....	3
AnSc 1-352 Feeds and Feeding .....	2
AnSc 1-443 Animal Nutrition .....	3
MeAg 1-333 Agricultural Machinery .....	3
MeAg 1-443 Agricultural Power Mechanics and Maintenance .....	3
Soil 1-054 Soil Science .....	4
	<u>21</u>

### ELECTIVES—25 credits

*Recommended Courses:* AgAc 1-014, 1-214; AgBM 1-363; AgMk 1-053; AgSc 1-373, 1-383, 1-443; Agro 1-362, 1-383, 1-433, 1-652; AnSc 1-122, 1-362, 1-383, 1-471, 1-483, 1-513, 1-584, 1-623, 1-682; Hort 1-113, 1-453; MeAg 1-024, 1-043, 1-083, 1-234, 1-633, 1-663; Soil 1-333, 1-443, 1-553, 1-643 and any related education course.

## Agricultural Production

### SUGGESTED PROGRAM

<i>First Quarter</i>		<i>Fourth Quarter</i>	
AgSc 1-011 Agricultural Orientation .....	1	AgSc 1-709 Preoccupational Prep Unit .....	12
Agro 1-153 Prin of Crop Prod .....	3		
AnSc 1-053 Animal Production .....	3	<i>Fifth Quarter</i>	
BiSc 1-104 General Biology .....	4	AnSc 1-443 Animal Nutrition .....	3
Chem 1-104 Technical Chemistry .....	4	Comm 1-203 Inter Communications .....	3
PhEd 1-101 Physical Education I .....	1	MeAg 1-443 Ag Pwr Mech & Maint .....	3
	16	Electives .....	7
<i>Second Quarter</i>			16
Agro 1-253 For, Past, Grslnd Prod .....	3	<i>Sixth Quarter</i>	
AgSc 1-243 Agricultural Genetics .....	3	AgAc 1-565 Applied Farm Accounting .....	5
Comm 1-103 Intro Communications .....	3	AgMk 1-573 Ag Commodity Marketing .....	3
Econ 1-013 Introductory Economics .....	3	Electives .....	8
Soil 1-054 Soil Science .....	4		
	16		16
<i>Third Quarter</i>		<i>Seventh Quarter</i>	
AgBM 1-312 Agricultural Appraisal .....	2	Math 1-054 Ag Technical Math .....	4
AgBM 1-333 Prin of Farm Mgmt .....	3	MeAg 1-374 Ag Structures & Envir .....	4
AgSc 1-343 Economic Entomology .....	3	MeAg 1-333 Agricultural Machinery .....	3
AnSc 1-352 Feeds and Feeding .....	2	PhEd 1-201 Physical Education II .....	1
Electives .....	6	Electives .....	4
	16		16

## Light Horse Management

COMPETENCY COURSE REQUIREMENT	Credits
AgSc 1-443 Introduction to Pathology .....	3
Agro 1-253 Forage, Pasture, and Grassland Prod .....	3
AnSc 1-053 Animal Production .....	3
AnSc 1-122 Livestock Evaluation .....	2
AnSc 1-352 Feeds and Feeding .....	2
AnSc 1-363 Principles of Animal Breeding .....	3
AnSc 1-383 Light Horse Management .....	3
AnSc 1-443 Animal Nutrition .....	3
AnSc 1-463 Light Horse Care and Training .....	3
AnSc 1-522 Animal Diseases .....	2
AnSc 1-562 Equitation .....	2
AnSc 1-682 Seminar: Animal Science—Horses .....	2
	31

### ELECTIVES—15 credits

*Recommended Courses:* AgAc 1-014, 1-214; AgBM 1-363, 1-473; AgMk 1-053, 1-253, 1-634; AgSc 1-383; Agro 1-383, 1-433; AnSc 1-623; Hort 1-113; Soil 1-054, 1-333; BiSc 1-314; Comm 1-303, 1-603; Econ 1-103, 1-313; Humn 1-423, 1-533; Math 1-083; Phys 1-104; Psyc 1-113; SocS 1-013, 1-173.



## Curricular Information

### SUGGESTED PROGRAM

#### First Quarter

AgSc 1-011 Agricultural Orientation .....	1
AnSc 1-053 Animal Production .....	3
AnSc 1-122 Livestock Evaluation .....	2
BiSc 1-104 General Biology .....	4
Chem 1-104 Technical Chemistry .....	4
Comm 1-103 Intro Communications .....	3
	<u>17</u>

#### Second Quarter

Agro 1-153 Prin of Crop Production .....	3
Agro 1-253 For, Past, Grslnd Prod .....	3
AgSc 1-243 Agricultural Genetics .....	3
Comm 1-203 Inter Communications .....	3
Econ 1-013 Intro Economics .....	3
PhEd 1-101 Physical Education I .....	1
	<u>16</u>

#### Third Quarter

AgBM 1-312 Agricultural Appraisal .....	2
AgBM 1-333 Prin of Farm Mgmt .....	3
AgSc 1-343 Economic Entomology .....	3
AnSc 1-352 Feeds and Feeding .....	2
AnSc 1-363 Prin of Animal Breeding .....	3
AnSc 1-383 Light Horse Mgmt .....	3
	<u>16</u>

#### Fourth Quarter

AgSc 1-709 Preoccupational Prep Unit	12
--------------------------------------	----

#### Fifth Quarter

AgSc 1-443 Intro to Pathology .....	3
AnSc 1-443 Animal Nutrition .....	3
AnSc 1-463 Light Horse Care & Train .....	3
PhEd 1-201 Physical Education II .....	1
Electives .....	6
	<u>16</u>

#### Sixth Quarter

AgAc 1-565 Applied Farm Accounting .....	5
AgMk 1-573 Ag Commodity Marketing .....	3
AnSc 1-522 Animal Diseases .....	2
AnSc 1-562 Equitation .....	2
Electives .....	3
	<u>15</u>

#### Seventh Quarter

AnSc 1-682 Seminar: AnSc—Horses .....	2
Math 1-054 Ag Technical Math .....	4
MeAg 1-374 Ag Structures & Envir .....	4
Electives .....	6
	<u>16</u>

## 2. AGRICULTURAL INDUSTRIES AND SERVICES

Farming is the hub of Minnesota's agriculture, but agriculture is more than farming. The strength of the agricultural production industry is sustained by large groups of science-related services and technologies which assist farmers to increase their productive capabilities.

The technological changes affecting agriculture have created a need for large numbers of highly specialized technicians who serve the farmer by providing supplies of feed, seed, fertilizers, chemicals, livestock, farm machinery and equipment, and many other services.

The Agricultural Industries and Services program will offer broad basic preparation leading to a variety of possible specializations. A student in this curriculum would not expect to become an immediate specialist in the emphasis of his choice, but would receive a sufficient degree of competence to enable prospective employers to complete his preparation with a minimum of effort and expense. The program will allow students to select courses in technical agriculture and related education for areas of emphasis that provide training for entry into a great variety of careers in animal, crop soils, and mechanized industry-related technologies. The various technologies have suggested programs with a great deal of similarity in a strong core of related education courses which are supplemental to technical courses in agriculture and business to provide the foundation for successful entry, growth, and development in a variety of satisfying jobs.

**TYPICAL EMPLOYMENT OPPORTUNITIES**

**Agricultural Industries and Services**—Areas of emphasis in *Animal Industry-Related Technology, Crop Industry-Related Technology, Soils and Chemicals Technology, and Agricultural Mechanization Technology*:

- Artificial Breeding Technician
- Livestock Fieldman
- Breed Association Fieldman
- Dairy Herd Improvement Association Supervisor
- Commission Firm Buyer
- Livestock Marketing Aide
- Animal Supplies Salesman
- Feed and Seed Store Manager
- Feed Research Aide
- Feed Salesman
- Feed Company Representative
- Grain Marketing Aide
- Grain Products Field Representative
- Grain By-Products Sales Representative
- Seed and Grain Inspector
- Elevator Manager
- Food and Drug Administration Inspector
- State Grain Inspector
- Plant Breeding Technician
- Seed Salesman
- Fertilizer Sales Representative
- Fertilizer Plant Supervisor
- Ag Chemicals Fieldman
- Ag Chemicals Research Aide
- Soil Conservation Aide
- Food and Drug Administration Aide
- Soil Testing Technician
- Irrigation Technician
- Implement Dealer: Office Manager
- Implement Dealer: Owner Operator
- Ag Machinery Research Aide
- Ag Machinery Production Supervisor
- Ag Machinery Sales Representative
- Ag Machinery Construction Foreman
- Ag Machinery Research Technician
- Ag Buildings Planning Aide
- Ag Buildings Sales Representative
- Ag Equipment Sales Representative
- Ag Equipment Installation Supervisor
- Ag Equipment Production Aide
- Farm Materials Handling Technician

**GENERAL PROGRAM REQUIREMENT**

To fulfill requirements for the associate in applied science degree in Agricultural Industries and Services, the candidate must satisfactorily complete a minimum of 108 credits of academic work including a common required core of 56 credit hours in agricultural and related education courses. An additional prescribed combination of 52 credit hours in competency courses and electives will be selected for each area of emphasis:

## Curricular Information

AGRICULTURAL REQUIREMENTS	Credits
AgBM 1-011 Agricultural Business Industry .....	1
AgBM 1-213 Principles of Agricultural Business Management .....	3
AgMk 1-053 Principles of Agricultural Marketing .....	3
AgSc 1-011 Agricultural Orientation .....	1
AgSc 1-709 Preoccupational Preparation Unit .....	12
Agro 1-153 Principles of Crop Production .....	3
AnSc 1-053 Animal Production .....	3
Soil 1-054 Soil Science .....	4

RELATED EDUCATION REQUIREMENTS	Credits
BiSc 1-104 General Biology .....	4
Chem 1-104 Technical Chemistry .....	4
Comm 1-103 Introductory Communications .....	3
Comm 1-203 Intermediate Communications .....	3
Comm 1-473 Technical Report Writing .....	3
Econ 1-013 Introductory Economics .....	3
Math 1-054 Agricultural Technical Mathematics .....	4
PhEd 1-102 and 1-202 Physical Education .....	2
	56

## Animal Industry-Related Technology

COMPETENCY REQUIREMENTS	Credits
AgMk 1-573 Agricultural Commodity Marketing .....	3
AgSc 1-243 Agricultural Genetics .....	3
AgSc 1-343 Economic Entomology .....	3
AgSc 1-383 Principles of Animal Physiology .....	3
AgSc 1-443 Introduction to Pathology .....	3
AnSc 1-122 Livestock Evaluation .....	2
AnSc 1-352 Feeds and Feeding .....	2
AnSc 1-363 Principles of Animal Breeding .....	3
AnSc 1-443 Animal Nutrition .....	3
AnSc 1-483 Livestock and Livestock Products .....	3
AnSc 1-623 Livestock Management Techniques .....	3
AnSc 1-682 Seminar: Animal Science .....	2
BiSc 1-314 General Zoology .....	4
	37

### ELECTIVES—15 credits

*Recommended Courses:* AgAc 1-014, 1-214; AgBM 1-333; AgMk 1-633; AnSc 1-383, 1-471, 1-513, 1-584; FScI 1-383, 1-454, 1-503, 1-624; MeAg 1-024, 1-374, 1-663; BiSc 1-255, 1-552; Chem 1-224, 1-353, 1-373; Math 1-043 and any other related education course.

## SUGGESTED PROGRAM

### First Quarter

AgBM 1-011 Ag Business Industry .....	1
AgSc 1-011 Agricultural Orientation .....	1
AnSc 1-053 Animal Production .....	3
AnSc 1-122 Livestock Evaluation .....	2
BiSc 1-104 General Biology .....	4
Chem 1-104 Technical Chemistry .....	4
PhEd 1-101 Physical Education I .....	1
	16

### Second Quarter

AgBM 1-213 Prin of Ag Bus Mgmt .....	3
AgMk 1-053 Prin of Ag Marketing .....	3
AgSc 1-243 Agricultural Genetics .....	3
Comm 1-103 Intro Communications .....	3
Econ 1-013 Introductory Economics .....	3
	15

*Third Quarter*

AgSc 1-383 Prin of An Physiology .....	3
AnSc 1-352 Feeds and Feeding .....	2
AnSc 1-363 Prin of Animal Breeding .....	3
BiSc 1-314 General Zoology .....	4
Comm 1-203 Inter Communications .....	3
PhEd 1-201 Physical Education II .....	1
	16

*Fourth Quarter*

AgSc 1-709 Preoccupational Prep Unit	12
--------------------------------------	----

*Fifth Quarter*

AgSc 1-443 Intro to Pathology .....	3
AnSc 1-443 Animal Nutrition .....	3
AnSc 1-483 Lvstk & Lvstk Prod .....	3
Comm 1-473 Technical Report Writing ..	3
Electives .....	4
	16

*Sixth Quarter*

Agro 1-153 Prin of Crop Prod .....	3
AgMk 1-573 Ag Commodity Marketing ...	3
Math 1-054 Ag Technical Math .....	4
Soil 1-054 Soil Science .....	4
Electives .....	3
	17

*Seventh Quarter*

AgSc 1-343 Economic Entomology .....	3
AnSc 1-623 Livestock Mgmt Tech .....	3
AnSc 1-682 Seminar: An Science .....	2
Electives .....	8
	16

## Crop Industry-Related Technology

COMPETENCY REQUIREMENTS

	Credits
AgMk 1-573 Agricultural Commodity Marketing .....	3
AgSc 1-243 Agricultural Genetics .....	3
AgSc 1-343 Economic Entomology .....	3
AgSc 1-373 Principles of Plant Physiology .....	3
AgSc 1-443 Introduction to Pathology .....	3
Agro 1-383 Grain Crop Production .....	3
Agro 1-433 Marketing Grain, Seeds, and Forages .....	3
Agro 1-652 Seminar: Agricultural Plants .....	2
BiSc 1-214 General Botany .....	4
MeAg 1-374 Agricultural Structures and Environment .....	4
MeAg 1-663 Agricultural Products Handling .....	3
Soil 1-643 Agricultural Chemicals .....	3
	37

ELECTIVES—15 credits

*Recommended Courses:* AgAc 1-014, 1-214; AgBM 1-333; AgMk 1-633; Agro 1-253, 1-363; FSci 1-242, 1-503; Hort 1-453; MeAg 1-024, 1-333, 1-543, 1-633; Soil 1-333, 1-443, 1-553; BiSc 1-255; Chem 1-224, 1-353, 1-373; Math 1-013 and any other related education course,

### SUGGESTED PROGRAM

*First Quarter*

AgBM 1-011 Ag Business Industry .....	1
AgSc 1-011 Agricultural Orientation .....	1
Agro 1-153 Prin of Crop Prod .....	3
BiSc 1-104 General Biology .....	4
Chem 1-104 Technical Chemistry .....	4
Comm 1-103 Intro Communications .....	3
	16

*Second Quarter*

AgBM 1-213 Prin of Ag Bus Mgmt .....	3
AgMk 1-053 Prin of Ag Marketing .....	3
AgSc 1-243 Agricultural Genetics .....	3
BiSc 1-214 General Botany .....	4
Econ 1-013 Introductory Economics .....	3
PhEd 1-101 Physical Education I .....	1
	17

## Curricular Information

### Third Quarter

AgSc 1-343 Economic Entomology .....	3
AgSc 1-373 Prin of Plant Physiology .....	3
Agro 1-383 Grain Crop Production .....	3
Comm 1-203 Inter Communications .....	3
MeAg 1-374 Ag Structures & Envir .....	4
	<hr/>
	16

### Fourth Quarter

AgSc 1-709 Preoccupational Prep Unit	12
--------------------------------------	----

### Fifth Quarter

AgSc 1-443 Intro to Pathology .....	3
Agro 1-433 Mktg Grain, Seeds, & For .....	3
AnSc 1-053 Animal Production .....	3
Comm 1-473 Technical Report Writing .....	3
PhEd 1-201 Physical Education II .....	1
Electives .....	3
	<hr/>
	16

### Sixth Quarter

AgMk 1-573 Ag Commodity Marketing .....	3
Math 1-054 Ag Technical Math .....	4
Soil 1-054 Soil Science .....	4
Electives .....	5
	<hr/>
	16

### Seventh Quarter

Agro 1-652 Seminar: Ag Plants .....	2
MeAg 1-663 Ag Products Handling .....	3
Soil 1-643 Agricultural Chemicals .....	3
Electives .....	7
	<hr/>
	15

## Soils and Chemicals Technology

### COMPETENCY REQUIREMENTS

	Credits
AgBM 1-312 Agricultural Appraisal .....	2
AgSc 1-343 Economic Entomology .....	3
AgSc 1-373 Principles of Plant Physiology .....	3
AgSc 1-443 Introduction to Pathology .....	3
Agro 1-253 Forage, Pasture, and Grassland Production .....	3
MeAg 1-024 Technical Drawing .....	4
MeAg 1-333 Agricultural Machinery .....	3
MeAg 1-404 Fundamentals of Surveying .....	4
Soil 1-333 Soil Fertility .....	3
Soil 1-443 Soil and Crop Management .....	3
Soil 1-553 Soil Conservation and Water Management .....	3
Soil 1-643 Agricultural Chemicals .....	3
Soil 1-692 Seminar: Soil .....	2
Chem 1-373 Qualitative Analysis .....	3
	<hr/>
	42

### ELECTIVES—10 credits

*Recommended Courses:* AgBM 1-363; Agro 1-363, 1-383, 1-433; MeAg 1-443, 1-633; BiSc 1-214, 1-255; Chem 1-224, 1-353 and other related education courses.

## SUGGESTED PROGRAM

### First Quarter

AgBM 1-011 Ag Business Industry .....	1
AgSc 1-011 Agricultural Orientation .....	1
BiSc 1-104 General Biology .....	4
Chem 1-104 Technical Chemistry .....	4
MeAg 1-024 Technical Drawing .....	4
PhEd 1-101 Physical Education I .....	1
	<hr/>
	15

### Second Quarter

AgBM 1-213 Prin of Ag Bus Mgmt .....	3
AgMk 1-053 Prin of Ag Marketing .....	3
Agro 1-253 For, Past, & Grslnd Prod .....	3
Comm 1-103 Intro Communications .....	3
Soil 1-054 Soil Science .....	4
	<hr/>
	16

## Agricultural Industries and Services

### Third Quarter

AgBM 1-312 Agricultural Appraisal .....	2
AgSc 1-373 Prin of Plant Physiology .....	3
Chem 1-373 Qualitative Analysis .....	3
Comm 1-203 Inter Communications .....	3
MeAg 1-333 Agricultural Machinery .....	3
Soil 1-333 Soil Fertility .....	3
	17

### Fourth Quarter

AgSc 1-709 Preoccupational Prep Unit	12
--------------------------------------	----

### Fifth Quarter

AgSc 1-443 Intro to Pathology .....	3
AnSc 1-053 Animal Production .....	3
Comm 1-473 Technical Report Writing ..	3
MeAg 1-404 Fund of Surveying .....	4
Soil 1-443 Soil and Crop Mgmt .....	3
	16

### Sixth Quarter

Agro 1-153 Prin of Crop Prod .....	3
Econ 1-013 Introductory Economics .....	3
PhEd 1-201 Physical Education II .....	1
Soil 1-553 Soil Cons & Water Mgmt .....	3
Electives .....	6
	16

### Seventh Quarter

AgSc 1-343 Economic Entomology .....	3
Math 1-054 Ag Technical Math .....	4
Soil 1-643 Agricultural Chemicals .....	3
Soil 1-692 Seminar: Soil .....	2
Electives .....	4
	16

## Agricultural Mechanization Technology

### COMPETENCY REQUIREMENTS

	Credits
AgAc 1-014 Principles of Agricultural Business Accounting .....	4
AgBM 1-513 Agricultural Sales Management .....	3
MeAg 1-024 Technical Drawing .....	4
MeAg 1-043 Agricultural Metals and Welding .....	3
MeAg 1-083 Fundamentals of Power and Air Cooled Engines	
or	
MeAg 1-253 Agricultural Electrical Equipment .....	3
MeAg 1-333 Agricultural Machinery	
or	
MeAg 1-543 Agricultural Equipment	
or	
MeAg 1-443 Agricultural Power Mechanics and Maintenance .....	3
MeAg 1-523 Basic Hydraulics .....	3
MeAg 1-633 Advanced Agricultural Machinery	
or	
MeAg 1-663 Agricultural Products Handling .....	3
Comm 1-303 Advanced Communications	
or	
Comm 1-603 Agricultural Oral Communications .....	3
Phys 1-104 Technical Physics .....	4
	33

### ELECTIVES—19 credits

*Recommended Courses:* AgAc 1-565; AgBM 1-333, 1-363, 1-475; AgMk 1-253, 1-273; FSci 1-323, 1-564; MeAg 1-234, 1-374, 1-404; Soil 1-553; Chem 1-224, 1-353, 1-373; Math 1-013, 1-254, 1-374; Phys 1-224, 1-334 and other related education courses.

## Curricular Information

### SUGGESTED PROGRAM

#### First Quarter

AgBM 1-011 Ag Business Industry .....	1
AgSc 1-011 Agricultural Orientation .....	1
BiSc 1-104 General Biology .....	4
Chem 1-104 Technical Chemistry .....	4
MeAg 1-024 Technical Drawing .....	4
PhEd 1-101 Physical Education I .....	1
	<hr/> 15

#### Second Quarter

AgBM 1-213 Prin of Ag Bus Mgmt .....	3
AgMk 1-053 Prin of Ag Marketing .....	3
Comm 1-103 Intro Communications .....	3
MeAg 1-043 Ag Metals and Welding .....	3
MeAg 1-083 Fund of Power** .....	3
	<hr/> 15

#### Third Quarter

Comm 1-203 Inter Communications .....	3
Econ 1-013 Introductory Economics .....	3
Math 1-054 Ag Technical Math .....	4
MeAg 1-333 Agricultural Machinery** .....	3
Phys 1-104 Technical Physics .....	4
	<hr/> 17

#### Fourth Quarter

AgSc 1-709 Preoccupational Prep Unit 12
---

#### Fifth Quarter

AgAc 1-014 Prin of Ag Bus Acct .....	4
Agro 1-153 Prin of Crop Prod .....	3
AnSc 1-053 Animal Production .....	3
Comm 1-473 Technical Report Writing ...	3
Electives .....	4
	<hr/> 17

#### Sixth Quarter

AgBM 1-513 Ag Sales Management .....	3
MeAg 1-523 Basic Hydraulics .....	3
PhEd 1-201 Physical Education I .....	1
Electives .....	9
	<hr/> 16

#### Seventh Quarter

Comm 1-603 Ag Oral Communications ....	3
MeAg 1-633 Advanced Ag Machinery** ..	3
Soil 1-054 Soil Science .....	4
Electives .....	6
	<hr/> 16

## 3. AGRICULTURAL BUSINESS

Agricultural Business commands a vital role in the technological advancement of agriculture. For each person employed in the production of agricultural products, three persons are required to provide the supplies and services that the farmer needs.

The program in Agricultural Business is designed for students who wish to enter one of the business professions related to agriculture. It will allow students to select courses for areas of emphasis in Agricultural Business Management, Agricultural Sales and Marketing, or Agricultural Secretarial Services.

The future for agricultural-related business careers holds high promise for employment. Minnesota's *Agricultural Input Industries*—those that provide supplies and services to farms—employed more than 56,000 persons in 1970. The *Agricultural Output Industries*—assembling, processing, storing, and distributing farm commodities—provided employment for more than 217,000 persons in 1970.

The agricultural businesses allied to production farming need creative thinking and a steady flow of new ideas from innovative young men and women with a background in agriculture.

### TYPICAL EMPLOYMENT OPPORTUNITIES

*Agricultural Business*—Areas of emphasis in *Agricultural Business Management*, *Agricultural Sales and Marketing*, and *Agricultural Secretarial Services*:

- Ag Business Proprietor
- Ag Cooperative Manager
- Ag Retail Store Manager
- Ag Sales Manager

\*\*Courses may be substituted for, according to area of interest.

Ag Credit Manager  
 Ag Bank Representative  
 Ag Personnel Manager  
 Ag Physical Distribution Technician  
 Ag Commodity Storage Manager  
 Farm Management Consultant  
 Crop and Livestock Market Reporting Technician

Ag Manufacturers Representative  
 Ag Products Representative  
 Ag Purchasing Agent  
 Ag Consumer Service Representative  
 Ag Broker  
 Farm Supply Salesman  
 Land and Real Estate Salesman  
 Livestock Commission Company Representative  
 Livestock Marketing Service Representative  
 USDA Marketing Consultant  
 Feed Company Sales Representative  
 Grain Company Sales Representative

Ag Industry Executive Secretary  
 Ag Industry Clerk-Typist  
 Ag Industry Bookkeeper  
 Ag Retail Business Secretary  
 Ag Wholesale Business Secretary  
 Ag Cooperative Secretary  
 Livestock Marketing Company Secretary  
 Feed and Grain Company Secretary  
 Fertilizer and Farm Chemical Business Secretary  
 Implement Business Secretary  
 Ag Communications Secretary  
 Ag Credit Association Secretary  
 Extension Service Secretary

**GENERAL PROGRAM REQUIREMENT**

To fulfill requirements for the associate in applied science degree in Agricultural Business, the candidate must satisfactorily complete a minimum of 108 credits of academic work including a common required core of 52 credit hours in agriculture and related education courses. An additional prescribed combination of 56 credit hours in competency courses and electives will be selected for each area of emphasis.

**AGRICULTURAL REQUIREMENTS**

	Credits
AgAc 1-014 Principles of Agricultural Business Accounting .....	4
AgBM 1-011 Agricultural Business Industry .....	1
AgBM 1-363 Agricultural Business Law .....	3
AgSc 1-011 Agricultural Orientation .....	1
AgSc 1-709 Preoccupational Preparation Unit .....	12
Agro 1-153 Principles of Crop Production .....	3
AnSc 1-053 Animal Production .....	3
Soil 1-054 Soil Science .....	4

**RELATED EDUCATION REQUIREMENTS**

BiSc 1-104 General Biology .....	4
Comm 1-103 Introductory Communications .....	3
Comm 1-203 Intermediate Communications .....	3
Comm 1-303 Advanced Communications .....	3
Econ 1-013 Introductory Economics .....	3
Math 1-083 Business Mathematics .....	3
PhEd 1-102 and 1-202 Physical Education .....	2
	52



**Curricular Information**

**Agricultural Business Management**

COMPETENCY REQUIREMENT	Credits
AgAc 1-214 Principles of Agricultural Business Accounting .....	4
AgBM 1-213 Principles of Agricultural Business Management .....	3
AgBM 1-473 Small Business Management .....	3
AgBM 1-513 Agricultural Sales Management .....	3
AgBM 1-553 Office and Personnel Management .....	3
AgBM 1-623 Agricultural Distribution Systems .....	3
AgBM 1-652 Seminar: Agricultural Business .....	2
AgMk 1-053 Principles of Agricultural Marketing .....	3
AgMk 1-333 Advertising Principles .....	3
AgMk 1-373 Principles of Merchandising .....	3
Econ 1-213 Principles of Macro-Economics .....	3
Psyc 1-114 General Psychology .....	4
	37

**ELECTIVES—19 credits**

*Recommended Courses:* AgAc 1-053; AgBM 1-333, 1-443; AgMk 1-253, 1-273, 1-513, 1-634; AgSS to fit individual needs; any other agriculture or general education course.

**SUGGESTED PROGRAM**

<i>First Quarter</i>		<i>Fourth Quarter</i>	
AgAc 1-014 Prin of Ag Bus Acct .....	4	AgSc 1-709 Preoccupational Prep Unit .....	12
AgBM 1-011 Ag Business Industry .....	1		
AgSc 1-011 Agricultural Orientation .....	1	<i>Fifth Quarter</i>	
Comm 1-163 Intro Communications .....	3	AgBM 1-473 Small Bus Mgmt .....	3
Econ 1-013 Introductory Economics .....	3	AnSc 1-053 Animal Production .....	3
Math 1-083 Business Mathematics .....	3	BiSc 1-104 General Biology .....	4
PhEd 1-101 Physical Education I .....	1	Electives .....	6
	16		16
<i>Second Quarter</i>		<i>Sixth Quarter</i>	
AgAc 1-214 Prin of Ag Bus Acct .....	4	AgBM 1-513 Ag Sales Management .....	3
AgBM 1-213 Prin of Ag Bus Mgmt .....	3	AgBM 1-553 Office & Personnel Mgmt .....	3
AgMk 1-053 Prin of Ag Marketing .....	3	Agro 1-153 Prin of Crop Prod .....	3
Comm 1-203 Inter Communications .....	3	PhEd 1-201 Physical Education II .....	1
Econ 1-213 Prin of Macro-Econ .....	3	Electives .....	6
	16		16
<i>Third Quarter</i>		<i>Seventh Quarter</i>	
AgBM 1-363 Ag Business Law .....	3	AgBM 1-623 Ag Distribution Systems .....	3
AgMk 1-333 Advertising Principles .....	3	AgBM 1-652 Seminar: Ag Business .....	2
AgMk 1-373 Prin of Merchandising .....	3	Soil 1-054 Soil Science .....	4
Comm 1-303 Advanced Communications .....	3	Electives .....	7
Psyc 1-114 General Psychology .....	4		16
	16		

**Agricultural Sales and Marketing**

COMPETENCY REQUIREMENT	Credits
AgAc 1-214 Principles of Agricultural Accounting .....	4
AgBM 1-213 Principles of Agricultural Business Management .....	3
AgBM 1-652 Seminar: Agricultural Business .....	2
AgMk 1-053 Principles of Agricultural Marketing .....	3
AgMk 1-253 Applied Marketing Psychology .....	3
AgMk 1-573 Agricultural Commodity Marketing .....	3
AgMk 1-333 Advertising Principles .....	3
AgMk 1-353 Merchandise Display .....	3
AgMk 1-373 Principles of Merchandising .....	3

Agro 1-433 Marketing Grain, Seeds, and Forages .....	3
AnSc 1-483 Livestock and Livestock Products .....	3
Comm 1-603 Agricultural Oral Communications .....	3
Econ 1-213 Principles of Macro-Economics .....	3
Psyc 1-114 General Psychology .....	4
	<u>13</u>

ELECTIVES—13 credits

*Recommended Courses:* AgAc 1-565; AgBM 1-312, 1-333, 1-443, 1-473, 1-513, 1-623; AgMk 1-513, 1-634; AgSS to fit individual needs; any other agriculture or related education course.

**SUGGESTED PROGRAM**

*First Quarter*

AgAc 1-014 Prin of Ag Bus Acct .....	4
AgBM 1-011 Ag Business Industry .....	1
AgSc 1-011 Agricultural Orientation .....	1
Comm 1-103 Intro Communications .....	3
Econ 1-013 Introductory Economics .....	3
Psyc 1-114 General Psychology .....	4
	<u>16</u>

*Second Quarter*

AgAc 1-214 Prin of Ag Bus Acct .....	4
AgBM 1-213 Prin of Ag Bus Mgmt .....	3
AgMk 1-053 Prin of Ag Marketing .....	3
AgMk 1-253 Applied Marketing Psych .....	3
Agro 1-153 Prin of Crop Production .....	3
	<u>16</u>

*Third Quarter*

AgBM 1-363 Ag Business Law .....	3
AgMk 1-333 Advertising Principles .....	3
AgMk 1-353 Merchandise Display .....	3
AgMk 1-373 Prin of Merchandising .....	3
Comm 1-203 Inter Communications .....	3
PhEd 1-101 Physical Education I .....	1
	<u>16</u>

*Fourth Quarter*

AgSc 1-709 Preoccupational Prep Unit .....	12
--	----

*Fifth Quarter*

Agro 1-443 Mktg Grns, Seeds, & For .....	3
AnSc 1-053 Animal Production .....	3
AnSc 1-483 Lvstck & Lvstck Prod .....	3
BiSe 1-104 General Biology .....	4
Math 1-053 Business Mathematics .....	3
	<u>16</u>

*Sixth Quarter*

AgMk 1-573 Ag Commodity Marketing .....	3
Econ 1-213 Prin of Macro-Econ .....	3
PhEd 1-201 Physical Education II .....	1
Electives .....	9
	<u>16</u>

*Seventh Quarter*

AgBM 1-652 Seminar: Ag Business .....	2
Comm 1-303 Advanced Communications .....	3
Comm 1-603 Ag Oral Communications .....	3
Soil 1-054 Soil Science .....	4
Electives .....	4
	<u>16</u>

**Agricultural Secretarial Services**

**COMPETENCY REQUIREMENTS**

**Credits**

AgAc 1-053 Office Machine Calculations .....	3
AgBM 1-553 Office and Personnel Management .....	3
AgSS 1-113 Beginning Typewriting <sup>°°</sup> .....	3
AgSS 1-153 Intermediate Typewriting .....	3
AgSS 1-172 Machine Duplication .....	2
AgSS 1-252 Records Management .....	2
AgSS 1-273 Beginning Shorthand <sup>††</sup> .....	3
AgSS 1-333 Advanced Typewriting .....	3
AgSS 1-354 Intermediate Shorthand <sup>††</sup> .....	4
AgSS 1-382 Office Machine Transcription .....	2
AgSS 1-484 Secretarial Procedures .....	4
AgSS 1-513 Agricultural Technical Typewriting .....	3
AgSS 1-544 Advanced Shorthand and Transcription <sup>††</sup> .....	4
AgSS 1-622 Advanced Office Machine Transcription .....	2
AgSS 1-663 Agricultural Terminology and Dictation .....	3
	<u>31 to 44</u>

<sup>°°</sup> May be omitted as skill allows

<sup>††</sup> Student and adviser may eliminate shorthand requirement

## Curricular Information

ELECTIVES—12 to 25 credits

*Recommended Courses:* Credits to be selected from any areas of agriculture or related education.

### SUGGESTED PROGRAM

(No shorthand or typewriting in high school)

#### First Quarter

AgAc 1-014 Prin of Ag Bus Acct .....	4
AgBM 1-011 Ag Business Industry .....	1
AgSc 1-011 Agricultural Orientation .....	1
AgSS 1-113 Beginning Typewriting .....	3
AgSS 1-172 Machine Duplication .....	2
Comm 1-103 Intro Communications .....	3
Econ 1-013 Introductory Economics .....	3
	<u>17</u>

#### Second Quarter

AgAc 1-053 Office Mach Calculation .....	3
AgSS 1-153 Intermediate Typewriting .....	3
AgSS 1-252 Records Management .....	2
AgSS 1-273 Beginning Shorthand .....	3
Comm 1-203 Inter Communications .....	3
PhEd 1-101 Physical Education I .....	1
	<u>15</u>

#### Third Quarter

AgBM 1-363 Ag Business Law .....	3
AgSS 1-333 Advanced Typewriting .....	3
AgSS 1-354 Intermediate Shorthand .....	4
AgSS 1-382 Office Machine Trans .....	2
Comm 1-303 Advanced Comm .....	3
	<u>15</u>

#### Fourth Quarter

AgSc 1-709 Preoccupational Prep Unit	12
--------------------------------------	----

#### Fifth Quarter

AgSS 1-484 Secretarial Procedures .....	4
AnSc 1-053 Animal Production .....	3
BiSc 1-104 General Biology .....	4
Math 1-083 Business Mathematics .....	3
Electives .....	3
	<u>17</u>

#### Sixth Quarter

AgBM 1-553 Office & Personnel Mgmt	3
AgSS 1-513 Ag Technical Typewriting	3
AgSS 1-544 Adv Shorthand & Trans	4
Agro 1-153 Prin of Crop Prod	3
PhEd 1-201 Physical Education II	1
Electives	3
	<u>17</u>

#### Seventh Quarter

AgSS 1-622 Adv Off Mach Trans	2
AgSS 1-663 Ag Term & Dictation	3
Soil 1-054 Soil Science	4
Electives	6
	<u>15</u>

## 4. HORTICULTURAL TECHNOLOGY

Horticulture has enjoyed accelerated development in recent years until now it is the fastest growing segment of the American agricultural economy on a percentage dollar-volume basis. The post-war home building boom has created an unprecedented demand for shrubs and flowers for home beautification. There is now a greater aesthetic appreciation by the general public than ever before for decorative plant materials, both indoor and out.

The need for personnel formally prepared in horticultural skills is increasing as a result of a change in the structure of horticultural businesses from small family operations to larger structured organizations. This has created a need for employees with mid-management or supervisory skills for all types of horticultural businesses. Many new garden centers are becoming established throughout the state and nation under franchise arrangements. These centers will need supervisors or foremen who can grow, manage, and retail horticultural products. More aggressive young men and women, with specialized training, are needed to take positions of responsibility in horticultural businesses.

### TYPICAL EMPLOYMENT OPPORTUNITIES

**Horticultural Technology**—Areas of emphasis in *Floriculture, Landscape Development, and Nursery, Greenhouse, and Garden Center Management:*

Wholesale Florist  
 Retail Florist  
 Floral Shop Manager  
 Floral Designer  
 Flower Grower  
 Flower Propagator  
 Flower Grader  
 Wholesale Florist Foreman  
 Garden Center Floral Technician  
 Floral Supply Salesman

Landscape Maintenance Nursery Business Owner-Operator  
 Landscape Contractor  
 Landscape Planner  
 Landscape Planting Technician  
 Landscape Construction Foreman  
 Landscape Maintenance Foreman  
 Landscape Materials Salesman  
 Landscape Equipment Salesman  
 Turf and Sod Retailer  
 Turf Grower  
 Turf and Grounds Manager for Private Estates  
 Golf Course Grounds Manager  
 Arboretum Superintendent  
 Estate Grounds Man  
 Parks and Playgrounds Planner  
 Public Recreation Grounds Supervisor  
 Cemetery Superintendent

Nursery Owner-Operator  
 Greenhouse Owner-Operator  
 Garden Center Owner-Operator  
 Nursery Stock Section Foreman  
 Greenhouse Section Technician  
 Nursery Field Technician  
 Nursery Stock Propagator  
 Greenhouse Propagator  
 Garden Center Salesman  
 Horticultural Equipment Salesman  
 Nursery, Greenhouse, Garden Center Plant Buyer  
 Nursery, Greenhouse, Garden Center Wholesale  
 Supplier  
 Nursery Stock Inspector

**GENERAL PROGRAM REQUIREMENT**

To fulfill requirements for the associate in applied science degree in Horticultural Technology, the candidate must satisfactorily complete a minimum of 108 credits of academic work including a common required core of 69 credit hours in Agriculture and Related Education Courses. An additional prescribed combination of 39 credit hours in competency courses and electives will be selected for each area of emphasis.

AGRICULTURAL REQUIREMENTS	Credits
AgSc 1-014 Agricultural Orientation .....	1
AgSc 1-243 Agricultural Genetics .....	3
AgSc 1-343 Economic Entomology .....	3
AgSc 1-373 Principles of Plant Physiology .....	3
AgSc 1-443 Introduction to Pathology .....	3
AgSc 1-709 Preoccupational Preparation Unit .....	12
Agro 1-362 Weed Identification and Control .....	2
Agro 1-652 Seminar: Agricultural Plants .....	2

## Curricular Information

Hort 1-113 Introductory Horticulture .....	3
Hort 1-323 Plant Materials .....	3
Hort 1-343 Plant Propagation .....	3
Soil 1-054 Soil Science .....	4
<b>RELATED EDUCATION REQUIREMENTS</b>	
BiSc 1-104 General Biology .....	4
BiSc 1-214 General Botany .....	4
Chem 1-104 Technical Chemistry .....	4
Comm 1-103 Introductory Communications .....	3
Comm 1-203 Intermediate Communications .....	3
Econ 1-013 Introductory Economics .....	3
PhEd 1-101 and 1-201 Physical Education .....	2
Psyc 1-114 General Psychology .....	4
	<u>69</u>

## Floriculture

### COMPETENCY REQUIREMENTS

Credits

AgBM 1-213 Principles of Agricultural Business Management or	
AgBM 1-473 Small Business Management .....	3
AgBM 1-513 Agricultural Sales Management .....	3
AgMk 1-333 Advertising Principles .....	3
AgMk 1-353 Merchandise Display .....	3
Hort 1-213 Commercial Floriculture .....	3
Hort 1-232 Basic Flower Arrangement and Floral Design .....	2
Hort 1-253 Greenhouse Operations .....	3
Hort 1-413 Floral Design .....	3
Hort 1-523 Flower Shop Management .....	3
Soil 1-643 Agricultural Chemicals .....	3
	<u>29</u>

### ELECTIVES—10 credits

*Recommended Courses:* AgAc 1-014, 1-214; AgBM 1-011, 1-363; AgMk 1-253, 1-373; Hort 1-583, 1-643; MeAg 1-234; Soil 1-333 and any other agricultural or related education course.

### SUGGESTED PROGRAM

#### First Quarter

AgSc 1-011 Agricultural Orientation .....	1
BiSc 1-104 General Biology .....	4
Chem 1-104 Technical Chemistry .....	4
Comm 1-103 Intro Communications .....	3
Hort 1-113 Introductory Horticulture .....	3
PhEd 1-101 Physical Education I .....	1
	<u>16</u>

#### Second Quarter

AgSc 1-243 Agricultural Genetics .....	3
BiSc 1-214 General Botany .....	4
Hort 1-213 Commercial Floriculture .....	3
Hort 1-232 Basic Flr Arr & Fl Design .....	2
Hort 1-253 Greenhouse Operations .....	3
	<u>15</u>

#### Third Quarter

AgSc 1-343 Economic Entomology .....	3
AgSc 1-373 Prin of Plant Physiology .....	3
Agro 1-362 Weed Ident & Control .....	2
Comm 1-203 Inter Communications .....	3
Hort 1-323 Plant Materials .....	3
Hort 1-343 Plant Propagation .....	3
	<u>17</u>

#### Fourth Quarter

AgSc 1-709 Preoccupational Prep Unit .....	12
--	----

#### Fifth Quarter

AgBM 1-473 Small Bus Mgmt .....	3
AgSc 1-443 Intro to Pathology .....	3
Econ 1-013 Introductory Economics .....	3
Hort 1-413 Floral Design .....	3
Psyc 1-114 General Psychology .....	4
	<u>16</u>

#### Sixth Quarter

AgBM 1-513 Ag Sales Management .....	3
Hort 1-523 Flower Shop Mgmt .....	3
PhEd 1-201 Physical Education II .....	1
Soil 1-054 Soil Science .....	4
Electives .....	6
	<u>17</u>

#### Seventh Quarter

AgMk 1-333 Advertising Principles .....	3
AgMk 1-353 Merchandise Display .....	3
Agro 1-652 Seminar: Ag Plants .....	2
Soil 1-643 Agricultural Chemicals .....	3
Electives .....	4
	<u>15</u>

## Landscape Development

COMPETENCY REQUIREMENTS	Credits
Hort 1-272 Landscape Practices .....	2
Hort 1-372 Arboriculture .....	2
Hort 1-442 Landscape Maintenance .....	2
Hort 1-473 Nursery Operations .....	3
Hort 1-553 Landscape Planning .....	3
Hort 1-634 Landscape Construction .....	4
Hort 1-643 Turf Management	
or	
Hort 1-673 Grounds Development and Maintenance .....	3
MeAg 1-024 Technical Drawing .....	4
MeAg 1-404 Fundamentals of Surveying .....	4
	27

**ELECTIVES — 12 credits**

*Recommended Courses:* AgAc 1-014; AgBM 1-011, 1-213; AgMk 1-053, 1-253, 1-333, 1-373; Agro 1-253; Hort 1-253; MeAg 1-083, 1-234, 1-333, 1-143; Soil 1-333, 1-643 and any related education course.

### SUGGESTED PROGRAM

*First Quarter*

AgSc 1-011 Agricultural Orientation .....	1
BiSc 1-104 General Biology .....	4
Chem 1-104 Technical Chemistry .....	4
Hort 1-113 Introductory Horticulture .....	3
MeAg 1-024 Technical Drawing .....	4
	16

*Second Quarter*

AgSc 1-243 Agricultural Genetics .....	3
BiSc 1-214 General Botany .....	4
Comm 1-103 Intro Communications .....	3
Hort 1-272 Landscape Practices .....	2
Soil 1-054 Soil Science .....	4
	16

*Third Quarter*

AgSc 1-343 Economic Entomology .....	3
AgSc 1-373 Prin of Plant Physiology .....	3
Hort 1-323 Plant Materials .....	3
Hort 1-343 Plant Propagation .....	3
Hort 1-372 Arboriculture .....	2
PhEd 1-101 Physical Education I .....	1
	15

*Fourth Quarter*

AgSc 1-709 Preoccupational Prep Unit	12
--------------------------------------	----

*Fifth Quarter*

AgSc 1-443 Intro to Pathology .....	3
Hort 1-442 Landscape Maint .....	2
Hort 1-473 Nursery Operations .....	3
MeAg 1-404 Fund of Surveying .....	4
Psyc 1-114 General Psychology .....	4
	16

*Sixth Quarter*

Comm 1-203 Inter Communications .....	3
Econ 1-013 Introductory Economics .....	3
Hort 1-553 Landscape Planning .....	3
PhEd 1-201 Physical Education II .....	1
Electives .....	7
	17

*Seventh Quarter*

Agro 1-362 Weed Ident & Control .....	2
Agro 1-652 Seminar: Ag Plants .....	2
Hort 1-634 Landscape Construction .....	4
Hort 1-673 Grounds Dev & Maint .....	3
Electives .....	5
	16

## Nursery, Greenhouse, and Garden Center Management

COMPETENCY REQUIREMENTS	Credits
AgBM 1-213 Principles of Agricultural Business Management	
or	
AgBM 1-473 Small Business Management .....	3
AgBM 1-513 Agricultural Sales Management	
or	
AgMk 1-253 Applied Marketing Psychology .....	3
AgMk 1-333 Advertising Principles .....	3

## Curricular Information

AgMk 1-353 Merchandise Display .....	3
Hort 1-253 Greenhouse Operations .....	3
Hort 1-372 Arboriculture .....	2
Hort 1-473 Nursery Operations .....	3
Hort 1-583 Nursery, and Garden Shop Management .....	3
Soil 1-643 Agricultural Chemicals .....	3
	<u>26</u>

### ELECTIVES—13 credits

*Recommended Courses:* AgAc 1-014; AgBM 1-011, 1-363; AgMk 1-053, 1-373; Hort 1-213, 1-413, 1-442, 1-523; Soil 1-333; MeAg 1-024, 1-083 and any other related education course.

## SUGGESTED PROGRAM

### First Quarter

AgSc 1-011 Agricultural Orientation .....	1
BiSc 1-104 General Biology .....	4
Chem 1-104 Technical Chemistry .....	4
Comm 1-103 Intro Communications .....	3
Hort 1-113 Introductory Horticulture .....	3
PhEd 1-101 Physical Education I .....	1
	<u>16</u>

### Second Quarter

AgSc 1-243 Agricultural Genetics .....	3
BiSc 1-214 General Botany .....	4
Comm 1-203 Inter Communications .....	3
Hort 1-253 Greenhouse Operations .....	3
Soil 1-054 Soil Science .....	4
	<u>17</u>

### Third Quarter

AgSc 1-343 Economic Entomology .....	3
AgSc 1-373 Prin of Plant Physiology .....	3
Agro 1-362 Weed Ident & Control .....	2
Hort 1-323 Plant Materials .....	3
Hort 1-343 Plant Propagation .....	3
Hort 1-372 Arboriculture .....	2
	<u>16</u>

### Fourth Quarter

AgSc 1-709 Preoccupational Prep Unit	12
--------------------------------------	----

### Fifth Quarter

AgBM 1-473 Small Bus Mgmt .....	3
AgSc 1-443 Intro to Pathology .....	3
Econ 1-013 Introductory Economics .....	3
Hort 1-473 Nursery Operations .....	3
Psyc 1-114 General Psychology .....	4
	<u>16</u>

### Sixth Quarter

AgBM 1-513 Ag Sales Management .....	3
Hort 1-583 Nurs & Grdn Ctr Mgmt .....	3
PhEd 1-201 Physical Education II .....	1
Electives .....	8
	<u>15</u>

### Seventh Quarter

AgMk 1-333 Advertising Principles .....	3
AgMk 1-353 Merchandise Display .....	3
Agro 1-652 Seminar: Ag Plants .....	2
Soil 1-643 Agricultural Chemicals .....	3
Electives .....	5
	<u>16</u>

## 5. FOOD TECHNOLOGY

Food Technology is concerned with the preparation and preservation of man's most vital necessity—food. One measure of its importance is the fact that today it is the nation's largest manufacturing industry. Minnesota's role in the United States food industry is a major one. In 1970, there were more than 1,000 agricultural food, feed, and fiber processing plants employing nearly 70,000 workers in the state. Food output as measured by value added in processing operations was over \$1 billion, nearly 5½ percent of the nation's total.

The technological changes in the food processing industry have created a severe shortage of highly skilled technicians. New and increasingly sophisticated methods of preserving, preparing, and packaging of foods by canning, quick-freezing, irradiation, pre-cooking, and other methods have created needs for many skilled food processing technicians.

The opportunities are numerous in this basic industry.

**TYPICAL EMPLOYMENT OPPORTUNITIES**

**Food Technology**—Areas of emphasis in *Food Processing* and *Food Quality Control*:

- Food Preservation Technician
- Food Processing Technician
- Food Processing Supervisor
- Food Packaging Supervisor
- Canning Plant Foreman
- Food Production Line Foreman
- Food Processing Analyst
- Field Inspection Technician
- Food Production Procurement Specialist
- Raw Products Research Technician
- Food Products Development Technician
- Field Sampling and Analytical Technician
- Milk Plant Foreman
- Milk Plant Manager
- Cheese Plant Manager
- Meat Processing Plant Technician
- Food Processing Plant Inspector
- Food and Drug Inspector
- Food Plant Sanitarian
- Food Marketing Inspector
- Food Processing Plant Inspector
- Food Nutrition Analytical Aide
- Food Bacteriological Technician
- Food Chemists Aide
- Meat and Dairy Inspector
- Dairy Products Tester
- Fermentation Tester
- Dairy Products Grader
- Plant Health Inspector

**GENERAL PROGRAM REQUIREMENT**

To fulfill requirements for the associate in applied science degree in Food Technology the candidate must satisfactorily complete a minimum of 108 credits of academic work including a common required core of 53 credit hours in Agriculture and Related Education Courses. An additional prescribed combination of 55 credit hours in competency courses and electives will be selected for each area of emphasis.

**AGRICULTURAL REQUIREMENTS**

	Credits
AgBM 1-011 Agricultural Business Industry .....	1
AgMk 1-053 Principles of Agricultural Marketing .....	3
AgSc 1-011 Agricultural Orientation .....	1
AgSc 1-709 Preoccupational Preparation Unit .....	12
FScI 1-123 Introductory to Food Technology .....	3
FScI 1-213 Food Packaging .....	3
FScI 1-242 Food Grades and Standards .....	2

**RELATED EDUCATION REQUIREMENTS**

BiSc 1-104 General Biology .....	4
BiSc 1-255 Microbiology .....	5
Chem 1-104 Technical Chemistry .....	4
Comm 1-103 Introductory Communications .....	3
Comm 1-203 Intermediate Communications .....	3
Econ 1-013 Introductory Economics .....	3
PhEd 1-101 and 1-201 Physical Education .....	2
Psyc 1-114 General Psychology .....	4
	53



## Curricular Information

### Food Processing

COMPETENCY REQUIREMENTS	Credits
Agro 1-153 Principles of Crop Production .....	3
AnSc 1-483 Livestock and Livestock Products .....	3
FScI 1-323 Food Plant Equipment .....	3
FScI 1-414 Food Preservation: Canning .....	4
FScI 1-454 Meat Processing .....	4
FScI 1-534 Food Preservation: Freezing .....	4
FScI 1-564 Food Plant Layout and Organization .....	4
FScI 1-653 Food Preservation: Fermentation, Dehydration .....	3
FScI 1-672 Seminar: Food Industries .....	2
Hort 1-453 Canning Crop Production .....	3
Chem 1-224 Organic and Biochemistry .....	4
	37

#### ELECTIVES—18 credits

*Recommended Courses:* AgBM 1-213, 1-363, 1-513; AgMk 1-273; AnSc 1-053, 1-383; FScI 1-353, 1-383, 1-503; HFSc 1-283, 1-424; MeAg 1-024, 1-043, 1-234, 1-333, 1-443, 1-633, and any related education course.

### SUGGESTED PROGRAM

#### First Quarter

AgBM 1-011 Ag Business Industry .....	1
AgSc 1-011 Agricultural Orientation .....	1
BiSc 1-104 General Biology .....	4
Chem 1-104 Technical Chemistry .....	4
Comm 1-103 Intro Communications .....	3
FScI 1-123 Intro to Food Technology .....	3
	16

#### Second Quarter

Agro 1-153 Prin of Crop Prod .....	3
BiSc 1-255 Microbiology .....	5
Chem 1-224 Organic and Biochemistry .....	4
FScI 1-213 Food Packaging .....	3
FScI 1-242 Food Grades and Stand .....	2
	17

#### Third Quarter

Comm 1-203 Inter Communications .....	3
Econ 1-013 Introductory Economics .....	3
FScI 1-323 Food Plant Equipment .....	3
PhEd 1-101 Physical Education I .....	1
Electives .....	5
	15

#### Fourth Quarter

AgSc 1-709 Preoccupational Prep Unit .....	12
--	----

#### Fifth Quarter

AnSc 1-483 Lvstck & Lvstck Prod .....	3
FScI 1-414 Food Pres: Canning .....	4
FScI 1-454 Meat Processing .....	4
Hort 1-453 Canning Crop Production .....	3
Electives .....	3
	17

#### Sixth Quarter

AgMk 1-053 Prin of Ag Marketing .....	3
FScI 1-534 Food Pres: Freezing .....	4
FScI 1-564 Food Plt Layout & Org .....	4
Psyc 1-114 General Psychology .....	4
Electives .....	2
	17

#### Seventh Quarter

FScI 1-653 Food Pres: Ferm & Dehy .....	3
FScI 1-672 Seminar: Food Industries .....	2
PhEd 1-201 Physical Education II .....	1
Electives .....	4
	14

### Quality Control

COMPETENCY REQUIREMENTS	Credits
AgSc 1-343 Economic Entomology .....	3
AgSc 1-383 Principles of Animal Physiology .....	3
AgSc 1-443 Introductory to Pathology .....	3
AnSc 1-522 Animal Diseases .....	2
FScI 1-353 Food Plant Sanitation .....	5
FScI 1-383 Principles of Dairy Processing .....	3
FScI 1-454 Meat Processing .....	4
FScI 1-503 Food Microbiology .....	3
FScI 1-564 Food Plant Layout and Organization .....	4

FScI 1-624 Quality Control .....	4
FScI 1-672 Seminar: Food Industries .....	2
BiSc 1-552 Microtechnique .....	2
Chem 1-224 Organic and Biochemistry .....	4
Chem 1-353 Quantitative Analysis .....	3
	43

ELECTIVES—12 credits

*Recommended Courses:* Chem 1-373, 1-453, and any related education courses.

SUGGESTED PROGRAM

*First Quarter*

AgBM 1-011 Ag Business Industry .....	1
AgSc 1-011 Agricultural Orientation .....	1
BiSc 1-104 General Biology .....	4
Chem 2-104 Technical Chemistry .....	4
Comm 1-103 Intro Communications .....	3
FScI 1-123 Intro to Food Tech .....	3
	16

*Second Quarter*

BiSc 1-255 Microbiology .....	5
Chem 1-224 Organic and Biochemistry .....	4
Comm 1-203 Inter Communications .....	3
FScI 1-213 Food Packaging .....	3
FScI 1-242 Food Grades and Stand .....	2
	17

*Third Quarter*

AgSc 1-343 Economic Entomology .....	3
AgSc 1-383 Prin of Animal Physiology .....	3
Chem 1-353 Quantitative Analysis .....	3
FScI 1-353 Food Plant Sanitation .....	3
FScI 1-383 Prin of Dairy Process .....	3
PhEd 1-101 Physical Education I .....	1
	16

*Fourth Quarter*

AgSc 1-709 Preoccupational Prep Unit .....	12
--	----

*Fifth Quarter*

AgSc 1-443 Intro to Pathology .....	3
FScI 1-454 Meat Processing .....	4
Psyc 1-114 General Psychology .....	4
Electives .....	5
	16

*Sixth Quarter*

AgMk 1-053 Prin of Marketing .....	3
AnSe 1-522 Animal Diseases .....	2
BiSc 1-522 Microtechnique .....	2
FScI 1-503 Food Microbiology .....	3
FScI 1-564 Food Plt Layout & Org .....	4
PhEd 1-201 Physical Education II .....	1
	15

*Seventh Quarter*

Econ 1-013 Introductory Economics .....	3
FScI 1-624 Quality Control .....	4
FScI 1-672 Seminar: Food Industries .....	2
Electives .....	7
	16

## 6. HOME AND FAMILY SERVICES

The technological changes that have influenced farms and urban areas to become larger, more complex and more specialized, have also placed greater demands for efficiency upon women in households as they serve their families and their careers. Particularly in farm homes, women frequently must manage the home (1) as a more highly consumptive unit and (2) as a partner in a productive and highly capitalized business. There is, therefore, a continuous and ongoing need for more services from qualified persons to assist rural families to know and understand sound principles of home and consumer management.

The Home and Family Services program will be of major importance to women of all ages as they function as consumers, homemakers, and wage earners. The emphasis in this program will be placed on methods of training aides and technicians who can provide the services that are needed by the rural family.

## Curricular Information

---

### TYPICAL EMPLOYMENT OPPORTUNITIES

Home and Family Services—Areas of emphasis in *Rural Home Management*:

- Assistant Cooperative Home Agent
- Assistant 4-H Club Agent
- Extension Home Economist Assistant
- Rural Welfare Technician
- Rural Public Health Technician
- Rural Home Health Aide
- Rural Home Management Aide
- Peace Corps Worker
- Utility Company Home Technician
- Home Furnishing and Management Assistants
- Rural Family Relationships Consultant (self-employed)

### GENERAL PROGRAM REQUIREMENT

To fulfill requirements for the associate in applied science degree in Home and Family Services, the candidate must satisfactorily complete a minimum of 108 credits of academic work including a common required core of 48 credit hours in agricultural and related education courses. An additional prescribed combination of 60 credit hours in competency courses and electives will be selected for each area of emphasis:

AGRICULTURAL REQUIREMENTS	Credits
AgSc 1-011 Agricultural Orientation .....	1
AgSc 1-709 Preoccupational Preparation Unit .....	12
HFSc 1-052 Introductory to Family Environment .....	2
HFSc 1-243 Equipment in the Home .....	3
HFSc 1-672 Seminar: Home and Family Science .....	2
RELATED EDUCATION REQUIREMENTS	
BiSc 1-104 General Biology .....	4
Comm 1-103 Introductory Communications .....	3
Comm 1-203 Intermediate Communications .....	3
Comm 1-603 Agricultural Oral Communications .....	3
PhEd 1-101 and 1-201 Physical Education .....	2
Econ 1-013 Introductory Economics .....	3
Econ 1-313 Principles of Micro Economics .....	3
Psyc 1-114 General Psychology .....	4
SocS 1-013 American Institutions .....	3
	<hr/>
	48

## Rural Home Management

COMPETENCY REQUIREMENTS	Credits
AeMk 1-053 Principles of Agricultural Marketing .....	3
AgMk 1-273 Agricultural Commodity Marketing .....	3
AnSc 1-053 Animal Production .....	3
AnSc 1-122 Livestock Evaluation .....	2
FScI 1-123 Introduction to Food Technology .....	3
HFSc 1-183 Introduction to Family Housing .....	3
HFSc 1-283 Food for the Family .....	2
HFSc 1-314 Textiles and Apparel Selection .....	4
HFSc 1-353 Home Design and Furnishings .....	3
HFSc 1-454 Home Management .....	4
HFSc 1-484 Household Appliances .....	4
HFSc 1-524 Purchasing Home Furnishings .....	4

HFSc 1-553 Family Clothing Consumption .....	3
HFSc 1-603 Rural Family Economics .....	3
HFSc 1-634 Family Food Management .....	4
Hort 1-113 Introductory Horticulture .....	3
Hort 1-232 Basic Flower Arrangement and Floral Design .....	2
	53

ELECTIVES—7 credits

*Recommended Courses:* AgSc 1-343, 1-443; Agro 1-153, 1-363, 1-433; FScI 1-213, 1-242, 1-383; HFSc 1-424 and any other agricultural or related education course.

SUGGESTED PROGRAM

*First Quarter*

AgSc 1-011 Agricultural Orientation .....	1
BiSc 1-014 General Biology .....	4
Comm 1-103 Intro Communications .....	3
FScI 1-123 Intro to Food Tech .....	3
HFSc 1-052 Orient to Family Envir .....	2
HFSc 1-183 Intro to Family Housing .....	3
	16

*Second Quarter*

AgMk 1-053 Prin of Ag Marketing .....	3
Econ 1-013 Introductory Economics .....	3
HFSc 1-243 Equipment in the Home .....	3
HFSc 1-282 Food for the Family .....	2
PhEd 1-101 Physical Education I .....	1
Psyc 1-114 General Psychology .....	4
	16

*Third Quarter*

Comm 1-203 Inter Communications .....	3
Econ 1-313 Prin of Micro-Econ .....	3
HFSc 1-314 Textiles & Apparel Sel .....	4
HFSc 1-353 Home Design & Furn .....	3
SocS 1-013 American Institutions .....	3
	16

*Fourth Quarter*

AgSc 1-709 Preoccupational Prep Unit .....	12
--	----

*Fifth Quarter*

AnSc 1-053 Animal Production .....	3
AnSc 1-122 Livestock Evaluation .....	2
HFSc 1-454 Home Management .....	4
HFSc 1-484 Household Appliances .....	4
Hort 1-113 Introductory Horticulture .....	3
	16

*Sixth Quarter*

AgMk 1-573 Ag Commodity Marketing .....	3
HFSc 1-524 Purchasing Home Furn .....	4
HFSc 1-553 Family Clothing Cons .....	3
Hort 1-232 Basic Flr Arr & Fl Des .....	2
PhEd 1-201 Physical Education II .....	1
Electives .....	3
	16

*Seventh Quarter*

Comm 1-603 Ag Oral Communications .....	3
HFSc 1-603 Rural Family Economics .....	3
HFSc 1-634 Family Food Mgmt .....	4
HFSc 1-672 Seminar: Hm & Fam Sc .....	2
Electives .....	4
	16

## SECTION 5

# DESCRIPTION OF COURSES

Courses are listed by section letters, data processing call numbers and descriptive titles. All courses will be grouped in two major categories—technical courses and related education courses. The numbers are the data processing call numbers. The two center numbers represent the course number and will range from 01-70. (Ex. 1-113 = 11.) The numbers will tend to identify the quarter of attendance of each student when the course should most appropriately be scheduled as follows:

### COURSE NUMBERS

- 01-10 = First quarter core courses generally required by 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- = Preoccupational Preparation Unit course

### PREFIX ABBREVIATIONS

#### AGRICULTURE DIVISION

AgAc—Agricultural Accounting  
AgBM—Agricultural Business Management  
AgMk—Agricultural Marketing  
AgSc—Agricultural Science  
AgSS—Agricultural Secretarial Services  
Agro—Agronomy  
AnSc—Animal Science  
FSci—Food Science and Industries  
HFSc—Home and Family Science  
Hort—Horticultural Science  
MeAg—Mechanized Agriculture  
Soil—Soil Science

#### RELATED EDUCATION DIVISION

BiSc—Biological Science  
Chem—Chemistry  
Comm—Communications  
Econ—Economics  
Humn—Humanities  
Math—Mathematics  
PhEd—Physical Education  
Phys—Physics  
Psyc—Psychology  
SocS—Social Science

## AGRICULTURE DIVISION

### Agricultural Accounting (AgAc)

#### AgAc 1-014. PRINCIPLES OF AGRICULTURAL BUSINESS ACCOUNTING

Basic principles of accounting with emphasis on business transactions involving the complete accounting cycle. Applications of techniques in solving practice problems will relate to an agri-business environment. (4 cr; 3 class hrs, 2 lab hrs)

#### AgAc 1-053. OFFICE MACHINE CALCULATION

Study of operation and application of modern business office machines such as rotary calculators, printing calculators, programmed accounting machines, and others, emphasizing technique, speed and accuracy. (3 cr; 1 class hr, 4 lab hrs)

#### AgAc 1-214. PRINCIPLES OF AGRICULTURAL BUSINESS ACCOUNTING

Expansion of accounting fundamentals and principles acquired in AgAc 1-014, with special emphasis on accounting procedures for assets and liabilities commonly found in agricultural businesses. (4 cr; prereq AgAc 1-014; 3 class hrs, 2 lab hrs)

**AgAc 1-565. APPLIED FARM ACCOUNTING**

Kinds and uses of farm records. Calculating measures of farm earnings through cash flow method of farm accounting. Budgeting and using farm records as a tool in the decision-making process on the farm. (5 cr; prereq AgBM 1-333 or consent; 3 class hrs, 4 lab hrs)

## **Agricultural Business Management (AgBM)**

**AgBM 1-012. AGRICULTURAL BUSINESS INDUSTRY**

Overview study of nature and functions of agricultural business industries. Interrelationships of industry within the nation's economy as to size, purpose, and functions performed. (1 cr; 2 discussion hrs)

**AgBM 1-213. PRINCIPLES OF AGRICULTURAL BUSINESS MANAGEMENT**

Principal functional areas of management as applied to agricultural non-farm businesses: planning, organization, staffing, directing, and controlling. (3 cr; 2 class hrs, 2 lab hrs)

**AgBM 1-312. AGRICULTURAL APPRAISAL**

Methods of real and personal property appraisal applied to agricultural real estate. Course content will stress practical application to agriculture using systems approach in determining value. Field trips. (2 cr; 4 hrs ar)

**AgBM 1-333. PRINCIPLES OF FARM MANAGEMENT**

Fundamentals of organization and operation of different types of farms. Decision-making processes involved in establishing and operating a farm. (3 cr; prereq Econ 1-013 or consent; 2 class hrs, 2 discussion hrs)

**AgBM 1-363. AGRICULTURAL BUSINESS LAW**

Basic legal principles in contracts, negotiable industries, bailments, insurance, partnerships, corporations, real property, wills, and rural community relationships particularly applicable to farms and agri-businesses. (3 cr; 2 class hrs, 2 discussion hrs)

**AgBM 1-443. CREDIT AND COLLECTIONS**

Nature of credit instruments, consumer credit, mercantile credit, credit agency reports, financial statements, collection policies, bankruptcy and collection procedures. Emphasis will be applied to agricultural aspects of credit—corporate, cooperative, and individual. (3 cr; 2 class hrs, 2 discussion hrs)

**AgBM 1-473. SMALL BUSINESS MANAGEMENT**

Study of management uniquely important to small business enterprise with special emphasis on agricultural businesses related to student's interest. Focus on economic and social environment affecting the small firm; financing, marketing, business location, legal, and governmental influences will be studied from a practical viewpoint. (3 cr; prereq AgBM 1-213; 2 class hrs, 2 discussion hrs)

**AgBM 1-513. AGRICULTURAL SALES MANAGEMENT**

Product planning; sales organization; sales programs; selection, training, and supervision of sales and service personnel. Practical application of agriculturally oriented sales preparations and executions of presentations. (3 cr; prereq AgBM 1-213; 2 class hrs, 2 lab hrs)

**AgBM 1-553. OFFICE AND PERSONNEL MANAGEMENT**

Techniques and procedures of dealing with people in business organizations through effective personnel management stressing philosophy, approach, point of view, and fundamental methods of personnel administration. Applications agriculturally oriented. (3 cr; prereq AgBM 1-213 or consent; 2 class hrs, 2 discussion hrs)

**AgBM 1-623. AGRICULTURAL DISTRIBUTION SYSTEMS**

Retail store traffic management; shipping routes of merchandise, freight handling, rates and billings claims, and organization and management of retail traffic departments. Applications agriculturally oriented. (3 cr; prereq AgBM 1-213; 2 class hrs, 2 discussion hrs)

**AgBM 1-652. SEMINAR: AGRICULTURAL BUSINESS**

Agricultural business management techniques researched and discussed by students. Designed to establish depth of understanding. Topics presented and evaluated by class members. (2 cr; prereq sr plus major in AgBM; 3 discussion hrs)

## **Agricultural Marketing (AgMk)**

### **AgMk 1-053. PRINCIPLES OF AGRICULTURAL MARKETING**

Introductory course in fundamentals of marketing; types of businesses; nature of competition; basic marketing problems and policies of agricultural business enterprises. (3 cr; 2 class hrs, 2 discussion hrs)

### **AgMk 1-253. APPLIED MARKETING PSYCHOLOGY**

Application of psychological facts and principles to problems of human relations in business and industry. Study of fundamentals and techniques of successful selling; developing sales personality, the selling cycle, practical demonstrations and illustrations adapted to agricultural sales. (3 cr; 2 class hrs, 2 lab hrs)

### **AgMk 1-273. AGRICULTURAL COMMODITY MARKETING**

Principles of marketing applied to agricultural commodities. Marketing functions for various products are considered, including practices in futures trading; the organization of agricultural markets. (3 cr; prereq Econ 1-013, AgMk 1-053 or consent; 2 class hrs, 2 lab hrs or field trips)

### **AgMk 1-333. ADVERTISING PRINCIPLES**

Planning, creation and use of advertising related to the agricultural economy and marketing of agricultural products. Purposes of advertising, methods of appeal, copy problems, layout and selection of media. Practical applications will be demonstrated. (3 cr; 1 class hr, 4 lab hrs)

### **AgMk 1-353. MERCHANDISE DISPLAY**

Principles of window and interior display techniques; display and design; showcard copy and layouts; use of color and arrangement in agricultural merchandising. (3 cr; 1 class hr, 4 lab hrs)

### **AgMk 1-373. PRINCIPLES OF MERCHANDISING**

Careers and opportunities in agricultural marketing, retail operations, purchasing procedures, discounts and ordering policies, inventory control, budgeting, receiving, checking and marking merchandise. (3 cr; prereq AgMk 1-053; 2 class hrs, 2 lab hrs)

### **AgMk 1-513. PRINCIPLES OF INSURANCE**

Developing and understanding of insurance principles and practices; risks involved in retailing; buying insurance and handling insurance claims. Special applications to agricultural businesses. (3 cr; 2 class hrs, 2 lab hrs)

### **AgMk 1-634. AGRICULTURAL FINANCE**

Credit, insurance, legislation, income tax and social security problems applied to the production and marketing of agricultural products, description and analysis of agricultural credit institutions and agencies. (4 cr; prereq Econ 1-013; 3 class hrs, 2 lab hrs)

## **Agricultural Science (AgSc)**

### **AgSc 1-011. AGRICULTURAL ORIENTATION**

The agricultural industries, their common bonds and individual differences; designed to acquaint students with agricultural opportunities; will also serve to reinforce students with vital knowledge about college programs and academic procedures. (1 cr; 2 hrs ar)

### **AgSc 1-243. AGRICULTURAL GENETICS**

Basic laws of heredity applicable to plants and animals; simple cases of inheritance, gene action and interaction; inheritance of quantitative characters and determination of sex. (3 cr; BiSc 1-104; 3 class hrs, 1 lab hr)

### **AgSc 1-343. ECONOMIC ENTOMOLOGY**

Principles involved in controlling insects; relation of insects to man, his crops, livestock and products; habits, biology, identification, classification and problems of control. (3 cr; prereq BiSc 1-104; 2 class hrs, 2 lab hrs)

## Agricultural Secretarial Service

---

### AgSc 1-373. PRINCIPLES OF PLANT PHYSIOLOGY

Function of metabolism, photosynthesis, respiration, nutrition, absorption, germination, flowering and growth in plants; emphasis on influences of environment and hormonal control. (3 cr; prereq BiSc 1-104, 1-214; 2 class hrs, 2 lab hrs)

### AgSc 1-383. PRINCIPLES OF ANIMAL PHYSIOLOGY

Functions of body systems of small animals, horses, cattle, swine, and sheep are studied. Digestion, respiration, circulation, muscle activity, and reproduction emphasized. (3 cr; prereq BiSc 1-104; 2 class hrs, 2 lab hrs)

### AgSc 1-443. INTRODUCTION TO PATHOLOGY

Principles involved in controlling plant or animal diseases; disease agents, means of propagation, life cycles and economic implications and problems of control. (3 cr; prereq BiSc 1-104; 2 class hrs, 2 lab hrs)

### AgSc 1-554. RESEARCH TECHNIQUES IN AGRICULTURE

Principles and techniques of improving crop plants and animals; practices in designing animal trials, field experimented plots with statistical measurement applied to experimentation; laboratory adapted to preparation of students for agricultural research. (4 cr; prereq sr, 12 cr in competency courses; 3 class hrs, 3 lab hrs)

### AgSc 1-709. PREOCCUPATIONAL PREPARATION UNIT

On-the-job internship experience or additional college laboratory or classroom experience designed to make the student more acceptable to industry within his chosen program or emphasis on occupations. (12 cr; prereq 45 cr completed toward grad or consent of academic council; 12 weeks of work or equiv)

## Agricultural Secretarial Service (AgSS)

### AgSS 1-113. BEGINNING TYPEWRITING

Introductory study of keyboard, centering, simple tabulation, construction of business letters and other fundamentals with emphasis on mastery of typewriting by the touch system. *Limited to students with no previous formal typing experience. Students with previous experience should register for AgSS 1-153.* (3 cr; 1 class hr, 4 hrs ar)

### AgSS 1-153. INTERMEDIATE TYPEWRITING

Development of basic typing skills and knowledge with emphasis on facility in producing letters, business reports, tabulations, business and legal forms, oriented to agricultural topics. (3 cr; prereq AgSS 1-113 or equiv; 1 class hr, 4 hrs ar)

### AgSS 1-172. MACHINE DUPLICATION

Instruction and practice in use and operation of duplicating and photocopy equipment. (2 cr; prereq AgSS 1-113 or 1-153; 1 class hr, 2 lab hrs)

### AgSS 1-252. RECORDS MANAGEMENT

Study of records, filing systems, records equipment and procedures used in filing and records keeping with special applications to agricultural topics and businesses. Extensive practice in indexing and filing. (2 cr; 1 class hr, 2 lab hrs)

### AgSS 1-273. BEGINNING SHORTHAND

Principles of Gregg shorthand theory, stressing reading and writing ability; applying types of agri-business correspondence with special emphasis on transcription. (3 cr; prereq AgSS 1-153 or consent; 2 class hrs, 2 lab hrs)

### AgSS 1-333. ADVANCED TYPEWRITING

Refinement of typing skills with continued emphasis on speed in the production of various types of office typewriting oriented to agricultural types and forms. (3 cr; prereq AgSS 1-153; 1 class hr, 4 hrs ar)

### AgSS 1-354. INTERMEDIATE SHORTHAND

Continuation of AgSS 1-273 with emphasis on development of speed in accurate reading and writing of Gregg shorthand. (4 cr; prereq AgSS 1-273, or test at 55 wpm; 1 class hr, 4 lab hrs)

### AgSS 1-382. OFFICE MACHINE TRANSCRIPTION

Operation and practice in use of transcription machines with emphasis on develop-



## **Description of Courses**

---

ment of speed and facility in transcribing agri-business correspondence relating to variety of areas; letters, interoffice memos, and telegrams. (2 cr; prereq AgSS 1-333; 4 lab hrs)

### **AgSS 1-484. SECRETARIAL PROCEDURES**

Duties, responsibilities, and qualities of secretary in modern agricultural office. Instruction in telephone techniques, receptionist duties, communication services, and human relations. (4 cr; prereq AgSS 1-333, 1-354; 3 class hrs, 2 lab hrs)

### **AgSS 1-513. AGRICULTURAL TECHNICAL TYPEWRITING**

Final course for proficiency typewriting with a high degree of speed and accuracy. Composition of correspondence from agricultural case problems typed in simulated office situation. (3 cr; prereq AgSS 1-333; 1 class hr, 4 hrs ar)

### **AgSS 1-544. ADVANCED SHORTHAND AND TRANSCRIPTION**

Dictation and transcription in office style simulated to office situations. Emphasis on transcribing agricultural materials for mailability. (4 cr; prereq AgSS 1-354; 2 class hrs, 4 lab hrs)

### **AgSS 1-622. ADVANCED OFFICE MACHINE TRANSCRIPTION**

Development of speed and facility in the use of transcription equipment with special emphasis on furthering competency of typing and communication skills. (2 cr; prereq AgSS 1-382; 4 lab hrs)

### **AgSS 1-663. AGRICULTURAL TERMINOLOGY AND DICTATION**

Vocabulary used in agriculture and application of shorthand, voice writing machines, and typewriting in preparing agricultural correspondence and documents. (3 cr; prereq AgSS 1-544; 2 class hrs, 4 hrs ar)

## **Agronomy (Agro)**

### **Agro 1-153. PRINCIPLES OF CROP PRODUCTION**

General principles and cultural practices used in the production and harvesting of farm crops and forages; emphasis placed on methods of increasing productivity and improving quality through recommended techniques of breeding, seeding, tillage, fertilization, harvesting, and storing. Laboratory practices and crop identification. (3 cr; 3 class hrs, 2 lab hrs)

### **Agro 1-253. FORAGE, PASTURE AND GRASSLAND PRODUCTION**

Economical management and cultural practices used in forage, silage, pasture, and grassland crop production; theory and practices relating to land management, pasture renovation systems of grazing, harvest timing, and handling methods and adaptations of grasses and legumes to soil types will be studied. (3 cr; 3 class hrs, 2 lab hrs)

### **Agro 1-362. WEED IDENTIFICATION AND CONTROL**

Identification of the most common cropland weeds at all stages of growth; laboratory practice in evaluating grain and seed quality. (2 cr; prereq Agro 1-153; 1 class hr, 3 lab hrs ar)

### **Agro 1-383. GRAIN CROP PRODUCTION**

Production and management of the principal cereal or grain crops grown in Minnesota; special emphasis given to planting, growing, managing, harvesting, and storing cereal grains, corn, and soybeans. (3 cr; prereq Agro 1-153; 2 class hrs, 2 lab hrs)

### **Agro 1-433. MARKETING GRAIN, SEEDS AND FORAGES**

Techniques and practices used in marketing grain, seeds, and forage crops; analytical techniques and practices used in grading grain and forages; study of cash and futures markets; laboratory practices in seed analysis and grain grading. (3 cr; prereq Agro 1-362 or consent; 1 class hr, 4 lab hrs)

### **Agro 1-652. SEMINAR: AGRICULTURAL PLANTS**

Research preparation and seminar discussions of current topics in agronomy, horticulture, and plant sciences; students design and develop course content. (2 cr; prereq sr plus 6 cr in Agro or Hort; 3 hrs ar)

## **Animal Science (AnSc)**

### **AnSc 1-022. ANIMAL PARA-MEDICAL ORIENTATION**

Study of the veterinary medicine profession and the professional relationship between veterinarians and technicians. The role of the animal technician; opportunities, duties, and ethical obligations. (2 cr; 4 hrs ar)

### **AnSc 1-053. ANIMAL PRODUCTION**

Introduction to the animal industry with emphasis on consumption and production patterns; characteristics of livestock; breeds of livestock; and fundamental concepts of animal nutrition, animal breeding, and livestock management. (3 cr; 3 class hrs, 1 lab hr)

### **AnSc 1-122. LIVESTOCK EVALUATION**

Selection and judging of dairy, beef, sheep, horses, and swine based on type and performance. Time will be spent on preparation of animals for showing. (2 cr; prereq AnSc 1-053 or concurrent; 4 lab hrs ar)

### **AnSc 1-313. LABORATORY ANIMAL CARE**

Principles and practices of laboratory animal care in clinics, hospitals, and research laboratories; animal house design, equipment, management and legal regulations. (3 cr; prereq AgSc 1-383; 2 class hrs, 2 lab hrs)

### **AnSc 1-352. FEEDS AND FEEDING**

Identification and classification of feeds; simple use of food nutrients, protein, fat, and carbohydrates; methods of preparing feed; relative values of common feeds for various classes of livestock and small animals; use of by-product feeds. (2 cr; 2 class hrs, 1 lab hr)

### **AnSc 1-363. PRINCIPLES OF ANIMAL BREEDING**

Application of genetic principles to animal improvement. Selection and systems of mating farm and laboratory animals. Use and value of performance testing with emphasis on reproductive cycle, handling of semen, and management of the breeding program. (3 cr; 2 class hrs, 2 lab hrs)

### **AnSc 1-383. LIGHT HORSE MANAGEMENT**

Breeds of horses and ponies for work and pleasure. Selecting, judging, breeding, feeding, care, management, and marketing. (3 cr; prereq AnSc 1-053; 2 class hrs, 2 lab hrs)

### **AnSc 1-423. SURGICAL PREPARATION**

Preparation of animals for surgery; identification of surgical instruments and preparation of surgical packs. Techniques involved in practical animal medicine and surgery. (3 cr; prereq AnSc 1-313; 1 class hr, 4 lab hrs)

### **AnSc 1-443. ANIMAL NUTRITION**

Digestion and utilization of feeds; feeding standards and computation of standard rations for livestock; economy in feeding, and purchasing feeds by nutritive values; vitamins and minerals. (3 cr; prereq AnSc 1-352, AgSc 1-383; 2 class hrs, 2 lab hrs)

### **AnSc 1-463. LIGHT HORSE CARE AND TRAINING**

Principles and practices in the care and training of light horses; horse handling skills; training, grooming, breeding, foaling, fitting and showing; problems in horse husbandry considered. (3 cr; prereq AnSc 1-383; 2 class hrs, 3 lab hrs ar)

### **AnSc 1-471. DAIRY CATTLE EVALUATION**

Advanced techniques in selecting and evaluating dairy cattle; practical applications and integration of evaluative techniques with economical dairy management. (1 cr; prereq AnSc 1-122; 2 hrs ar)

### **AnSc 1-483. LIVESTOCK AND LIVESTOCK PRODUCTS**

Classes and grades of meat animals; processes in evaluating live animals, carcass quality of products of beef, swine, sheep, and poultry; study of factors affecting livestock and meat prices; observations of public markets through required field trips. (3 cr; prereq AgMk 1-273; AnSc 1-122, or consent; 2 class hrs, 3 lab hrs ar)

### **AnSc 1-513. DAIRY CATTLE MANAGEMENT**

Applied principles and practices of dairy herd management and efficient milk production. (3 cr; AnSc 1-443, 1-471, or consent; 2 class hrs, 2 lab hrs)

## Description of Courses

---

### **AnSc 1-522. ANIMAL DISEASES**

Causes of animal diseases; their prevention and control. The relationship of animal health to human health and the role of regulating agencies. (2 cr; 1 class hr, 2 lab hrs)

### **AnSc 1-533. LABORATORY ANIMAL TECHNIQUES**

Principles and practices of small animal handling; techniques of breeding, feeding, and management; principles of disease prevention and control as they apply to common laboratory rodents, carnivores; primates and birds. (3 cr; prereq AnSc 1-313; 2 class hrs, 2 lab hrs)

### **AnSc 1-554. CLINICAL LABORATORY METHODS**

Practical laboratory techniques in use in modern laboratory animal hospitals and research centers. Clinical procedures in microscopy, urinalysis, hematological methods, and blood analysis will be covered. (4 cr; prereq AnSc 1-313; 2 class hrs, 4 lab hrs ar)

### **AnSc 1-562. EQUITATION**

Instruction in training horses and students for riding under competent supervisors; English and western riding techniques stressed; complete understandings of rider's role in horse control and movement. (2 cr; prereq AnSc 1-463; 4 lab hrs ar)

### **AnSc 1-584. MEAT ANIMAL PRODUCTION**

Principles and practices of selection, nutrition, reproduction, and economic management applied to the efficient production of beef cattle, swine, sheep, and poultry enterprises. (4 cr; prereq AnSc 1-443, 1-483 or consent; 3 class hrs, 2 lab hrs)

### **AnSc 1-623. LIVESTOCK MANAGEMENT TECHNIQUES**

Laboratory course important to animal production. Special management skills in handling dairy, beef, sheep, and swine; timing procedure and skilled training applied to techniques such as dehorning, docking, clipping, backfat probing, milk testing, and treatment injection will be demonstrated and practiced. (3 cr; prereq AnSc 1-513 or 1-584; 1 class hr, 4 lab hrs)

### **AnSc 1-654. ANESTHESIOLOGY, PHARMACOLOGY AND TOXICOLOGY**

Humane methods of euthanasia; study of selected drugs, their functions and effect on animal physiology, special emphasis given to their use in laboratory animals. (4 cr; 2 class hrs, 4 lab hrs)

### **AnSc 1-682. SEMINAR: ANIMAL SCIENCE**

Current topics or problems vital to animal production which will have special interest to senior students. Oral reports and discussions by students with staff contributions. (2 cr; prereq AnSc 1-584; 2 class hrs)

## Food Science and Industries (FScI)

### **FScI 1-123. INTRODUCTION TO FOOD TECHNOLOGY**

Orientation to the food industries: scope, importance, opportunities, future and general principles and methods of food preservation. (3 cr; 2 class hrs, 2 lab hrs)

### **FScI 1-213. FOOD PACKAGING**

Physical, chemical, and commercial evaluations of packaging materials used for food products; uses and characteristics of metal, glass, and flexible film packaging; testing packaging materials for performance of product protection and safety. (3 cr; prereq FScI 1-123; 2 class hrs, 3 lab hrs)

### **FScI 1-242. FOOD GRADES AND STANDARDS**

Standards for quality for canned and frozen products including grading and inspection techniques from harvest to the finished product. (2 cr; prereq FScI 1-123; 1 class hr, 2 lab hrs)

### **FScI 1-323. FOOD PLANT EQUIPMENT**

Types of food processing equipment, their use, operation and maintenance; consideration given to equipment design, procurement, standards and safety. (3 cr; prereq FScI 1-123; 2 class hrs, 3 lab hrs)

## Home and Family Science

---

### **FScI 1-353. FOOD PLANT SANITATION**

Fundamental principles involved in maintaining sanitary standards in food plants; conditions and factors necessary to comply with regulatory agencies. (3 cr; prereq BiSc 1-255; 2 class hrs, 2 lab hrs)

### **FScI 1-383. PRINCIPLES OF DAIRY PROCESSING**

Production and processing of milk for manufacture of dairy products from the farm to consumer; pasteurization, blanching, homogenizing, and clarification; processing line flow patterns for milk and food products. (3 cr; prereq BiSc 1-255; 2 class hrs, 3 lab hrs)

### **FScI 1-414. FOOD PRESERVATION: CANNING**

Basic principles of food processing with emphasis on unit operation of canning. Laboratory practice and field trips arranged. (4 cr; prereq FScI 1-123; 2 class hrs, 4 lab hrs)

### **FScI 1-454. MEAT PROCESSING**

Introduction to meat industry covering meat plant construction, sanitation, slaughtering operations, and processing procedures. (4 cr; prereq FScI 1-353; 2 class hrs, 4 lab hrs)

### **FScI 1-503. FOOD MICROBIOLOGY**

Utilization of applied chemistry in examination of food and water; analytical applications to control of product quality and standards with emphasis on microbiological aspects; introduction to statistical quality control. (3 cr; prereq BiSc 1-255, Chem 1-353, 1-373; 2 class hrs, 3 lab hrs)

### **FScI 1-534. FOOD PRESERVATION: FREEZING**

Fundamental principles of freezing of foods, and development of freezing industry; problems incurred in freezing preservation of foods are emphasized; laboratory work and field trips arranged. (4 cr; prereq FScI 1-123; 2 class hrs, 4 lab hrs)

### **FScI 1-564. FOOD PLANT LAYOUT AND ORGANIZATION**

Covers plant construction, touching on location, climate, crops, market, ground plans, sewage disposal, sanitation, lighting, floor plans, flow lines, materials handling, and machinery. (4 cr; prereq FScI 1-353; 2 class hrs, 4 lab hrs)

### **FScI 1-624. QUALITY CONTROL**

Analytical applications to control of product quality and product standards with emphasis on chemical aspects; chemical and physical properties of milk and other foods; quality control laboratory procedures. (4 cr; prereq FScI 1-503; 2 class hrs, 4 lab hrs)

### **FScI 1-653. FOOD PRESERVATION: FERMENTATION, DEHYDRATION**

Fundamental principles involved in three major areas of food preservation: fermentation, dehydration, and preserve manufacturing. Laboratory work and field trips arranged. (3 cr; prereq FScI 1-123; 2 class hrs, 4 lab hrs)

### **FScI 1-672. SEMINAR: FOOD INDUSTRIES**

Topics and problems relating to food industries of special interest to senior students; oral reports and discussions by students with contributions by staff and/or representatives from the food industries. (2 cr; prereq 10 cr in FScI; 3 hrs ar)

## Home and Family Science (HFSc)

### **HFSc 1-052. ORIENTATION TO FAMILY ENVIRONMENT**

Explorations of social, economic, physical, and aesthetic dimensions of family environment; discussions and readings assigned on opportunities and employment potential for students in family science fields. (2 cr; 3 hrs ar)

### **HFSc 1-183. INTRODUCTION TO FAMILY HOUSING**

Criteria for evaluating aspects of family housing; factors related to difference in housing needs; problems and programs for housing improvement. (3 cr; 2 class hrs, 2 lab hrs)

## Description of Courses

---

### **HFSc 1-243. EQUIPMENT IN THE HOME**

Selection, use and care of materials and small appliances and equipment; applications of basic principles in equipment, utilization of water, electricity, gas, light, and heat for doing work and maintaining health and comfort in the home. (3 cr; 2 class hrs, 2 lab hrs)

### **HFSc 1-283. FOOD FOR THE FAMILY**

Food preparation, meal management, evaluation of food trends and informal entertaining in relation to nutrition, cost, and family satisfaction; basic principles of food nutrition. (3 cr; 2 class hrs, 2 lab hrs)

### **HFSc 1-314. TEXTILES AND APPAREL SELECTION**

Factors involved in apparel and textile selection; historical, economic, aesthetic, psychological, and sociological aspects of individual's clothing. Introductory study of textiles; natural and synthetic fibers, yarn and fabric construction, dyes and finishes as they influence fabric selection, performance, and care. (4 cr; 3 class hrs, 2 lab hrs)

### **HFSc 1-353. HOME DESIGN AND FURNISHINGS**

Study of design principles as applied to interiors. Consideration of individual and family needs in use of furnishings. (3 cr; prereq HFSc 1-183; 2 class hrs, 2 lab hrs)

### **HFSc 1-424. FOOD PREPARATION**

Development of techniques and applications of basic science principles to cooking processes; standards of evaluation of food products and food production management. (4 cr; prereq HFSc 1-283; 3 class hrs, 2 lab hrs)

### **HFSc 1-454. HOME MANAGEMENT**

Introductory study of economic, social, and institutional forces that influence management of home and family; management principles in relation to use of family resources, the consumer's role, family values and goals, problem solving and decision making. (4 cr; prereq HFSc 1-052; 3 class hrs, 2 lab hrs)

### **HFSc 1-484. HOUSEHOLD APPLIANCES**

Thermal, mechanical, and electrical characteristics of ranges, refrigerators, freezers, laundry equipment, and other large appliances used in households; factors in selection and laboratory emphases given to proper operation and use of equipment. (4 cr; prereq HFSc 1-243; 2 class hrs, 4 lab hrs)

### **HFSc 1-524. PURCHASING HOME FURNISHINGS**

The selection of home furnishings in terms of use, cost, and appearance, with emphasis on furniture, dinnerware, floor and wall coverings, fabrics, and accessories; laboratory and field trips. (4 cr; prereq HFSc 1-353; 2 class hrs, 4 lab hrs)

### **HFSc 1-553. FAMILY CLOTHING CONSUMPTION**

Current clothing problems resulting from family characteristics, values and social mores; factors affecting family clothing expenditure; interpersonal influences in clothing behavior. (3 cr; prereq HFSc 1-314; 3 class hrs)

### **HFSc 1-603. RURAL FAMILY ECONOMICS**

Management of rural family resources considering variations in family income, savings, spending and other decision making factors; wise use of resources and time and natural environment. (3 cr; prereq HFSc 1-454; 2 class hrs, 2 lab hrs)

### **HFSc 1-634. FAMILY FOOD MANAGEMENT**

Practical course on the choice, purchase, preparation, and service of foods; study of foods on market, time, energy, and money management in relation to feeding the family; laboratory and field trips. (4 cr; prereq HFSc 1-424; 3 class hrs, 3 lab hrs)

### **HFSc 1-672. SEMINAR: HOME AND FAMILY SCIENCE**

Topics and problems relating to home and family science, of special interest to senior students; oral reports and discussions by students with contributions by staff. (2 cr; prereq sr, 10 cr in HFSc; 3 hrs ar)

## **Horticulture (Hort)**

### **Hort 1-113. INTRODUCTORY HORTICULTURE**

Survey of field of horticulture: environmental considerations, types of operations,

planting, propagating, cultivating, pruning, protection, harvesting, and selection of plant materials; development and maintenance of horticultural grounds. Laboratory, greenhouse, and field trips. (3 cr; 2 class hrs, 2 lab hrs)

**Hort 1-213. COMMERCIAL FLORICULTURE**

Identification, culture, and management of major cut flower bedding and pot plants, including foliage plants, bulbs, and house plants, utilized in a florist business. (3 cr; prereq Hort 1-113; 2 class hrs, 2 lab hrs)

**Hort 1-232. BASIC FLOWER ARRANGEMENT AND FLORAL DESIGN**

Principles of flower arrangement and designing. (2 cr; prereq Hort 1-113; 1 class hr, 3 lab hrs)

**Hort 1-253. GREENHOUSE OPERATIONS**

Fundamentals of greenhouse construction and management; theory and laboratory operations in light control, heat, soil preparation, potting, transplanting, preparing seed flats, watering, pinching, and other greenhouse techniques. (3 cr; 2 class hrs, 3 lab hrs)

**Hort 1-272. LANDSCAPE PRACTICES**

Principles and cultural practices involved in establishment and maintenance of landscape plantings, including techniques of planting, pruning, fertilization, digging, and handling of landscape materials. (2 cr; prereq Hort 1-113; 1 class hr, 3 lab hrs)

**Hort 1-323. PLANT MATERIALS**

Identification, ecology and use of trees, shrubs, vines, and other plant materials in landscaping. (3 cr; prereq Hort 1-113; 2 class hrs, 2 lab hrs)

**Hort 1-343. PLANT PROPAGATION**

Principles and practices involved in propagation of plants by seeds, cuttings, grafts, layers, and divisions. (3 cr; prereq Hort 1-113; 2 class hrs, 3 lab hrs)

**Hort 1-372. ARBORICULTURE**

Care and maintenance of trees and shrubs. Emphasis on theory and practice of wind and cavity treatment, bracing and cabling, fertilizing, diagnosing trees and shrub problems. (2 cr; prereq Hort 1-113; 1 class hr, 2 lab hrs)

**Hort 1-413. FLORAL DESIGN**

Theory and practice of designing and constructing wreaths, sprays, corsages, bouquets, and other arrangements for special functions. (3 cr; prereq Hort 1-232; 1 class hr, 4 lab hrs)

**Hort 1-442. LANDSCAPE MAINTENANCE**

Principles and practices in landscape maintenance, including edging, watering, turf maintenance, mulching, winter protection, fertilizing, insect, weed, and disease control. (2 cr; prereq Hort 1-272; 1 class hr, 3 lab hrs)

**Hort 1-453. CANNING CROP PRODUCTION**

Principles and cultural practices used in production and harvest of crops grown for canning, freezing, drying, and packaging, including such crops as sweet corn, field peas, snap beans, squash, cucumbers, and other canning vegetables; planting, growing, tillage, fertilization and harvesting of these crops will be covered. (3 cr; prereq Hort 1-153; 3 class hrs, 2 lab hrs)

**Hort 1-473. NURSERY OPERATIONS**

Techniques and practices employed in planning, planting, culture, and management of nursery crops. Seeding, lining out, cultivating, root pruning, shearing, developing planting media, container management, and hauling wholesale nursery stock will be emphasized. Field trips to nurseries. (3 cr; prereq Hort 1-272, 1-343; 2 class hrs, 3 lab hrs)

**Hort 1-523. FLOWER SHOP MANAGEMENT**

Study of major management problems and decisions in retail floriculture. Planning and operating the shop with emphasis on integrating growing and retailing practices. (3 cr; prereq Hort 1-413; 2 class hrs, 2 lab hrs)

**Hort 1-553. LANDSCAPE PLANNING**

Fundamentals of landscape theory including organization of space, complimentary shapes and forms, site analysis, and the relationship of structure, texture, and colors in the landscape; includes study of ornamentals and their environmental requirements. (3 cr; prereq Hort 1-323; 2 class hrs, 2 lab hrs)

## Description of Courses

---

### Hort 1-583. NURSERY AND GARDEN CENTER MANAGEMENT

Study of nursery and garden center organization. Crop production schedules, economics of nursery operation, sales promotion, customer relations, planting management, and layout of nursery and display areas. (3 cr; prereq Hort 1-473; 2 class hrs, 2 lab hrs)

### Hort 1-634. LANDSCAPE CONSTRUCTION

Practical assignments in planning and developing landscape sites. Drawing, sketching, introductory techniques in surveying, and ground preparation; construction of formal and informal landscape carrels. (4 cr; prereq Hort 1-553; 1 class hr, 5 lab hrs ar)

### Hort 1-643. TURF MANAGEMENT

Theory and practical application of principles in care and maintenance of turf; study of grass types, irrigation, fertilizers, diseases, insects, weed control and turf equipment. (3 cr; prereq Hort 1-442; 1 class hr, 4 lab hrs)

### Hort 1-673. GROUNDS DEVELOPMENT AND MAINTENANCE

Study of planting and maintenance of ornamental crops with emphasis on basic principles inherent to park, golf course, institutional and estate grounds maintenance. (3 cr; prereq Hort 1-553; 2 class hrs, 2 lab hrs)

## Mechanized Agriculture (MeAg)

### MeAg 1-024. TECHNICAL DRAWING

Drafting instruments and their use; lettering, drafting symbols, sketching, tracing, and reproductions; beginning drafting and study of orthographic projection, isometric and oblique drawings, planning and interpretation of drawings. (4 cr; 2 class hrs, 4 lab hrs)

### MeAg 1-043. AGRICULTURAL METALS AND WELDING

Identification and characteristics of metals used in farm machinery; practical arts and skills of metal fabrication, including arc and acetylene welding; applications of heat treatment, and testing. (3 cr; 1 class hr, 4 lab hrs)

### MeAg 1-083. FUNDAMENTALS OF POWER AND AIR-COOLED ENGINES

Principles, nomenclature and theory of internal combustion engines; practical applications with disassembly and assembly of small air-cooled engines. (3 cr; 2 class hrs, 3 lab hrs)

### MeAg 1-234. AGRICULTURAL MECHANICS

Fundamental principles and basic skills in agricultural mechanics, including electricity, bench metals, wood construction, concrete, power tools, numbering and plan reading. (4 cr; 2 class hrs, 4 lab hrs)

### MeAg 1-253. AGRICULTURAL ELECTRICAL EQUIPMENT

Elementary theory of electricity, power transmission circuits and instruments. Electric motors, heating and controls; selection and maintenance of electrical equipment. (3 cr; 2 class hrs, 2 lab hrs)

### MeAg 1-333. AGRICULTURAL MACHINERY

Principles of machinery selection, components, set-up, maintenance and servicing of machinery used in animal and crop production. (3 cr; 2 class hrs, 3 lab hrs)

### MeAg 1-374. AGRICULTURAL STRUCTURES AND ENVIRONMENT

Design of farm service buildings, farmstead layouts, building sizes, and construction details; analyses of materials used, heating, ventilation, and light control as related to environmental control in livestock buildings, product storage, and plant production. (4 cr; prereq MeAg 1-024 or consent; 3 class hrs, 3 lab hrs)

### MeAg 1-404. FUNDAMENTALS OF SURVEYING

Principles and theory of surveying; care and use of surveying equipment; measurement of distances, elevations, angles, and directions; contours, field notes, and calculation methods. (4 cr; 2 class hrs, 4 lab hrs)

### MeAg 1-443. AGRICULTURAL POWER MECHANICS AND MAINTENANCE

Operation, design, and selection of farm power units for modern agricultural pro-

duction; preventative maintenance, adjusting, diagnostic and servicing techniques on variable tractor power units, power train and chassis. (3 cr; 1 class hr, 4 lab hrs)

**MeAg 1-523. BASIC HYDRAULICS**

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. (3 cr; 2 class hrs, 2 lab hrs)

**MeAg 1-543. AGRICULTURAL EQUIPMENT**

Principles of design, selection, operation, installation, and care of equipment in modern agricultural operations: milking and milk parlor equipment; crop drying equipment, barn cleaners, silo unloaders; ventilation equipment and others. (3 cr; prereq MeAg 1-333; 2 class hrs, 3 lab hrs)

**MeAg 1-633. ADVANCED AGRICULTURAL MACHINERY**

Practice in operation, care, and adjustment of both power and drawn agricultural equipment. Machinery economics; soil-tractor-implement relationships; primary and secondary tillage, harvesting, and specialized equipment and their importance in sales, design, and testing. (3 cr; prereq MeAg 1-253; 2 class hrs, 3 lab hrs)

**MeAg 1-663. AGRICULTURAL PRODUCTS HANDLING**

Principles of design and operation of machinery and equipment used in farm materials handling systems. Planning and layout involved in handling flow of feed, fertilizers, forages, seed, silages, farm products, and agricultural wastes. (3 cr; prereq MeAg 1-543; 2 class hrs, 3 lab hrs)

## **Soil Science (Soil)**

**Soil 1-054. SOIL SCIENCE**

Fundamentals of soil origin, classification, properties and management; stress placed on function of soil as a medium to support plant life and the biological, chemical, and physical aspects of soil development and management. (4 cr; prereq Chem 1-104 or equiv; 3 class hrs, 2 lab hrs)

**Soil 1-333. SOIL FERTILITY**

Principles involved in supplying essential elements for growing plants; soil and tissue analysis; nutrient requirements of plants; deficiency symptoms; factors in manufacture, application and economics of fertilizers, amendments and organic materials. (3 cr; prereq Soil 1-054; 2 class hrs, 2 lab hrs)

**Soil 1-443. SOIL AND CROP MANAGEMENT**

Integrating principles of soil, crop, and climatological sciences into practical land use systems that maximize profits. Characteristics and use of fertilizers and agricultural chemicals used in crop production. (3 cr; prereq Soil 1-333; 2 class hrs, 2 lab hrs)

**Soil 1-553. SOIL CONSERVATION AND WATER MANAGEMENT**

Principles of conservation of soil resources; relation of soil physical properties and land morphology to erosion and water problems; emphasis on surveying, open and tile drainage systems; contouring, farm ponds, and mapping and planning applied to soil and water conservation. (3 cr; prereq Soil 1-054; 2 class hrs, 2 lab hrs)

**Soil 1-643. AGRICULTURAL CHEMICALS**

Types, properties, production, and use practices, and safeguards of agricultural chemicals used as fertilizers, herbicides, insecticides, fungicides, and plant regulators. Field trips arranged. (3 cr; prereq Soil 1-333; 2 class hrs, 3 lab hrs ar)

**Soil 1-692. SEMINAR: SOIL**

Studies and discussions of soil topics and problems. Researched oral reports and discussions by students with staff contributions. (2 cr; prereq Soil 1-443 or 1-553 or consent; 3 hrs ar)

## **RELATED EDUCATION DIVISION**

### **Biological Sciences (BiSc)**

**BiSc 1-013. PRINCIPLES OF BIOLOGY**

Introduction to biological concepts and living organisms; structure and function of



## Description of Courses

---

cells, plant and animal diversity and organization of living things. *For students with no previous background or deficient preparation in biology or for those not planning further study in biology.* (3 cr; 2 class hrs, 2 lab hrs)

### BiSc 1-104. GENERAL BIOLOGY

Basic plant and animal biological concepts with emphasis on molecular, cellular, and tissue organ level of organization; elaboration of such biological principles as photosynthesis, respiration, cellular and tissue transport, cell division and growth. (4 cr; prereq BiSc 1-013 or high school equiv; 2 class hrs, 4 lab hrs)

### BiSc 1-214. GENERAL BOTANY

Fundamental principles of plant biology with emphasis on morphology, physiology, ecology, taxonomy and functional applications of cellular structure in roots, stems, leaves, and flowers; plant classification, photosynthesis, respiration, plant variation, and inheritance are also considered. (4 cr; prereq BiSc 1-104; 2 class hrs, 4 lab hrs)

### BiSc 1-255. MICROBIOLOGY

Microorganisms and the application of microbiology to man, industry and relationship of microorganisms to diseases of man, animals, and plants. (5 cr; prereq BiSc 1-104; 3 class hrs, 4 lab hrs)

### BiSc 1-314. GENERAL ZOOLOGY

Fundamentals of animal biology, emphasis on identification, morphology, taxonomy, ecological requirements; physiology and anatomy of mammals stressed. (4 cr; prereq BiSc 1-104; 2 class hrs, 4 lab hrs)

### BiSc 1-552. MICROTECHNIQUE

Preparation of slides, including smears, whole mounts, tissue embedding, and microtome sectioning. (2 cr; prereq BiSc 1-255; 4 lab hrs)

## Chemistry (Chem)

### Chem 1-013. GENERAL CHEMISTRY

Introduction concepts of the nature of matter, elements, compounds, chemical bonding, and solution dynamics. *For students with no previous background or deficient preparation in chemistry or for those not planning further study in chemistry.* (3 cr; 2 class hrs, 2 lab hrs)

### Chem 1-104. TECHNICAL CHEMISTRY

Fundamental principles, theories, laws, concepts, and measurements of chemistry; topics include atomic structure, chemical equilibrium, solutions, and ionization. Laboratory work of quantitative nature to develop manipulative techniques useful for many agricultural technologies requiring chemistry. (4 cr; prereq Chem 1-013 or proficiency in high school chemistry; 3 class hrs, 3 lab hrs)

### Chem 1-224. ORGANIC AND BIOCHEMISTRY

Carbon compound molecules, acids, bases, and the chemistry of the covalent bond; study of biochemistry of the colloidal state and types of organic compounds involved in biological processes. (4 cr; prereq Chem 1-104; 3 class hrs, 3 lab hrs)

### Chem 1-353. QUANTITATIVE ANALYSIS

Lecture and laboratory study of fundamental principles of volumetric and gravimetric analysis in quantitative inorganic chemistry; data sources and principles of apparatus used in analytical chemistry; sampling procedures, precipitation, acidimetry-alkalinity, and oxidation-reduction. (3 cr; prereq Chem 1-104; 2 class hrs, 3 lab hrs)

### Chem 1-373. QUALITATIVE ANALYSIS

Lecture and laboratory techniques on detection and identification of common inorganic ions; emphasis on elementary techniques of solution chemistry. (3 cr; prereq Chem 1-104; 2 class hrs, 3 lab hrs)

### Chem 1-453. FOOD CHEMISTRY

Chemical determinations commonly performed in biological and food technology laboratories employing quantitative and qualitative techniques. (3 cr; prereq BiSc 1-104, Chem 1-353, 1-373; 2 class hrs, 3 lab hrs)

---

## Communications (Comm)

### Comm 1-011. READING AND STUDY SKILLS

Mastery of basic reading skills and study techniques; to provide tools for academic success at the college level; opportunity for self-development of reading speed and comprehension through the use of the study skills laboratory. (1 cr; hrs ar)

### Comm 1-103. INTRODUCTORY COMMUNICATIONS

Processes of communication which deal with practical applications of four communication skills: reading, writing, listening, and speaking; writing observation and experience for post-high school students in variety of relevant subjects. (3 cr; 3 class hrs, 1 hr rec lab)

### Comm 1-203. INTERMEDIATE COMMUNICATIONS

Comprehensive study of communications with emphasis on vocabulary, focus of words, sentences, paragraph and essay writing. Panel discussions on format for expository papers, note-taking, outlining, library research, and documentation; integrated assignments in reading, listening, and speaking. (3 cr; prereq Comm 1-103; 3 class hrs, 1 hr rec lab)

### Comm 1-303. ADVANCED COMMUNICATIONS

Emphasis on factual and formal communications and persuasion; preparation and analysis of both written and oral materials. The character, sources, and use of evidence; extensive use of practical applications to writing and speaking. (3 cr; prereq Comm 1-203; 3 class hrs, 2 lab hrs ar)

### Comm 1-473. TECHNICAL REPORT WRITING

Course designed for students in technical curricula emphasizing writing of clear, concise, exacting reports used in agri-business and/or agricultural research. (3 cr; prereq Comm 1-203; 2 class hrs, 2 lab hrs)

### Comm 1-603. AGRICULTURAL ORAL COMMUNICATIONS

Principles of effective public speaking for students in any agricultural curriculum; emphasis on structure and planning of speeches, method of delivery, preparation for radio and television appearance. Practice in speaking for a variety of occasions. (3 cr; Comm 1-203; 2 class hrs, 2 hr discussion lab)

## Economics (Econ)

### Econ 1-013. INTRODUCTORY ECONOMICS

The organization and development of the economic system; familiarization with basic sectors of the economy such as business, labor, government and the consumer; theory of business cycles, supply and demand and determination of the components of national income. (3 cr; 3 class hrs, 1 rec hr)

### Econ 1-103. CONSUMER ECONOMICS

Designed for students who desire practical applications of the principles of economics; economics relating to tasks of personal money management in areas of credit, shopping, insurance, income tax, and consumer protection. (3 cr; 3 class hrs, 1 rec hr)

### Econ 1-213. PRINCIPLES OF MACRO-ECONOMICS

Determinants of national income and employment levels; prices and money; GNP; the banking system, economic growth and stability and the role of the government in the economy. (3 cr; prereq Econ 1-013; 3 class hrs, 1 rec hr)

### Econ 1-313. PRINCIPLES OF MICRO-ECONOMICS

Economics of the firm and household; supply and demand analysis; factor and product price determination; theory of production, consumption and distribution, equilibrium analysis. (3 cr; prereq Econ 1-013; 3 class hrs, 1 rec hr)

## Description of Courses

---

### Humanities (Humn)

#### Humn 1-313. INTRODUCTION TO HUMANITIES

Enlightenment on the art forms. Development of rationalism and humanism. Readings from classical and historical writers and philosophers including Pope, Voltaire, Rousseau, Tolstoy, and others. (3 cr; 3 class hrs, 1 hr rec lab)

#### Humn 1-423. HUMANITIES OF THE MIDDLE AGES

Readings and studies of the literature, art, philosophy, architecture, music, drama, and other art forms of the middle ages. Variety of instructional resources will be used. (3 cr; prereq Humn 1-313 or consent; 3 class hrs, 1 hr rec lab)

#### Humn 1-533. HUMANITIES OF THE MODERN ERA

Comprehensive study of literature, art, philosophy, architecture, music, drama, and other art forms from 19th century to the present. (3 cr; prereq Humn 1-423 or consent; 3 class hrs, 1 hr rec lab)

### Mathematics (Math)

#### Math 1-013. ELEMENTARY ALGEBRA

Basic algebraic processes for students without a background in algebra; signed numbers, linear equations, operations with polynomials, literal equations and inequalities; problem solving; introduction to exponents, factoring, radicals and roots; scientific notations. (3 cr; 2 class hrs, 2 lab hrs)

#### Math 1-054. AGRICULTURAL TECHNICAL MATHEMATICS

Review of basic arithmetic; systems of measurement, ratio and proportion, applied geometry and algebraic notations; application of math to agricultural laboratory procedures and techniques. (4 cr; prereq Math 1-013 or high school equiv; 3 class hrs, 2 lab hrs ar)

#### Math 1-083. BUSINESS MATHEMATICS

Fundamental mathematical processes, fractions, percentage in business interest and bank discount, compound interest, payroll and taxes; financial statements. (3 cr; 2 class hrs, 2 lab hrs)

#### Math 1-254. COLLEGE ALGEBRA

Advanced algebra which includes polynomial functions and their graphs; quadratic equations; probability; complex numbers; systems of equations; inequalities, ratio, proportion and variation; exponential and logarithmic functions. (4 cr; prereq Math 1-013 or equiv; 5 class hrs)

#### Math 1-374. COLLEGE TRIGONOMETRY

Trigonometric functions, their graphs; right angles, oblique triangles, identities; logarithms, trigonometric equations, and angular measure. (4 cr; prereq Math 1-254 or equiv; 5 class hrs)

#### Math 1-503. STATISTICS

Statistical concepts, use, presentation, and interpretation of data; elementary probability, and application of statistical methods. (3 cr; prereq Math 1-254 or consent; 3 class hrs, 2 lab hrs)

### Physical Education (PhEd)

#### PhEd 1-012. PERSONAL HEALTH

Discussions relating to personal hygiene, emotional balance, public and community health including items concerned with health regulations and problems. (2 cr; 1 class hr, 2 hr discussion lab)

#### PhEd 1-101. PHYSICAL EDUCATION I

Designed to offer opportunities for men and women to learn movement patterns and useful skills for use during leisure time. Activity areas will be selected from: archery, badminton, canoeing, softball, volleyball, swimming, golf, tennis, weight training, physical fitness, rhythms and bowling. (1 cr; 2 hrs per wk)

**PhEd 1-201. PHYSICAL EDUCATION II**

A second quarter of physical education will provide opportunities for men and women to select physical education activities from the same activities as listed under PhEd 1-101. (1 cr; 2 hrs per wk)

**Physics (Phys)**

**Phys 1-104. TECHNICAL PHYSICS**

Basic principles of physics dealing with measurement, mechanics, and heat and the ways in which these principles are directly utilized in various technologies. (4 cr; prereq Chem 1-104 or high school equiv; 3 class hrs, 3 lab hrs)

**Phys 1-224. PHYSICS: MECHANICS**

Study of physical measurement, properties of matter, mechanics of solids, mechanics of fluids, heat transfer and calorimetry. (4 cr; prereq Chem 1-104 or high school equiv; 2 class hrs, 4 lab hrs)

**Phys 1-334. PHYSICS: HEAT, LIGHT, AND SOUND**

Fundamental concepts of temperature and expansion heat and heat transfer, thermal behavior of gases, theory of heat, geometrical optics, wave optics, wave motion, interference, and stationary waves. (4 cr; prereq Chem 1-104 or high school equiv; 2 class hrs, 4 lab hrs)

**Psychology (Psyc)**

**Psyc 1-114. GENERAL PSYCHOLOGY**

Basic methods and points of view involved in scientific study of psychology; biological implications of behavioral patterns, cultural mores, hereditary and environmental factors. (4 cr; 4 class hrs, 1 hr rec lab)

**Social Science (SocS)**

**SocS 1-013. AMERICAN INSTITUTIONS**

Survey of cultural, social, political and economic institutions and their impact on development of our nation. (3 cr; 3 class hrs, 1 rec hr)

**SocS 1-173. AMERICAN GOVERNMENT**

Basic understanding of processes and concepts within the broad scope of America's national government. (3 cr; 3 class hrs, 1 rec hr)

**SocS 1-303. MAJOR CURRENTS IN AMERICAN HISTORY**

Major issues and events which have shaped our nation with special emphasis on their effect on Modern American Society. (3 cr; 3 class hrs, 1 rec hr)

## Index

	Page		Page
Academic Progress .....	15	Program Requirements .....	42
Administrative Staff .....	Inside Front Cover	Rural Home Management ..	42
Admissions .....	7	Horticultural Technology ....	17, 34
ACT Test Requirements .....	7	Employment Opportunities ...	34
Admission of Non-Residents .....	7	Program Requirements .....	35
Adult Special Student .....	7, 14	Floriculture .....	36
Pre-Admissions Counseling .....	8	Landscape Development ...	37
College Bookstore .....	10	Nursery, Greenhouse and Garden Center	
College Programs .....	17, 19	Management .....	37
Agricultural Business .....	17, 30	Counseling Services .....	11
Employment Opportunities ...	30	Course Descriptions .....	44
Program Requirements .....	31	Agricultural Division .....	44
Agricultural		Agricultural Accounting ....	44
Business Management ...	32	Agricultural Business	
Agricultural Sales and		Management .....	45
Marketing .....	32	Agricultural Marketing .....	46
Agricultural Secretarial		Agricultural Science .....	46
Services .....	33	Agricultural Secretarial	
Agricultural Industries and		Services .....	47
Services .....	17, 24	Agronomy .....	48
Employment Opportunities ...	25	Animal Science .....	49
Program Requirements .....	25	Food Science and Industries ..	50
Agricultural		Home and Family Science ....	51
Mechanization .....	29	Horticulture .....	52
Animal Industry Related ...	26	Mechanized Agriculture ...	54
Crop Industry Related .....	27	Soil Science .....	55
Soils and Chemicals .....	28	Related Education Division ...	55
Agricultural Production .....	17, 19	Biological Sciences .....	55
Employment Opportunities ...	19	Chemistry .....	56
Program Requirements .....	20	Communications .....	57
Crop Production .....	21	Economics .....	57
Diversified Production .....	22	Humanities .....	58
Light Horse Management ..	23	Mathematics .....	58
Livestock Production .....	20	Physical Education .....	58
Food Technology .....	17, 38	Physics .....	59
Employment Opportunities ...	39	Psychology .....	59
Program Requirements .....	39	Social Science .....	59
Food Processing .....	40	Credit Load .....	16
Food Quality Control .....	40	Credit Plan .....	13
Home and Family Services ..	17, 41	Description of Courses .....	44
Employment Opportunities ...	42		

	Page		Page
Employment		Health Services	11
Opportunities	19, 25, 30, 34, 39, 42	Housing	10
Facilities for Instruction	6	Human Rights	6
Fees and Expenses	8	Instructor-Counselors	11
Board and Room Charges	9	Intercollegiate Athletics	12
Books and Supplies	9	Midquarter Alert	15
Credit Hour Fees	9	Orientation	8
Special Fees	9	Physical Education	58
Student Services Fees	9	Placement Center	12
Tuition	8	Preoccupational Preparation	17
Financial Aids	10	Proficiency Examinations	16
General Information	5	Refunds	9
College Philosophy	5	Registration	8
College Purpose	5	Student Activities	12
Grade Point Average	14	Student Classification	13
Grade Points	14	Transfer Credit	15
Grades	14	Unsatisfactory Progress	15
Graduation Requirements	13	Veterans	10