

# Faculty of Agriculture, Forestry, and Home Economics

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## 30 The Faculty of Agriculture, Forestry, and Home Economics

### More Than You Expect

We cover the spectrum from

- material culture to silviculture
- economics to agronomics
- genetics to dietetics, and
- biotechnology to hydrology

We offer eight distinct Bachelor of Science degrees, two offered jointly with the Faculty of Business, and one with the Faculty of Education. Our strength comes from our diversity and depth in both the natural and social sciences. Different from any other faculty in the country, we are clearly “More Than You Expect”. We expect and deliver the best.

These degrees will give you real and practical skills in addition to learning technical science and social science.

If you want the edge in a multibillion dollar, international work place, look no further.

### Scholarships, Awards, and Bursaries

More than 130 Scholarships, Awards, and Bursaries worth over \$250,000 are offered to undergraduate students in the Faculty. This does not include other general scholarships offered by the University (available to all students) or scholarships outside the University (from private businesses). In fact, this only scratches the surface of what is available to our students.

### Professional Accreditation

Our graduates are eligible for Professional Accreditation in a number of organizations depending on their field of study.

- Alberta Home Economics Association
- Alberta Institute of Agrologists
- Alberta Registered Professional Foresters Association
- Canadian Institute of Food Science and Technology
- College of Dietitians of Alberta
- Dietitians of Canada

### Internship Program

The Faculty of Agriculture, Forestry, and Home Economics offers an Internship Program (IP) for students in all programs. Through the IP, students have an opportunity to take their studies beyond the classroom and participate in a 8 to 16 month, full-time, competitively paid work placement.

### Graduate and Research Program

The Faculty has an active Graduate and Research Program. Students from around the world are enrolled in MA, MSc and PhD thesis programs, and non-thesis MA, MF and combined MA/MBA and MF/MBA programs. We are also actively involved in international research initiatives with many other countries in Asia, Africa, and South America.

### Award-Winning Teachers

We are justifiably proud of our excellent teaching professors. Teaching awards include three prestigious 3M Teaching Fellowships, four Rutherford Awards for Excellence in Teaching, one Kaplan Laureate, one Unit Teaching Award, and three Fellows of the Royal Society of Canada.

### Our strength is our diversity.



## 32 General Information

### 32.1 General Information

The Faculty of Agriculture, Forestry, and Home Economics is the merged Faculty of Agriculture and Forestry and the Faculty of Home Economics. The Faculty administers undergraduate programs that lead to BSc degrees in Agriculture, Agricultural/Food Business Management, Environmental and Conservation Sciences, Forest Business Management, Forestry, Human Ecology, Human Ecology/BEEd Combined Degree, and Nutrition and Food Sciences. Students interested in these programs may obtain additional information from 2-10 Agriculture/Forestry Centre: phone 492-4933 or 1-800-804-6417 (western Canada), homepage [www.afhe.ualberta.ca/](http://www.afhe.ualberta.ca/)

### 32.2 Faculty Objectives

Our undergraduate mission is to promote the development of graduates who are scientifically competent; sensitive to environmental, global, and other social issues; creative; and capable of leadership in addressing challenges faced by individuals, families, and the agriculture, forestry, food, and other natural resources sectors. The Faculty strives to develop the following skills and traits in its students:

- (1) Critical and creative thinking skills: the ability to analyze, integrate, and extrapolate information;
- (2) Good judgment in problem solving and decision making;
- (3) Good communication skills: literacy, speaking, and listening;
- (4) An appreciation of knowledge and education, and a commitment to continuous learning; and
- (5) An appreciation and understanding of international and cross-cultural considerations.

The Baccalaureate degrees in the Faculty provide students with a broad education and comprehensive preparation in their specialities. Programs provide students with

- (1) a solid foundation in applicable social, physical, and biological sciences, and in the humanities. Programs stress more than simple proficiency in these disciplines; they offer courses that feature an integrated, multidisciplinary treatment of subjects;
- (2) awareness of current issues in the various disciplines and the ability to solve problems in their chosen occupations.

## 33 Faculty Regulations

### 33.1 Admission and Transfer

General University admission requirements are detailed in §§13 and 14. Detailed admission requirements for the Faculty of Agriculture, Forestry, and Home Economics are specified in §15.1.

The Faculty of Agriculture, Forestry, and Home Economics functions under enrolment management. As such, the Faculty's total student enrolment is limited. All applications with the minimum Admission Grade Point Average (AGPA) are evaluated and ranked as part of an applicant pool. Spaces in degree programs are allocated to the top applications in the applicant pool downward until the spaces in the degree programs are filled. Therefore, in any given year, the AGPA cutoff to a degree program may be higher than the minimum AGPA required for consideration.

- (1) **Residence Requirement:** A maximum of two years of transfer credit completed outside the University of Alberta will be granted toward an undergraduate degree program in the Faculty of Agriculture, Forestry, and Home Economics. This consists of ★60 or its equivalent (e.g., 10 full-courses or 20 half-courses). A minimum of ★60 must be completed at the University of Alberta, of which a minimum of ★30 must be completed while registered in this faculty. However, the amount of transfer credit granted and, hence, the amount of credit completed while registered in this faculty, will vary depending on the requirements of the particular degree program. Students are strongly advised to discuss their course and program requirements with the Student Services Office or the Associate Dean (Academic Programs).

- (2) **Letter of Permission:** Following initial admission, students are expected to complete all requirements at the University of Alberta. Students may apply for permission to take courses at another institution for application to their program here if
  - a. they are degree program students in the Faculty of Agriculture, Forestry, and Home Economics;
  - b. they present Satisfactory academic standing (i.e., Fall/Winter Grade Point Average of 5.0 or greater).

Approval is not granted when the student has already received the maximum allowable transfer credit. There is no obligation to grant transfer credit unless prior permission has been obtained. Qualified students should contact the Student Services Office, 2-10 Agriculture/Forestry Centre to obtain the necessary forms before enrolling at another institution.

- (3) **Exchange Programs:** For students already admitted to a degree program in the Faculty of Agriculture, Forestry, and Home Economics who are participating in approved international exchange programs, credit is considered on a course-by-course basis. The residence requirement defined in (1) above applies to students participating in such exchanges.

### 33.2 Undergraduate Program Bloodborne Pathogens Policy

The University of Alberta recognizes its duty to minimize the risk of transmission of bloodborne pathogens to/by individuals studying or working at this University.

The Bloodborne Pathogens policy limits the possibility of transmission of bloodborne pathogens within the educational setting. The University recognizes, however, that it is not possible to completely eliminate the risk of infection (see §108.12 *General Faculties Council Policy Manual*).

The Faculty of Agriculture, Forestry, and Home Economics in accordance with the University of Alberta policies and other available guidelines, has developed the following policies concerning bloodborne pathogens. These policies are to be reviewed and adapted, as further information on bloodborne pathogens becomes available.

For students in the BSc Nutrition and Food Sciences who are accepted into the Coordinated Dietetics Program, immunization against Hepatitis B is strongly recommended, though not mandatory at this time. However, for project assistants in the biological sciences areas, Hepatitis B surface antigen testing will be performed by the University Health Centre. For those students who test negative for the Hepatitis B surface antigen (HbsAg), Hepatitis B vaccination will be required. See §109 of the *General Faculties Council Policy Manual* or contact the Student Services Office (2-10 Agriculture/Forestry Centre) for details about testing and immunization.

Program restrictions will be applied when necessary to minimize the risk of transmission of bloodborne pathogens from students to other students, experimental subjects and service clients. Program restrictions, in keeping with reasonable accommodation guidelines, can be expected in cases where students test positive for any bloodborne pathogen, or refuse to complete the screening questionnaire, or refuse a questionnaire-based requirement for Hepatitis B and Hepatitis C testing. Program restrictions may include prohibition from participating in certain activities and procedures performed as part of research, service testing or teaching function.

Since the risk of HIV transmission from students to other students, service clients and experimental subjects is very low for the procedures followed in these settings, HIV risk assessment and testing will not be made a requirement at this time. However, all students accepted into the Faculty of Agriculture, Forestry, and Home Economics are encouraged to undergo HIV testing whenever concerns about infection arise.

### 33.3 Practicum Placements, Professional Practice and the Public Interest

The Dean, or a designate acting on behalf of the Dean, may immediately deny assignments of a student, withdraw a student from, or vary terms, conditions or site of a work experience placement or practicum (Internship, Co-operative Education, Co-ordinated Dietetics and the Human Ecology Practicum), if the Dean or designate has reasonable grounds to believe that this is necessary in order to protect the Public Interest. Refer to §23.8.2 *Practicum Placements, Professional Practice and the Public Interest* and §87, *General Faculties Council Policy Manual*.

## 33.4 Academic Standing and Graduation

### (1) Academic Performance

Academic standing will be assessed on the basis of a grade point average (GPA). Students are expected to maintain a GPA of at least 5.0. See §§23.4(7) and 23.9.2 for information on calculation of GPA's and the academic record.

A review of academic performance is conducted for each student at the end of each Fall/Winter.

The assignment and reassignment of categories of academic standing are based on a student's performance in a minimum of ★9. If, at the time of review, the student has attempted fewer than ★9 since the last assignment of a category of academic standing, the review will be deferred and the academic standing assigned at the last review will remain in effect until the next review.

### (2) Application of Academic Standing

a. **Satisfactory Standing** (GPA 5.0 or higher). Students who maintain a satisfactory standing are permitted to continue their studies in the Faculty subject to meeting the specific requirements of their degree program and the general requirements of the University of Alberta.

b. **Marginal Standing** (GPA 4.5 to 4.9 inclusive). Students receiving their first assessment of marginal standing are permitted to continue, under academic warning. At the next assignment of academic standing, such students must present a Fall/Winter GPA of at least 5.0 to continue their studies with Satisfactory Standing.

The Faculty recognizes that students take varying course loads, dependent upon individual circumstances. At the next review, students who have completed a minimum of ★9 will clear academic warning provided they present a Fall/Winter GPA of at least 5.0.

Students with Marginal Standing twice during their program in the Faculty will be required to withdraw.

c. **Unsatisfactory Standing** (GPA of 4.4 or less)

Students with unsatisfactory standing are required to withdraw.

Students who are required to withdraw from the Faculty at the end Fall/Winter period may not register for the following Summer. Students who register for Summer courses prior to the requirement to withdraw will have their registration cancelled without penalty. Subject to Petition and Appeals see §33.6.

d. **Requirement to Withdraw**

Students with an Unsatisfactory Standing will normally be required to remain out of the Faculty until they have successfully completed at least ★24 transferable to the University and present an Admission Grade Point Average (AGPA) of at least 5.0.

Students who have been required to withdraw and who, after being readmitted, again fall below a Fall/Winter grade point average (GPA) of 5.0 will be required to withdraw and will not be readmitted to the Faculty.

Students who petition their Required to Withdraw status and are successful will proceed on probation. At the next assignment of academic standing, such students must raise their Fall/Winter GPA to at least 5.0. Should their Fall/Winter GPA fall below 5.0 at any time during the rest of their program they will be required to withdraw and will not be readmitted to the Faculty.

**Note:** Students with marginal standing or who are on probation are only permitted to interrupt their programs with the prior, written approval of the Associate Dean (Academic Programs). Should students in either of these categories interrupt their programs for more than twelve months without prior approval, readmission will not be granted unless the student meets the current readmission criteria.

(3) **First-Class Standing:** For the purposes of scholarships and awards, First-Class Standing in a given year is awarded to any undergraduate student who obtains a GPA of not less than 7.5, the GPA to be computed on a minimum of ★24 taken during that year, the year to consist of Fall and Winter Terms. Students who attend in only one term of the Fall/Winter are eligible if they complete at least ★12 with a minimum GPA of 7.5.

(4) **Dean's List:** This designation is given to students who achieve a GPA of at least 8.0 on a minimum of ★18 in Fall/Winter. Students who attend in only one term of Fall/Winter are eligible if they complete at least ★9 with a minimum GPA of 8.0.

(5) a. **Application for Graduation:** Students who intend to receive a BSc degree must apply for their degree at the Faculty Office by February 1 for Spring Convocation or by September 1 for Fall Convocation.

b. **Convocation:** All requirements for graduation at Spring Convocation must be met by the end of Fall/Winter. Those completing degree requirements during the Fall Term of Fall/Winter will graduate at the

Spring Convocation, whereas those completing degree requirements during Spring/Summer will graduate at the Fall Convocation.

### (6) Curriculum and Graduation

The programs for the BSc degrees in Agriculture, Environmental and Conservation Sciences, Nutrition and Food Sciences, Forestry, Human Ecology, Human Ecology/BEd Combined Degree, Agricultural/Food Business Management, and Forest Business Management, must conform to the descriptions in §§34.3 to 34.10 respectively. All students must seek advice about their programs from their academic advisors. Students are reminded of the regulation that they are responsible for the completeness and accuracy of their registrations.

Students registered in the BSc in Forestry and BSc in Forest Business Management programs are required to complete Forestry Field Camps (FOR 101, 302, 303, and 304).

Students registered in the BSc in Agriculture, Agricultural/Food Business Management, Environmental and Conservation Sciences, Human Ecology, and the Nutrition and Food Sciences degree programs require ★120 to graduate. Students registered in the BSc in Forestry and Forest Business Management degree programs require ★123 to graduate. Students registered in the BSc (Human Ecology)/BEd Combined degree program require ★150 to graduate.

### (7) Courses Extra to the Degree

Courses successfully completed while registered in a program which are not being used for degree credit are known as courses extra to the degree. Such courses are, however, included in the assessment of academic standing. Students who register for more than a minimum number of courses for graduation should designate the additional courses as extra. In order to exclude courses in excess of the minimum requirement from the contract for graduation, students must designate such courses as "extras" at the time of registration for their final year.

### (8) Graduation Grade Point Average

In order to be eligible for graduation from any of the degree programs offered by the Faculty of Agriculture, Forestry, and Home Economics, students must present Satisfactory Academic Standing (see (9) below) and obtain a grade point average of at least 5.0 on their last ★60 normally taken during the third and fourth years.

In cases where more than ★60 were taken in the last two years, the grades from all courses taken in the last year will be used in this calculation. The remaining courses necessary to make up the ★60 requirement will be selected from the previous term or terms and the weighted average of all courses taken in the previous term (or terms) will be used in calculating the graduation GPA.

In cases where fewer than ★60 were taken in the last two years, the grades from all courses taken in the last two years will be used in this calculation, and additional units of course weight from the previous term or terms (whether it was completed at this university or at another institution) will be used as necessary to make up the ★60 requirement. The units of course weight used from the previous term or terms will be computed as a weighted average of all courses taken in that term.

In cases where students have designated courses extra to the degree, the designated courses will not be included in the calculation of the graduation grade point average.

### (9) Extension to the Graduating Year

Students who have successfully completed at least ★120, ★123 or ★150 (for programs as indicated in (6)) who do not meet program requirements for graduation, and who are otherwise eligible to continue in their program of study, may continue to register to the end of the next Fall/Winter of study in order to meet graduation requirements.

Students who have been given their first assignment of "Marginal Standing" (i.e. Academic Warning) in their graduating year, may continue to register to the end of the next Fall/Winter of study. Students must complete at least ★9 in order to meet the "Satisfactory Standing" requirement for graduation (see (8) above).

Students who are in Unsatisfactory Standing, (i.e., Required to Withdraw), may petition/appeal to be allowed to complete one further Fall/Winter of study in order to meet graduation requirements. If graduation requirements are not met within the Fall/Winter period, such students will be required to withdraw and will not normally be readmitted.

### (10) Graduation with Distinction

This designation shall be awarded to a student achieving a grade point average of 7.5 or better on the last ★60. The same calculation as detailed in Graduation Grade Point Average in (8) above applies.

### (11) Reexamination Policy

See §23.5.5 for University Regulations.

**(12) Nonstandard course load**

Students wishing to take more than a normal course load in a term must have satisfactory standing and approval of an Academic Advisor and the Faculty Office (see §§34.3 to 34.10 for appropriate number of course weights for your program of study).

**33.5 Withdrawal from Courses**

Withdrawal from individual courses can be arranged through the Student Services Office, 2-10 Agriculture/Forestry Centre. Applications for withdrawal should be made according to the deadlines in the Academic Schedule (§11). For further information, see §23.9.3.

**33.6 Petitions and Appeals**

The Faculty of Agriculture, Forestry, and Home Economics has established petition and appeal procedures so that students who encounter special problems relating to academic standing, grade or course concerns and program requirements are reviewed in an equitable manner. A copy of Faculty of Agriculture, Forestry, and Home Economics regulations regarding petitions and appeals may be obtained from the Faculty Office, 2-10 Agriculture/Forestry Centre.

**Note:** Deadlines exist for submission of petitions and appeals. Contact the Faculty for details.

Under certain conditions, an unsuccessful appeal within the Faculty may be carried to the General Faculties Council Academic Appeals Committee. See §23.8.

**33.7 Student Advisory Services**

Undergraduate students seeking advice on academic matters should do the following:

- (1) For answers to general questions about careers, course content, fields of specialization, and preparation for graduate study, students should consult an academic advisor. A list of academic advisors is available in the Faculty's Student Services Office, 2-10 Agriculture/Forestry Centre.
- (2) For information regarding Faculty regulations on admission, readmission, program requirements, transfer, course registration, withdrawal, and graduation requirements, students are directed to the Faculty's Student Services Office, 2-10 Agriculture/Forestry Centre.
- (3) Students who are encountering special difficulties related to their programs or to Faculty decisions, and students with problems of an individual nature, should contact the Associate Dean (Academic Programs), 2-10 Agriculture/Forestry Centre.

**34 Programs of Study****34.1 Degrees Offered**

The Faculty offers programs leading to eight BSc degrees. General information and specific course requirements for each degree and major, are outlined in §§34.3 to 34.10.

The BSc Agriculture; Environmental and Conservation Sciences; Forestry; Human Ecology; and the Nutrition and Food Sciences programs have a common structure.

The number of units of course weight required varies depending on the degree program selected. These programs consist of the following five elements:

- (1) **The Common Core**
  - a. AFHE 304, ECON 101, and 102
  - b. ★3 chosen from AG EC 323, ORG A 301, 311, or 321
  - c. ★12 Free electives
- (2) **Program Core:** ★39 to ★99, provides basic competencies in the field which defines the degree.
- (3) **Requirements of the Major:** ★33 to ★57 allow specialization within each degree.

(4) **Approved Program Electives (APEs)** allow customization of the learning experience.

(5) **Capstone courses** synthesize information learned throughout the four years of the program.

The Faculty also jointly offers two BSc degree programs with the Faculty of Business in Agricultural/Food Business Management and Forest Business Management, as well as offering a BSc Human Ecology/BED degree. In selecting the combined degree students can do two degrees in five years.

**34.2 Internship Program**

The Faculty of Agriculture, Forestry, and Home Economics offers a voluntary educational opportunity that allows students to augment their program of study with a period of paid, discipline-related work in industry, government and community organizations. Only students who are in good standing, and who are Canadian citizens or hold permanent residence status in Canada, are eligible to compete for places in these programs.

The internship normally extends a student's program of study by one academic year. The internship may begin in May, September or January and must be at least 8 months duration, but may extend up to 16 months. The first four months of this internship are a trial period for both the student and the employer. During the subsequent 8- to 12-month period, students are considered to be full-time students at the University of Alberta.

Students approved to enter this stream normally register for a continuous sequence of WKEXP courses 981-983. These are 0 credit, pass/fail courses. The graduation requirements for the Internship designation include successful completion of at least one of WKEXP 981, 982 or 983 plus CAPS 444 Internship Seminar or an approved alternative. CAPS 444 must be taken in the term immediately following completion of the placement.

The internship normally represents the fourth year of the program. CAPS 444 is taken in the first term of the fifth and final year of the program. Students registered in the Internship Program are assisted in the location of suitable Internship employment. Placements are based on the employer's selection. There is no guarantee that all qualified students can be placed.

Students should be aware that under the Alberta Protection of Persons in Care Act, they can be required to satisfy a criminal records check before being allowed to serve a period of internship/practicum cooperative work experience placement. See §23.8.2 for further details.

**34.3 BSc in Agricultural/Food Business Management****34.3.1 General Information**

Agricultural/Food Business Management graduates develop a strong understanding of business concepts and principles as applied to either the agricultural industry or the food industry. Graduates have a basic knowledge of the technical processes involved.

The program provides the background for a career in an agricultural or food business setting. Graduates may choose careers in management, sales or finance in the agricultural or food industry, but they also have the ability to interact comfortably with technical specialists and have a good understanding of the products and processes with which they are involved. Other graduates may choose to be scientists and technical specialists, but have a deeper understanding of business management. Graduates are prepared to enter the work force directly or proceed to graduate study. In either case, graduates are able professionals who enhance the competitive strength of the Albertan, Canadian and Global economies. Graduates would qualify to apply to be Articling Agrologists which can lead to status as Professional Agrologists.

The program is offered jointly by the Faculty of Agriculture, Forestry, and Home Economics and the Faculty of Business. Although it is administered in the Faculty of Agriculture, Forestry, and Home Economics, the program is managed by an interdisciplinary committee with representation from both faculties.

Students choose from among three specializations: Agricultural Business Management, Food Processing Business Management, and Food Service Business Management. See §15.1.1 for admission information and recommended courses in the first year of studies.

Students are provided with the analytical, scientific and educational foundation on which to build the business and technical components of their field. Those choosing Agricultural Business Management are challenged with technical courses in agricultural science, including animal, plant or soil sciences. Students interested in Food Business Management may pursue one

of two specializations: Food Processing Business Management or Food Service Business Management. Students whose interests lie in food processing complete technical courses in food processing, manufacturing, microbiology, and food engineering. Students interested in food service management complete technical courses in food microbiology and chemistry, food quality, food service systems management, and food service facility planning and design. Students in all specializations for this degree program are provided with courses in business including accounting, finance, marketing, and human resources. Each student in the program is expected, through a Capstone course, to integrate knowledge from the agricultural or food sciences with the business management disciplines.

It is strongly recommended that students complete all junior requirements before taking senior courses. Students are advised to consider prerequisites for advanced courses when planning their program.

**(1) BSc Agricultural/Food Business Management Required Courses (★93)**  
(Refer to notes 1, 2, 3 and 4.)

- |                                |                                    |
|--------------------------------|------------------------------------|
| a. ACCTG 311 and 322           | j. CAPS 423                        |
| b. AFHE 304                    | k. ECON 101, 102, 281, and 282     |
| c. ★9 AFHE electives           | l. ★3 ENGL (See Note 3)            |
| d. ★6 AFHE electives 400-level | m. FIN 301                         |
| e. ★6 AFHE or BUS electives    | n. ★15 Free electives (See Note 3) |
| f. AG EC 316 or MATH 120       | o. MARK 301                        |
| g. AG EC 416                   | p. MATH 113 or 114                 |
| h. BIOL 107 or 108             | q. ORG A 301                       |
| i. ★6 BUS electives 400-level  | r. STAT 151                        |

**Notes**

- (1) AFHE Electives are courses in the Faculty of Agriculture, Forestry, and Home Economics. HECOL 320 and HECOL 420 qualify as AFHE Electives or as BUS electives.  
 (2) BUS Electives are courses in the Faculty of Business.  
 (3) ENGL 101 (★6) recommended. Students taking ENGL 101 reduce their free electives to ★12.  
 (4) ENT 207 qualifies as an AFHE elective for Agricultural Business Management Specialization.

### 34.3.2 Agricultural Business Management Specialization Requirements (★27)

- (1) ★6 AFHE electives  
 (2) AG EC 200  
 (3) AN SC 200  
 (4) ★9 chosen from AN SC, PL SC, or SOILS (300-level or higher)  
 (5) PL SC 221  
 (6) SOILS 210

### 34.3.3 Food Processing Business Management Specialization Requirements (★27)

- (1) ★3 AFHE electives  
 (2) CHEM 161 and 163  
 (3) NU FS 100, 283, 353, 363, 373, and 454

### 34.3.4 Food Service Business Management Specialization Requirements (★27)

- (1) CHEM 161 and 163  
 (2) NU FS 100, 323, 363, 373, 374, 461, and 463

### 34.3.5 Cooperative Education Option

Students in the Agricultural/Food Business Management program have the opportunity to complete a cooperative education option as part of their degree program. Cooperative Education is an experiential learning program in which students alternate periods of study with periods of paid, discipline-related work experience in cooperating employer organizations. This program is coordinated through the Cooperative Education program offered by the Faculty of Business. All students who are Canadian citizens or permanent residents are eligible to compete for places in the Cooperative Education option following the successful completion of the second year of studies in Agricultural/Food Business Management. Students will be admitted to the program based on a combination of grades, a letter of intent, letters of reference, and a personal interview. The application deadline is June 30.

To successfully complete the Cooperative Education option, accepted students must successfully complete the following four courses in addition

to the regular requirements for the BSc in Agricultural/Food Business Management within the major area of study.

- Introduction to Cooperative Education (non-credit seminar)  
 WKEXP 911  
 WKEXP 912  
 WKEXP 913

Students registered in the Cooperative Education option will complete 12 months of work experience. In order to accommodate the work experience portion of the program, students will normally require between four and five years to complete the requirements for their degree. The normal sequencing for Cooperative Education students is that they attend the Introduction to Cooperative Education seminar in the fall of the third year of studies. The first work term will commence the following January. School terms and work terms will continue to alternate, with the program concluding with a school term. However, the sequencing of school and work terms, and the length of time required to complete the program, will vary from student to student.

Students in the cooperative option are considered to be full-time students at the University of Alberta for the full 12 months of any academic year (July 1–June 30).

All work experience courses are graded on a credit/no credit basis. Grades are determined by a student's job performance as evaluated by the employer, by the student's performance in the completion of a work term report, and by the student's ability to integrate the work experience and the classroom study. Students who fail a work term are normally required to withdraw from the Cooperative Education option.

Students registered in the Cooperative Education option are provided with considerable assistance in the location of suitable work placements. The Business Cooperative Education coordinator and the Program Chair for the BSc in Agricultural/Food Business Management are responsible for working with Cooperative Education students to conduct an active personal job search. However, the ultimate responsibility for obtaining suitable work term employment rests with the student.

Specific information about the Cooperative Education option within the BSc in Agricultural/Food Business Management may be obtained by contacting an academic advisor in this area.

#### Course Sequence

The required courses for Cooperative Education students are the same as provided in the BSc Agricultural/Food Business Program. In addition, Year 3 would include Introduction to Cooperative Education (non-credit seminar) and WKEXP 911. Year 4 (and 5) would include WKEXP 912 and WKEXP 913. It should be noted that the final term in the Cooperative Education option must be a school term.

Students should be aware that under the Alberta Protection of Persons in Care Act, they can be required to satisfy a criminal records check before being allowed to participate in a Cooperative Education work program.

## 34.4 BSc in Agriculture

### 34.4.1 General Information

- (1) The Faculty offers courses leading to the Degree of Bachelor of Science in Agriculture. The degree program provides students with an understanding of the scientific principles underlying the many facets of agriculture together with their application in agricultural systems and related industries and, through a broadly based educational experience, to develop student capacities for critical and independent thought and clear expression of ideas. Throughout the program, emphasis is placed on integrating several areas in the physical, biological, and social sciences relevant to modern agricultural practices.

Graduates of the program will have a background in basic social, natural, and agricultural sciences, with an emphasis on sustainable production, renewable agricultural resource management, and economic analysis. Graduates would qualify to apply to be Articling Agrologists which can lead to status as Professional Agrologists.

- (2) During their first year, or before they register for their second year, students must consult an academic advisor. These course choices may affect course scheduling for students' majors.  
 (3) Students in the BSc Agriculture degree program must choose one major: Agricultural and Resource Economics, Animal Science, Crop and Horticultural Science, Range and Pasture Management or Sustainable Agricultural Systems. This must be chosen before entering the third year but may be chosen as early as the beginning of the first year.  
 (4) Each student must complete at least ★3 in a Capstone course, usually taken during the final year. These courses provide cross-disciplinary

integration of subject matter. Each course normally has two or three instructors from different disciplines and has course prerequisites.

- (5) Students in the Pre-Veterinary Medicine program (§34.4.7) are able to continue in the BSc in Agriculture degree program and will normally receive credit for courses already completed successfully.

(6) **Requirements of the Common Core and the BSc Agriculture Program Core**

**Common Core (★24)**

- AFHE 304
- ★3 chosen from AG EC 323, ORG A 301, 311, 321
- ECON 101 and 102
- ★12 Free electives

**Program Core (★63)**

- AG EC 200
- AG EC 316 or MATH 120
- AN SC 200
- ★27 Approved Program Electives
- ★6 chosen from BIOL 107, 108, 207, 208, (BIOCH 203 or 220 or PL SC 331), (BIOCH 205 or AN SC 391), EAS 101, 102
- CAPS 400
- ENGL 101 (★6)
- MATH 113 or 114
- PL SC 221
- SOILS 210
- STAT 151

**Notes**

- It is strongly recommended that students complete all junior requirements before taking senior courses.
- Students are advised to consider prerequisites for advanced courses when planning their program; e.g., AN SC 391 requires PL SC 331 or ★3 in Biochemistry as a prerequisite.
- Students need to consult the list of Approved Program Electives (APEs) in choosing courses for their major. Lists are available from Academic Advisors and the Faculty Student Services Office.

### 34.4.2 Agricultural and Resource Economics Major

- (1) **General Information:** This major provides students with an understanding of the basic principles of economics and of technical agricultural sciences related to production, processing, marketing, and financing farm and agrifood industries. Students have access to economic and management theory about farming and off-farm agriculture firms, and analytical techniques that permit them to understand and assess influences on farms and related industries. The program develops knowledge of economics and agricultural sciences that permits graduates to understand agriculture systems and to develop an ability to integrate ideas and concepts about agriculture industries.

Graduates with this major can work and serve in management, planning, and advisory positions in a wide range of agricultural industries, government agencies, or private consulting firms. In addition, students who complete this major are well prepared for entry into a graduate study program.

(2) **Requirements of the Major (★33)**

- ACCTG 300
- ★6 chosen from 400-level AG EC Courses
- ★6 chosen from AG EC; R SOC or SOC
- ★6 chosen from AG EC 333, 373, 384, INT D 303
- AG EC 416
- ECON 281 and 282
- INT D 365 or 369

### 34.4.3 Animal Science Major

- (1) **General Information:** The Animal Science Major encompasses studies of livestock and poultry production.

This major enables students to gain an understanding of the scientific disciplines of animal science including physiology, genetics, biochemistry, nutrition, and behavior. Students will also learn how to integrate and apply these concepts to solve problems in animal production systems.

Graduates with this major find opportunities in a wide range of agribusiness industries, government agencies, primary agriculture, and graduate study programs.

(2) **Requirements of the Major (★33)**

- AN SC 310 and 311
- AN SC 385 or 484
- ★6 chosen from AN SC 471, 472, 474, 475 and 476

- ★6 chosen from BIOL 107, 108, 207, 208, (BIOCH 203 or 220 or PL SC 331), (BIOCH 205 or AN SC 391), EAS 101, 102 (not taken in core)
- ★3 NUTR
- NUTR 365
- ★6 of Organic Chemistry, Inorganic Chemistry or Physics

### 34.4.4 Crop and Horticultural Science Major

- (1) **General Information:** This major focuses on the agronomy and science of agricultural and horticultural crop production.

The Crop and Horticultural Science Major gives students an in-depth understanding of the scientific disciplines involved in plant growth, soil characteristics, and plant responses to a range of environmental factors. Students will also learn about biotechnological, breeding, and production and management techniques used to develop, grow, and market well-adapted high-quality and high-yielding crop cultivars, in a way that responds to economic situations, market demands, and societal expectations. Students may choose to emphasize either Crop or Horticultural Science or combine courses from both areas.

Graduates with this major are able to work and serve in technical and management positions in agricultural industries, or in advisory, regulatory, sales and management positions in government agencies. Students who complete this major are well prepared for entry into a graduate study program.

(2) **Requirements of the Major (★33)**

- ★6 chosen from BIOL 107, 108, 207, 208, (BIOCH 203 or 220 or PL SC 331), (BIOCH 205 or AN SC 391), EAS 101, 102 (not taken in core)
- BOT 240
- ★6 of Organic Chemistry, Inorganic Chemistry or Physics
- ★6 chosen from PL SC 324, 465, SOILS 460
- ★6 chosen from ENT 207, PL SC 352, 380
- ★6 chosen from ENCS 356, PL SC 350, 354, 355, 357, 440

### 34.4.5 Range and Pasture Management Major

- (1) **General Information:** In this cross disciplinary major students are introduced to the theory and practice of managing soil-plant-animal relationships within the context of cultivated and native grasslands used by wildlife and domestic herbivores. Key areas of study include the structure, function, and ecology of native and cultivated plant communities, plant and animal physiology, plant-animal interactions under grazing, response of plant communities to grazing, the complementary and conflicting requirements of domestic herbivores and wildlife, and intensive versus extensive-based production systems.

Graduates are prepared for careers as land and livestock managers with government agencies or businesses involved in the management of private and public (e.g., multiple-use) grazing land.

(2) **Requirements of the Major (★33)**

- ★3 chosen from AN SC 472, 474 or 475
- ★6 chosen from BIOL 107, 108, 207, 208, (BIOCH 203 or 220 or PL SC 331), (BIOCH 205 or AN SC 391), EAS 101, 102 (not taken in core)
- ★3 chosen from AN SC 310, AN SC 311, BOT 240, REN R 321, NUTR 260
- ENCS 356 and 406
- ★6 of Organic Chemistry, Inorganic Chemistry or Physics
- ★3 chosen from BOT 384, ENCS 407, 471, PL SC 352, 472
- PL SC 354
- SOILS 420 or 460

### 34.4.6 Sustainable Agricultural Systems Major

- (1) **General Information:** Knowledge about individual components of agricultural systems (including people, plants, animals and soil, water and other resources) has expanded rapidly, but less is known about how these systems work as a whole. There is a need to integrate knowledge from a number of disciplines in order to maintain and enhance the performance of agricultural systems so that resource use is efficient and sustainable. Agricultural systems can be viewed from a local, national or international perspective. A systems approach to sustainable agriculture considers the linkages between human activity and institutions with agricultural production systems. Key areas of study include agricultural production systems, natural resource management and the interrelationships of these with social and economic systems.

Graduates are prepared for careers in agriculture and systems analysis within government or the agriculture and food industry.



**(2) Requirements of the Major (★33)**

- ★3 chosen from AG EC 333, 384, INT D 365, 369
- AG EC 473
- AN SC 374
- ★6 chosen from BIOL 107, 108, 207, 208, (BIOCH 203 or 220 or PL SC 331), (BIOCH 205 or AN SC 391), EAS 101, 102 (not taken in core)
- ENCS 461
- ENCS 475 or PL SC 495
- ★3 chosen from ENCS 476, INT D 303, SOILS 330
- ★6 of Organic Chemistry, Inorganic Chemistry or Physics
- R SOC 355 or 450

**34.4.7 Pre-Veterinary Medicine Program**

- (1) General Information:** The Veterinary Medicine program consists of two years of Pre-Veterinary Medicine at the University of Alberta and four years of Veterinary Medicine at the Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon. Alberta residents who want to take Veterinary Medicine at the University of Saskatchewan may take two pre-veterinary years at the University of Alberta. A quota exists on Alberta students entering Veterinary Medicine at the University of Saskatchewan, and students with the highest standing in the work of the two pre-veterinary years will receive preference. Because the Western College of Veterinary Medicine is a regional institution, it admits almost exclusively students from western Canada with quotas for each province. For detailed information on residence policy and admissions procedures, contact the Admissions Office, Western College of Veterinary Medicine for a copy of the Admissions Brochure.

Students planning to enter Pre-Veterinary Medicine should note the entrance requirements in §15.1.5. Inquiries about the program should be addressed to the Dean, Faculty of Agriculture, Forestry, and Home Economics, University of Alberta.

- (2) Required Courses:** Two full years of university training are required for admission to the Western College of Veterinary Medicine, during which credit must be secured for the number of courses customarily considered a standard load in the curriculum in which they are obtained.

The program of study must include the following:

Biochemistry (★6)	Genetics (★3)
Biology (★6)	Introductory Microbiology (★3)
Chemistry (★6)	Mathematics or Statistics (★6)
English (★6)	Organic Chemistry (★3)
Electives (★15)	Physics (★6)

**(3) Courses taken in BSc Agriculture Pre-Veterinary Medicine**

- AFHE 304
- (BIOCH 203 and 205) or (PL SC 331 and AN SC 391)
- BIOL 107 and 108
- BIOL 207 and 208
- CHEM 101 and 102
- CHEM 161 and 163
- ECON 101 and 102
- ENGL 101 (★6)
- ★3 Free Elective
- MATH 113 (or 114)
- PHYS 124 and 126
- ★3 STAT

- (4) Transfer to Programs in the Faculty:** Students successfully completing the two years of pre-veterinary medicine may continue in the Faculty and earn the BSc in Agriculture or one of the other degrees that the Faculty offers. Two additional years of coursework, or more depending on the program selected, may be required to complete the degree.

**34.5 BSc in Environmental and Conservation Sciences****34.5.1 General Information**

- (1)** The BSc in Environmental and Conservation Sciences program is for students interested in environmental and conservation issues. Graduates have a strong background in basic and applied sciences. They are able to evaluate effects of human land use on plant, soil, water, animal, and human resources and to assess and facilitate conservation, reclamation, and remediation measures for natural and damaged ecosystems. They are not only reactive but also agents for positive, responsible stewardship and change.

Graduates understand the role that social, economic, and political forces play in natural resource management. They integrate knowledge from various disciplines and are cognizant of the various philosophies about the role of humans in the environment. They are able to employ balanced judgment based on a foundation of environmental ethics and philosophy, and suggest appropriate use of natural resources.

The BSc in Environmental and Conservation Sciences emphasizes integrating natural science, management, and social science as related to environmental issues. It offers a program of study emphasizing applied problem solving and environmental management and is distinct from, but complementary to, the BSc (with Specialization and Honors in Environmental Biology) offered in the Faculty of Science. However, first-year requirements in both programs are similar permitting easy transfer between programs at the end of the first year.

Employment opportunities include career paths with government or non-government agencies (such as private corporations and private consulting) concerned with forestry, parks, nature reserves, nature centres, environmental education, recreational areas, wildlife management, environmental policy analysis, rangeland management, land reclamation, environmental sociology, ecotourism, environmental planning, and environmental management.

Graduates would qualify to apply to be Articling Agrolgists which can lead to status as Professional Agrolgists.

- (2)** The BSc in Environmental and Conservation Sciences program builds on the Faculty Core by requiring coursework in resource assessment, environmental philosophy, environmental policy, and natural resource/environmental economics. Students must choose a major by their second year of study. Students may wish to consult with an academic advisor about selection of approved program electives.

**(3) Requirements of the Common Core and the Environmental and Conservation Sciences Program Core****Common Core (★24)**

- AFHE 304
- ★3 chosen from AG EC 323, ORG A 301, 311, 321
- ECON 101 and 102
- ★12 Free electives

**Program Core (★57)**

- AG EC 316
- BIOL 107 and 108
- BIOL 208
- ★3 Organic Chemistry and ★3 chosen from CHEM, PHYS 124, 126
- ENCS 201, 203, 260, 307, and 473
- ENGL 101 (★6)
- INT D 204
- INT D 365 or 369
- MATH 113 or 114
- ★3 chosen from SOC 100, 300, R SOC 355
- SOILS 210
- STAT 151

**Notes**

- It is strongly recommended that students complete the common core and program core prior to completing major requirements.
- It is strongly recommended that students complete all junior requirements before taking senior courses.
- Students are advised to consider prerequisites for advanced courses when planning their program.
- Students need to consult the list of Approved Program Electives (APEs) in choosing courses for their major. Lists are available from Academic Advisors and the Faculty Student Services Office.

**34.5.2 Conservation Biology Major**

This major builds the foundation in ecological sciences and natural resource management required to understand conservation priorities for both protected areas and lands managed for multiple values. Students are exposed to the competing demands on natural environments and the challenges in developing integrative approaches towards wildlife and habitat conservation. The program places an emphasis on understanding, planning, and managing the complex ecological relationships of natural environments and strategies aimed at securing their biological integrity and sustainability. Graduates are prepared for careers with government and non-government agencies concerned with land management and wildlife and fisheries issues on managed lands or protected areas, as well as advanced degrees in the fields of wildlife ecology and conservation. Employment opportunities also exist with industry and consulting firms.

**(1) Requirements of the Major (★39)**

- ★9 chosen from BOT 332, ENCS 356, 376, 406, 476, FOR 322, ZOOL 332
- ENCS 364

- c. ENCS 462 or 463
- d. Capstone course is ENCS 464
- e. ★21 Approved Program Electives

### 34.5.3 Environmental Economics and Policy Major

Graduates choosing this major develop skills in the economic analysis of environmental problems and the policy process associated with environmental issues. The interaction among economic, social, political, and legal elements of environmental problems are also addressed. The Environmental Economics and Policy major builds on the Environmental and Conservation Sciences Core with a block of courses intended to provide the background for economic, social, and legal approaches to environmental problems and to build quantitative and analytical skills. Extensions into advanced economic theory, political theory, social theory, and other policy sciences are selected from groups of approved program electives.

Graduates are prepared for careers in government and private industry in environmental economic analysis, policy analysis, and other related areas.

#### (1) Requirements of the Major (★39)

- a. ECON 281 and 282
- b. ENCS 352
- c. INT D 365 or 369
- d. INT D 465
- e. Capstone course is ENCS 410
- f. ★21 Approved Program Electives

### 34.5.4 Human Dimensions of Environmental Management Major

Students in this major will learn about the role of collective action, institutions, policy, and management approaches to address environmental and natural resource issues. A firm foundation in the natural sciences allows students to understand the complexities of environmental change and then focus on the social context and organization through which environmental problems are addressed. Students will take a variety of courses that will prepare them to work in the areas of natural resource management, parks planning, management and interpretation, public outreach for environmental and parks policies and programs, and in other settings as liaisons between members of the public and resource management agencies.

#### (1) Requirements of the Major (★39)

- a. ENCS 462
- b. ENCS 463
- c. HECOL 301
- d. SOC 315
- e. R SOC 355
- f. Capstone course is R SOC 450
- g. ★21 Approved Program Electives

### 34.5.5 Land Reclamation Major

This major combines the natural and applied sciences to understand and minimize the impacts of anthropogenic activities on natural resources, with emphasis on soil, plant, and water components of the ecosystem. Graduates will be able to conduct and/or direct remediation strategies and conservation measures to maintain quality environments and to reclaim disturbed and damaged ecosystems.

Graduates are prepared for careers in government and nongovernment organizations and deal with a broad range of issues related to soil and water pollution, land reclamation, revegetation, remediation, and soil and water conservation. Graduates will contribute natural science expertise to environmental impact assessments and land-use planning.

#### (1) Requirements of the Major (★39)

- a. ★6 chosen from ENCS 455, 475, REN R 475
- b. ★3 chosen from ENCS 356, 406, PL SC 352, 354, 360
- c. ★6 chosen from SOILS 420, 430, 440, 450, 460
- d. Capstone course is REN R 485
- e. ★21 Approved Program Electives

## 34.6 BSc in Forest Business Management

### 34.6.1 General Information

This program develops graduates with the abilities required of foresters and of business professionals. Graduates should appreciate the need to manage forested areas with due concern for all resources and be capable of

managing forested areas as integrated ecological entities. Graduates should also fully understand and appreciate the business management skills needed to manage organizations effectively and efficiently within the forest industry.

The Forest Business Management degree is intended to prepare students for careers as professional foresters and is for individuals planning careers focusing on forest practices, but who also demand specialized knowledge in business management practices. The Forest Business Management program prepares students for careers as Registered Professional Foresters. Graduates may immediately apply to the Alberta Registered Professional Foresters Association to complete the registration process.

The program is offered jointly by the Faculty of Agriculture, Forestry, and Home Economics and the Faculty of Business. Although it is administered in the Faculty of Agriculture, Forestry, and Home Economics, the program is managed by an interdisciplinary committee with representation from both Faculties. See §15.1.3 for admission and recommended courses in the first year of studies.

Students in the BSc in Forest Business Management program are provided with the analytical, scientific, and broad educational foundations on which to build the business and forestry components of their field. The forestry component includes courses in areas such as ecology, engineering, and conservation.

The program core includes four one-week field camps (FOR 101, 302, 303, and 304) that provide training in technical aspects of forestry. FOR 101 should be taken in the student's first year (or in the student's initial year in the BSc in Forest Business Management program) just before the start of regular classes. FOR 302, 303, and 304 are taken in the spring between second and third years.

The business management component of this degree program consists of introductory and advanced courses in business, including accounting, finance, marketing, and human resources. Each student in the program is expected, through a Capstone course, to integrate knowledge from forestry-related sciences with the business management disciplines. This Capstone course is taken in the fourth year.

It is strongly recommended that students complete all junior requirements before taking senior courses. Students are advised to consider prerequisites for advanced courses when planning their program.

#### (1) Forest Business Management Required Courses (★123)

- (Refer to Notes 1, 2 and 3)
- a. ACCTG 311 and 322
  - b. AFHE 304
  - c. AG EC 316 or MATH 120
  - d. BIOL 108
  - e. ★6 BUS Electives 400-level
  - f. CAPS 423
  - g. CHEM 161
  - h. ECON 101, 102, and 281
  - i. ENCS 201 or 364
  - j. ★3 ENGL (See Note 3)
  - k. ENT 280
  - l. FIN 301
  - m. FOR 101, 302, 303 and 304 (field camps) (See Note 1)
  - n. FOR 210, 314, 322, 323, 340, and 350
  - o. FOR EC 345 and 473
  - p. FOREN 201, 335, and 355
  - q. ★6 Free Electives (See Note 3)
  - r. MARK 301
  - s. MATH 113 or 114
  - t. ORG A 301
  - u. PL SC 385
  - v. REN R 110, 120, 220, 321, and 430
  - w. SOILS 210
  - x. STAT 151

#### Notes

- (1) FOR 101 (★0) must be taken in the student's first year (or in the student's initial year in the BSc in Forest Business Management program) just before the start of regular classes. FOR 302 (★1), 303 (★1) and 304 (★1) must be taken in the spring between second and third years.
- (2) BUS Electives are courses in the Faculty of Business.
- (3) ENGL 101 (★6) recommended. Students taking ENGL 101 reduce their free electives to ★3.

### 34.6.2 Cooperative Education Option

Students in the Forest Business Management program have the opportunity to complete a cooperative education option as part of their degree program. Cooperative Education is an experiential learning program in which students alternate periods of study with periods of paid, discipline-related work experience in cooperating employer organizations. This program is

coordinated through the Cooperative Education program offered by the Faculty of Business. All students who are Canadian citizens or permanent residents are eligible to compete for places in the Cooperative Education option following the successful completion of the second year of studies in Forest Business Management. Students will be admitted to the program based on a combination of grades, a letter of intent, letters of reference, and a personal interview. The application deadline is June 30.

To successfully complete the Cooperative Education option, accepted students must successfully complete the following four courses in addition to the regular requirements for the BSc in Forest Business Management within the major area of study.

Introduction to Cooperative Education (non-credit seminar)  
 WKEXP 911  
 WKEXP 912  
 WKEXP 913

Students registered in the Cooperative Education option will complete 12 months of work experience. In order to accommodate the work experience portion of the program, students will normally require between four and five years to complete the requirements for their degree. The normal sequencing for Cooperative Education students is that they attend the Introduction to Cooperative Education seminar in the fall of the third year of studies. The first work term will commence the following January. School terms and work terms will continue to alternate, with the program concluding with a school term. However, the sequencing of school and work terms, and the length of time required to complete the program, will vary from student to student.

Students in the cooperative options are considered to be full-time students at the University of Alberta for the full 12 months of any academic year (July 1–June 30).

All work experience courses are graded on a credit/no credit basis. Grades are determined by a student's job performance as evaluated by the employer, by the student's performance in the completion of a work term report, and by the student's ability to integrate the work experience and the classroom study. Students who fail a work term are normally required to withdraw from the Cooperative Education option.

Students registered in the Cooperative option are provided with considerable assistance in the location of suitable work placements. The Business Cooperative Education coordinator and the Program Chair for the BSc in Forest Business Management are responsible for working with Cooperative Education students to conduct an active personal job search. However, the ultimate responsibility for obtaining suitable work term employment rests with the student.

Specific information about the Cooperative Education option within the BSc in Forest Business Management may be obtained by contacting an academic advisor in this area.

### Course Sequence

The required courses for Cooperative Education students are the same as provided in the Forest Business Program. In addition, Year 3 would include Introduction to Cooperative Education (non-credit seminar) and WKEXP 911. Year 4 (and 5) would include WKEXP 912 and WKEXP 913. It should be noted that the final term in the Cooperative Education option must be a school term.

Students should be aware that under the Alberta Protection of Persons in Care Act, they can be required to satisfy a criminal records check before being allowed to participate in a Cooperative Education work program.

## 34.7 BSc in Forestry—Forest Management Major

### 34.7.1 General Information

The Faculty offers courses leading to the degree of Bachelor of Science in Forestry. The program offers a single major, Forest Management. The program consists of four years of University study with a yearly course load of ★30.

The BSc in Forestry develops graduates who appreciate the need to manage forested areas with due concern for all resources and who have the capability and knowledge to manage forested areas as integrated ecological entities. It focuses primarily on forest management, the protection, manipulation, and use of the forest resource while ensuring that sustainability and other social and cultural needs are met.

The field of Forestry embraces topics as diverse as economics, ecology, engineering and conservation. As a consequence, a broad range of career opportunities exist for graduates of the Forestry program. The Forestry program prepares students for careers as Registered Professional Foresters working in government or industrial organizations or as consultants. To

complete the registration process, graduates apply directly to the appropriate Registered Professional Foresters Association.

Camp exercises provide training in technical aspects of Forestry, including forest mensuration, engineering, ecology, and silviculture. All students must complete a Capstone course (FOR 431) in Integrated Resources Management. This course is taken in the final year and focuses on integrating concepts from various disciplines within the natural and social sciences and their application to problems and challenges in forest resource management. The required courses for completion of the BSc Forestry program are indicated below.

### Requirements of the Common Core and the BSc Forestry

- (1) **Common Core** (★24)
  - a. AFHE 304
  - b. ★3 chosen from AG EC 323, ORG A 301, 311, 321
  - c. ECON 101 and 102
  - d. ★12 Free Electives
- (2) **Program Core** (★99)
  - a. AG EC 316 or MATH 120
  - b. ★12 Approved Program Electives
  - c. BIOL 108
  - d. CHEM 161
  - e. ENCS 201 or 364
  - f. ENGL 101 (★6) (recommended) or ★3 ENGL and ★3 Social Sciences/Humanities
  - g. ENT 280
  - h. FOR 101, 302, 303, and 304 (field camps)
  - i. FOR 210, 314, 322, 323, 340, 350, and 431
  - j. FOREC 345 and 473
  - k. FOREN 201, 335, and 355
  - l. MATH 113 or 114
  - m. PL SC 385
  - n. REN R 110, 120, 220, 321, and 430
  - o. SOILS 210
  - p. STAT 151

#### Notes

- (1) FOR 101 must be taken just before the start of regular classes in the student's first year.
- (2) FOR 302, 303, and 304 must be taken in the spring between the second and third year.
- (3) FOR 431 is a capstone course that integrates content of other courses.
- (4) It is strongly recommended that students complete all junior requirements before taking senior courses.
- (5) Students are advised to consider prerequisites for advanced courses when planning their program. Scheduling of courses is also included in a program planning package provided to students with their registration package.
- (6) Students need to consult the list of Approved Program Electives (APEs) in choosing courses for their major. Lists are available from Academic Advisors and the Faculty Student Services Office.
- (7) Social/Sciences/Humanities courses are selected from Human Ecology, Rural Sociology, Native Studies (except NS 100); Anthropology, Classics, Comparative Literature, Earth and Atmospheric Sciences (Arts), History, Languages, Linguistics, Philosophy, Political Sciences, Psychology (Arts), Religious Studies, Sociology, Theology, and courses defined by the Faculty of Arts as Fine Arts.

## 34.8 BSc in Human Ecology

### 34.8.1 General Information

Human Ecology is a multidisciplinary field that uses a holistic approach to solve human problems and to enhance human potential in all environments where people live and work: the social, natural, cultural, political, and material. Completion of ★120 required for BSc Degree.

Students should be aware that under the Alberta Protection of Persons in Care Act, they can be required to satisfy a criminal records check before being allowed to participate in a practicum (field placement).

- (1) **Requirements of the Common Core and the Human Ecology Program Core**
  - a. **Common Core** (★24)
    - 1) AFHE 304
    - 2) ★3 chosen from AG EC 323, ORG A 301, 311, 321
    - 3) ECON 101 and 102
    - 4) ★12 Free Electives
  - b. **Program Core** (★48)
    - 1) ENGL 101 (★6)
    - 2) HECOL 100

- 3) HECOL 200
- 4) HECOL 201
- 5) HECOL 300
- 6) HECOL 301
- 7) HECOL 408
- 8) HECOL 409 (★6) is Capstone Course
- 9) STAT 151 or SOC 210
- 10) ★3 chosen from MARK 412, NURS 301, NS 390, SOC 315, W ST 302
- 11) ★6 Natural Sciences chosen from BIOL 107, 108, CHEM 101, 161, 163, EAS 102, 205, 208, NUTR 100, PHYS
- 12) ★6 chosen from Social Science/ Humanities (see Note 3)

**Notes**

- (1) It is strongly recommended that students complete all junior requirements before taking senior courses.
- (2) Students are advised to consider prerequisites for advanced courses when planning their program, e.g. senior textile and conservation courses require CHEM 161 and 163 as the Natural Sciences requirement.
- (3) Students need to consult the list of Approved Program Electives (APEs) in choosing courses for their major. Lists are available from Academic Advisors and the Faculty Student Services Office.
- (4) Professional Designation: To meet the educational requirements for Professional Home Economist/Human Ecologist designation, students must present ★48 of course weight in Human Ecology, Nutrition and Food Science, or Nutrition.

### 34.8.2 Community Studies Major

**General Information**

Culture, heritage, values, resources, and the evolving political infrastructure are the key factors that define the dynamic interaction between communities and their environments. The community studies major will provide the student with an understanding of the nature of these interactions in local and global, rural and urban, mainstream and peripheral communities. Perspectives include the ecological, socio-economic and political implications for communities. Graduates will be employed in community agencies, government and/or private industry, at the interfaces where communities are players in policy and program development.

- (1) **Requirements of the Major (★48)**
  - a. ANTHR 250 or NS 210
  - b. ★3 chosen from EAS 191, 293, ENCS 260, INT D 120
  - c. ★6 chosen from HECOL 150, 312, 322, 462, 494, NU FS 323, 477 (★6)
  - d. ★3 chosen from HECOL 440, 441, AG EC 473, INT D 456
  - e. HECOL 461
  - f. ★3 chosen from HECOL 494, INT D 370, NS 345, R SOC 310
  - g. ★3 chosen from INT D 356, R SOC 355
  - h. SOC 353
  - i. ★21 Approved Program Electives (★12 must be chosen from HECOL)

### 34.8.3 Family and Consumer Studies Major

The Family and Consumer Studies major allows students two areas of specialization, Working with Families and Family Finance. In the Working with Families specialization, students will learn about family strengths, issues, prevention and intervention techniques across the life span. Some areas that will be covered are parent-child relationships, family relations, sexuality, family challenges, aging, family finances and consumer behavior. In the Family Finance specialization, students will be given a background understanding of family functioning and challenges, in addition to more specialized courses in family finance. Graduates will work in jobs such as program coordinators, day care managers, career counsellors, social workers, family support workers, consumer educators, credit counsellors, financial counsellors, and retirement planners.

- (1) **Requirements of the Major (★48)**
  - a. HECOL 210
  - b. HECOL 312
  - c. HECOL 320
  - d. HECOL 322
  - e. HECOL 413
  - f. HECOL 414
  - g. HECOL 440
  - h. ★27 Approved Program Electives (see Note 5 regarding professional designation)

### 34.8.4 Textiles and Clothing Major

The Textiles and Clothing major allows students two areas of specialization: Design and Merchandising, or Historic Dress and Culture.

Students may study textile and fashion design including computer-aided design, the textile and apparel industries both locally and globally, textile properties and quality assurance, theories of fashion and dress, and museum curatorship and conservation. Graduates are employed in fashion buying and merchandising, fashion design, fashion media, computer-assisted designing, textile and apparel quality assurance, museum management or textile conservation, theatre costume design, interior design and housing, or as business entrepreneurs.

- (1) **Requirements of the Major (★51)**
  - a. HECOL 150
  - b. HECOL 170
  - c. HECOL 250
  - d. HECOL 268
  - e. HECOL 360
  - f. HECOL 370 or 472
  - g. HECOL 441
  - h. ★27 Approved Program Electives (★6 must be chosen from HECOL at the 400-level or above)

## 34.9 BSc in Human Ecology/BEEd Combined Degree

- (1) **General Information** (See also \$15.5.6)

The Faculty of Agriculture, Forestry, and Home Economics and the Faculty of Education offer a five-year integrated program of ★150 leading to the degrees of Bachelor of Science in Human Ecology and Bachelor of Education. Students can do the combined BSc in Human Ecology/BEEd degree program to teach in Career and Technology Studies (CTS) strands such as Fashion Studies, Career Transitions, Foods, Community Health, or other teachable majors as well as Career and Life Management (CALM). Students initially apply for admission to the Faculty of Agriculture, Forestry, and Home Economics and are considered to be registered in that Faculty for the first three years of the program. All qualified Year 3 BSc in Human Ecology/BEEd students will be promoted to Year 4 in the Faculty of Education provided a minimum GPA of 5.0 has been achieved and a minimum of ★90 applicable to the BSc in Human Ecology/BEEd program has been successfully completed.

**Notes**

- (1) Students in Year 3 must submit a Readmission or On-Campus Transfer application form. Students in Year 3 who have completed less than ★90 toward the BSc in Human Ecology/BEEd program, but who have a GPA of at least 5.0, may remain in Year 3 of the BSc in Human Ecology/BEEd program in the Faculty of Agriculture, Forestry, and Home Economics for one additional year.
- (2) A student who has been assigned a grade of "W" or "F" in an Education Field Experience course is entitled to a second registration in this course. See also \$22.1.3 Reregistration in Courses. Notwithstanding \$22.1.3, students who receive a "W" or "F" in the second attempt of a Field Experience course, will be required to withdraw from the Combined Degree Program, but may transfer back to the BSc in Human Ecology program.
- (3) The final year of the program will normally be taken in attendance at the University of Alberta. Exemption from this regulation can be made only with approval of the Faculty of Agriculture, Forestry, and Home Economics and the Faculty of Education.

- (2) **Required Courses**

Courses for the Combined BSc in Human Ecology/BEEd degree program must be carefully sequenced throughout the five years; therefore, students should plan their programs carefully with help from academic advisors from both Faculties.

- a. **Program Core (★84)**
  - 1) AFHE 304
  - 2) ECON 101 and 102
  - 3) ENGL 101 (★6)
  - 4) ★6 Free Electives
  - 5) HECOL 100
  - 6) HECOL 150
  - 7) HECOL 170
  - 8) HECOL 200
  - 9) HECOL 201
  - 10) HECOL 210
  - 11) HECOL 211
  - 12) ★6 Natural Sciences chosen from BIOL 107, 108, CHEM 161, 163, EAS 102, 205, 208
  - 13) HECOL 250
  - 14) HECOL 320
  - 15) HECOL 321 or HECOL 322

- 16) HECOL 354
- 17) ★6 HECOL at 300-level or above
- 18) ★6 HECOL at 400-level or above
- 19) ★3 Chosen from NU FS 100, 372 or 373
- 20) NUTR 100
- 21) ★3 chosen from MARK 412, NURS 301, NS 390, SOC 315, W ST 302
- 22) STAT 151 or SOC 210

b. **BEd Core (★66)**

- 1) ★18 Minor Social Sciences/Humanities
- 2) EDFX 200
- 3) EDFX 350
- 4) EDFX 450 (★6)
- 5) EDFX 451
- 6) EDPS 310
- 7) EDPS 410
- 8) EDPY 200
- 9) EDPY 301
- 10) EDPY 303
- 11) EDSE 332 (Minor)
- 12) EDSE 432
- 13) EDSE 433
- 14) HE ED 110
- 15) ★6 chosen from Faculty of Education

**Notes**

- (1) It is strongly recommended that students complete all junior requirements before taking senior courses.
- (2) Students are advised to consider prerequisites for advanced courses when planning their program, e.g., senior textile and conservation courses require CHEM 161 and 163 as the Natural Sciences requirement.
- (3) Students need to consult the list of Approved Program Electives (APEs) in choosing courses for their major. Lists are available from Academic Advisors and the Faculty Student Services Office.
- (4) Professional Designation: To meet the educational requirements for Professional Home Economist/Human Ecologist designation, students must present ★48 of course weights in Human Ecology, Nutrition and Food Science, or Nutrition.

## 34.10 BSc in Nutrition and Food Sciences

### 34.10.1 General Information

The Faculty offers courses leading to the degree of Bachelor of Science in Nutrition and Food Sciences. Two majors are offered: Food Science and Technology and Nutritional Science. The Food Science and Technology Major meets the guidelines of the Canadian Institute of Food Science and Technology (CIFST) and the Institute of Food Technologists (IFT). The Nutritional Science Major, with appropriate courses chosen from the approved program electives, is accredited by the Dietitians of Canada. Students planning to be Registered Dietitians should carefully read the information provided under the Nutritional Science Major (see §34.10.3). Students in the Nutritional Science Major can meet the educational requirements for registration as Professional Home Economists with appropriate electives in Human Ecology.

#### Requirements of the Common Core and the Nutrition and Food Sciences Program Core

- (1) **Common Core (★24)**
  - a. AFHE 304
  - b. ★3 chosen from AG EC 323, ORG A 301, 311 or 321
  - c. ECON 101 and 102
  - d. ★12 Free Electives
- (2) **Program Core (★39)**
  - a. ★3 chosen from BIOCH 203, 220 or PL SC 331
  - b. BIOL 107
  - c. ★3 CAPS (See Note 2)
  - d. CHEM 101 and 102
  - e. CHEM 161 and 163
  - f. ENGL 101 (★6) (recommended) or ENGL ★3 and Social Sciences/Humanities ★3 (See Note 6)
  - g. NU FS 361 or 363 (See Note 1)
  - h. NU FS 372 or 373 (See Note 1)
  - i. NUTR 301
  - j. STAT 151

**Notes**

- (1) Food Science and Technology majors are required to take NU FS 361 and NU FS 372.
- (2) Food Science and Technology majors are required to take NU FS 450 as the ★3 CAPS requirement. Nutritional Science majors are required to take

one of NU FS 450, NU FS 477, NUTR 440 or INT D 410 as the ★3 CAPS requirement.

- (3) It is strongly recommended that students complete all junior requirements before taking senior courses.
- (4) Students are advised to consider prerequisites for advanced courses when planning their program; e.g. NU FS 372/373 require CHEM 161 and 163 as a prerequisite.
- (5) Students need to consult the list of Approved Program Electives (APEs) in choosing courses for their major. Lists are available from Academic Advisors and the Faculty Student Services Office.
- (6) Social/Sciences/Humanities courses are selected from Human Ecology, Rural Sociology, Native Studies (except NS 100); Anthropology, Classics, Comparative Literature, Earth and Atmospheric Sciences (Arts), History, Languages, Linguistics, Philosophy, Political Science, Psychology (Arts), Religious Studies, Sociology, Theology, and courses defined by the Faculty of Arts as Fine Arts.

### 34.10.2 Food Science and Technology Major

This major focuses on applying chemistry, microbiology, and engineering to the food systems and technological processes used in food manufacturing, preservation, storage, and distribution.

Graduates of this major may enter the food industry as technical specialists or quality control managers. Opportunities also exist in government employment as inspectors, laboratory managers, and extension workers; in international development agencies; and in private laboratories providing consultative or technical service to the food industry and food marketing chains.

(1) **Requirements of the Major (★57)**

- a. CHEM 211 and 213
- b. MATH 113 or 114
- c. MATH 115
- d. MICRB 265
- e. NU FS 100 or NUTR 100 (See Note 1)
- f. NU FS 283, 312, 353, 374 and 454
- g. PHYS ★3
- h. ★21 Approved Program Electives (★12 must be chosen from NU FS 300, 393, 402, 403, 404, 405, 406, 427, 430, 440, 480, 481).

**Note:** Transfer students who are taking NU FS 372 and 374 in their first year in the program should select another Approved Program Elective instead of NU FS 100 or NUTR 100.

### 34.10.3 Nutritional Science Major

Graduates have a working knowledge of the fundamentals of nutrition. Metabolic processes involved in nutrient use during different physiological states and behavioral factors associated with nutrition will be integrated with the underlying physical, chemical, biological, and social sciences.

Additional coursework can be obtained in areas such as chemistry, biochemistry, physiology, endocrinology, and metabolic regulation. Students may choose programs emphasizing either animal or human nutrition as areas of concentration.

Students concentrating in human nutrition are prepared for careers in general health sciences, dietetics (see §34.10.4), health promotion, education, private practice, government and health protection agencies, and nutrition development programs. Those concentrating in animal nutrition are prepared for careers as nutritionists with feed companies, pharmaceutical and chemical supply companies, consulting companies, agricultural production enterprises, or with governments as extension agents and field service and regulatory personnel.

(1) **Requirements of the Major (★57)**

- a. ★6 chosen from (AN SC 310 and 311) or PHYSL 210 (★6) or PHYSL 252 (★6) or (ZOOL 241 and 242)
- b. AN SC 391 or BIOCH 205
- c. ★9 chosen from AN SC 461, BIOCH 410, NUTR 365, NU FS 428, 452, 468, 477, 478, 479
- d. BIOL 207
- e. NUTR 100 or NU FS 100 (See Note)
- f. NUTR 302
- g. ★30 Approved Program Electives (★12 must be chosen from Advanced (300- or 400-level) NU FS or NUTR courses)

**Note:** Transfer students who are taking NU FS 372 or 373 in their first year in the program should select another Approved Program Elective instead of NU FS 100 or NUTR 100.

### 34.10.4 Dietetics Program

To become a registered dietitian, students must complete an undergraduate degree in Nutrition and Food Sciences and a dietetic internship. **Students**

must meet the course requirements outlined below to be eligible for an approved dietetic internship. The postgraduate internship is applied for in fourth year of the undergraduate program.

Students may also apply for the department's Coordinated Dietetics Program (CDP), an alternative to the postgraduate internship. In the CDP, academic terms alternate with internship terms in cooperation with health care facilities throughout Alberta; the degree plus internship can normally be completed in 4.5 years and then the individual is eligible for membership in the Dietitians of Canada. Applications to the CDP are accepted during the second academic year. Students should be aware that under the Alberta protection of Persons in Care Act, they can be required to satisfy a criminal records check before being allowed to participate in an internship program. Dietitians are employed in health care institutions, industry, government services, retail food services, teaching, community clinics, public relations, the media and private practice.

Nutrition (NUTR)  
 Nutrition and Food Sciences (NU FS)  
 Plant Science (PL SC)  
 Renewable Resources (REN R)  
 Rural Sociology (R SOC)  
 Soil Science (SOILS)  
 University (UNIV)

### 34.10.5 Required Course List for Dietetics Students

Students who wish to become Registered Dietitians must complete specific undergraduate course requirements and complete a dietetic internship (see Note). Students should enrol in the Nutritional Science major of the Nutrition and Food Sciences Degree Program and plan their timetable such that the following required courses can be completed. These ★24 credits may be taken as approved program electives or free electives. This combination of the Nutritional Science major and the required course list is an accredited university undergraduate program with the Dietitians of Canada.

#### (1) Required Dietetics Courses (★24)

- a. INT D 410
- b. NU FS 323, 374, 461, 468, 476 and 477
- c. ★3 chosen from NU FS 452, 478 or 479

**Note:** Students planning to apply for the University of Alberta Coordinated Dietetic Internship Program must ensure that they register in NU FS 323, 372, 374 and NUTR 301 in the second year of their program.

## 34.11 BSc After Approved Degrees

Holders of previous degrees may qualify for a BSc degree in the Faculty when they have fulfilled all program requirements. Holders of a four-year degree must complete a minimum of ★54 at the University of Alberta with a GPA of at least 5.0.

## 34.12 Graduate Studies

Programs leading to advanced degrees at the Master's and Doctorate levels are offered by most Faculty departments. Course programs and thesis projects are arranged in consultation with Faculty members or with the Department's graduate coordinator.

See this Calendar's Graduate Programs section for general information about graduate studies. Specific information about requirements and opportunities in a particular field of study may be obtained from the appropriate Department in the Faculty of Agriculture, Forestry, and Home Economics.

# 35 Courses

The Faculty of Agriculture, Forestry, and Home Economics courses are listed in §201, Course Listings, under the following subject headings:

Agricultural Economics (AG EC)  
 Agricultural, Food and Nutritional Science (AF NS)  
 Agriculture and Forestry (AGFOR)  
 Agriculture, Forestry, and Home Economics (AFHE)  
 Animal Science (AN SC)  
 Bioresource Engineering (BIOEN)  
 Capstone Course (CAPS)  
 Environmental and Conservation Sciences (ENCS)  
 Family Studies (FAM)  
 Forest Economics (FOREC)  
 Forest Engineering (FOREN)  
 Forest Science (FOR)  
 Human Ecology (HECOL)  
 Interdisciplinary Courses (INT D)