

Faculty of Agriculture, Forestry, and Home Economics

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31 The Professors

31.1 Teaching and Scholarship

Our professors are renowned across campus for their willingness and drive to provide the absolute best guidance and teaching to our students. Faculty are involved in the full chain of scholarly activity, from generation (research) and integration to dissemination (teaching and extension).

Our teaching and research have gained international recognition. Our research awards and patented discoveries are a testament to our continued commitment to excellence. Our faculty has won numerous awards for innovative and top-quality teaching. In fact, two of our professors have won the 3M Teaching Award, given annually to the top ten teachers in the nation!

Staff members help students choose options and advise them on career opportunities. Students are encouraged to explore their chosen fields and develop practical skills.

31.2 Members of the Faculty

Officers of the Faculty

Dean
IN Morrison, PhD

Associate Dean (Academic Programs)
RJ Hudson, PhD

Associate Dean (Research)
PM Woodward, PhD

Assistant to the Dean
L Prud'homme, BA

Agricultural, Food and Nutritional Science

Professor and Chair
JJ Kennelly, PhD (Dairy Production)

Professors
RO Ball, PhD (Nutrition)
VE Baracos, PhD (Protein Metabolism)
TK Basu, PhD (Nutritional Biochemistry)
KG Briggs, PhD (Cereal Breeding and Agronomy)
RJ Christopherson, PhD (Animal Physiology)
MT Clandinin, PhD (Nutritional Biochemistry)
JR Feddes, PhD (Animal Housing)
GR Foxcroft, PhD (Swine Reproductive Physiology)
RJ Hudson, PhD (Wildlife Management and Productivity) (Joint Appointment with Renewable Resources)
P Jelen, PhD (Food Processing)

NR Knowles, PhD (Horticultural Crop Physiology)
JJ Leonard, PhD (Instrumentation, Electronics)
MH Makarechian, PhD (Animal Genetics)
GW Mathison, PhD (Nutrition)
B Oraikul, PhD (Food Processing)
MA Price, PhD (Livestock Growth and Meat Production)
FE Robinson, PhD (Poultry Production)
WC Sauer, PhD (Swine Nutrition)
JS Sim, PhD (Poultry Technology)
P Sporns, PhD (Food Chemistry)
ME Stiles, PhD (Food Microbiology)
JP Tewari, PhD (Plant Pathology)
WH Vanden Born, PhD (Herbicides and Weed Physiology)

Professor (Canola Research Professor)
GR Stringam, PhD (Plant Breeding)

Associate Professors
PV Blenis, PhD (Forest Pathology) (Joint Appointment with Renewable Resources)
CJ Field, PhD (Nutritional Biochemistry)
AM Flanagan, PhD (Oilseed Physiology and Biotechnology)
A Horak, PhD (Plant Physiology)
JR King, PhD (Forage Physiology and Agronomy) (Joint Appointment with Renewable Resources)
EL LeBlanc, PhD (Food Quality, Objective/Sensory Evaluations)

LJ McCargar, PhD (Clinical Dietetics)
MA Naeth, PhD (Applied Ecology, Reclamation, Revegetation) (Joint Appointment with Renewable Resources)
JA Ozga, PhD (Horticultural Crop Physiology)
F Temelli, PhD (Food Processing and Quality)
KD Travers, PhD (Community Nutrition)

Associate Professor (Dairy Processing Technology Research Chair)
L Ozimek, PhD (Dairy Technology)

Assistant Professors
EW Bork, PhD (Range Management)
WT Dixon, PhD (Protein Biochemistry and Molecular Biology)
DR Korver, PhD (Poultry Nutrition)
T Vasanthan, PhD (Cereals, Fats and Oils)

Assistant Professor (AARI Food Packaging and Preservation Professor)
LM McMullen, PhD (Food Microbiology and Packaging)

Adjunct Professors
J Aalhus, PhD (Meat Quality)
JA Basarab, PhD (Animal Genetics and Production)
KJ Cheng, PhD (Rumen Microbiology)
RN Coleman, PhD (Environmental Microbiology)

LA Goonewardene, PhD (Animal Genetics)
GG Greer, PhD (Food Microbiology)
RJ Howard, PhD (Horticultural Pathology)
WA Keller, PhD (Plant Molecular Biology/Biotechnology)
MS Lilburn, PhD (Poultry Sciences)
TA McAllister, PhD (Ruminant Nutrition/Microbiology)
MI McBurney, PhD (Human Nutrition, GI Function)
M Mohyuddin, PhD (Greenhouses/Horticultural Crops)
SD Morgan-Jones, PhD (Animal Growth, Meat Production)
JT O'Donovan, PhD (Weed Management)
EK Okine, PhD (Animal Nutrition)
MM Palcic, PhD (Food Chemistry)
PB Pencharz, PhD (Nutrition, Biochemistry and Metabolism)
LA Roth, MSc (Food Microbiology)
AL Schaefer, PhD (Animal Physiology)
JL Wilson, PhD (Poultry Management)

Administrative Officer
JE Cars, BSc

Faculty Service Officer
MC McKay, BSc (H Ec)

Human Ecology

Associate Professor and Acting Chair
NL Gibson, PhD (Health Issues of Peoples in Transition)

Professors
EM Crown, PhD (Protective Clothing, Consumer Behaviour)
N Keating, PhD (Gerontology, Rural Families, Family Caregiving)
N Kerr, PhD (Textile Science, Conservation Science)
A Lambert, MA (Material Culture, Historic and Cross-Cultural Textiles and Clothing)
E Richards, MS (Textile Conservation and Performance, Environment)

Associate Professors
M Cox-Bishop, EdD, MFA (Cultural Aspects of Textiles, Textile Design, Visual Literacy)
J Fast, PhD (Consumer Behavior, Family Economics, Consumer and Family Policy)
B Munro, PhD (Sexuality and HIV/AIDS Evaluation, Intergenerational Relations)
S Niessen, PhD (Material Culture, Historic and Cross-Cultural Textiles and Clothing)

Assistant Professors
L Capjack, MSc (Functional Apparel and Computer-Aided Design)
N Langford, PhD (Family History, Gender Relations, Reproductive and Family Policy)
B Skrypnik, PhD (Family Relationships, Family Violence, Work and Families)

Adjunct Professors

M Doherty-Poirier, PhD (Chemistry)
R Jevne, PhD
P McCormack, PhD
S McDaniel, PhD
J Morse, PhD
D Norris, PhD

Administrative Officer
L Capjack, MSc

Faculty Service Officer
S Ellis, MA (Art Conservation)

Renewable Resources

Professor and Chair
JA Beck, PhD (Integrated Forest and Wildlife Habitat Management, Timber Supply Analysis)

Professors
JR Butler, PhD (Wildland Recreation, Management and Planning, Environmental Education)
DS Chanasyk, PhD (Applied Soil Physics and Hydrology)
PH Crown, PhD (Remote Sensing, Soil/Land Evaluation)
BP Dancik, PhD (Dendrology and Forest Tree Improvement)
MJ Dudas, PhD (Soil Chemistry and Mineralogy)
RJ Hudson, PhD (Wildlife Management and Productivity) (Joint Appointment with Agricultural, Food and Nutritional Sciences)
NG Juma, PhD (Soil Biology and Ecology)
VJ Lieffers, PhD (Silviculture/Ecology)
WB McGill, PhD (Soil Biochemistry)
DJ Pluth, PhD (Forest Soils)
SJ Titus, PhD (Resource Measurements and Mensuration)
RW Wein, PhD (Northern Forest Ecology)
PM Woodard, PhD (Forest Fire Management)
FC Yeh, PhD (Forest Genetics)

Associate Professors
PV Blenis, PhD (Forest Pathology) (Joint Appointment with Agricultural, Food and Nutritional Sciences)
Y Feng, PhD (Soil Physics)
RF Grant, PhD (Agronomy)
JR King, PhD (Forage Physiology and Agronomy) (Joint Appointment with Agricultural, Food and Nutritional Sciences)
SE Macdonald, PhD (Forest Ecology, Ecophysiology)
MA Naeth, PhD (Applied Ecology, Reclamation, Revegetation) (Joint Appointment with Agricultural, Food and Nutritional Sciences)
J Zwiasek, PhD (Tree Physiology)

Assistant Professors
FKA Schmiegelow, PhD (Applied Ecology and Conservation Biology)
U Siilins, PhD (Forest Hydrology and Watershed Management)

Adjunct Professors

SA Abboud, PhD (Soil Chemistry)
MJ Apps, PhD (Carbon Budgets of Forests)
MA Arshad, PhD (Soil Physics)
L Bach, PhD (Wood Engineering)
B Beck, PhD (Forest Management, Wildlife Habitat Modeling)
J Brouard, PhD (Tropical Silviculture/Genetics)
LN Carbyn, PhD (Wildlife/Parks)
GM Coen, PhD (Soil Genesis and Classification)
IGW Corns, PhD (Forest Science)
CG Gates, PhD (Wildlife)
RJ Hall, PhD (Remote Sensing/GIS)
Y Hiratsuka, PhD (Forest Pathology)
EH Hogg, PhD (Climate Change in the Boreal Forest)
G Holroyd, PhD (Forest Wildlife)
S John, PhD (Quantitative Genetics)
FJ Larney, PhD (Wind Erosion)
CW Lindwall, PhD (Soil-Tillage Dynamics)
SS Malhi, PhD (Soil Fertility)
KI Mallett, PhD (Forest Pathology)
D McNabb, PhD (Soil Compaction)
L Morgantini, PhD (Wildlife Habitat)
S Navratil, PhD (Silviculture)
WW Pettapiece, PhD (Soil Genesis and Mineralogy)
R Pharis, PhD (Physiology of Flowering, Early Growth Evaluation)
G Proulx, PhD (Zoology)
JB Stelfox, PhD (Forest Wildlife)
RH Swanson, PhD (Forest Hydrology)
ES Telfer, PhD (Wildlife)
TA Thorpe, PhD (Botany)
LW Turchenek, PhD (Peatlands, Wetlands, Soil Classification)
RC Yang, PhD (Forest Genetics)

Administrative Officer
RL Longworth, BA (Hon), BSc

Faculty Service Officer
TC Martin, MSc (Spatial Information Systems)

Rural Economy

Professor and Chair
MM Veeman, PhD (Marketing Policy, Trade)

Professors
WL Adamowicz, PhD (Environmental Economics, Econometrics, Forest Economics)
ML Leroh, PhD (Agricultural Policy and Trade)
TS Veeman, PhD (International Development, Resource Economics) (Joint Appointment with Economics)

Associate Professors
SR Jeffrey, PhD (Agricultural Business Management, Production Economics)
MK Luckert, PhD (Forest Economics, Natural Resource Economics)
FS Novak, PhD (Finance, Production Economics)

Associate Professor
(Cooperative Chair in
Agricultural Marketing and
Business)

HG Brooks, PhD (Cooperatives,
Agricultural Policy, Agricultural
Marketing)

Assistant Professors

KZ Chen, PhD (Food Marketing,
Policy)

GK Hauer, PhD (Resource and
Environmental Economics,
Trade)

NT Krogman, PhD (Sociology of
Natural Resources,
International Development,
Gender)

Assistant Professor

JR Unterschultz, PhD
(Marketing, Finance)

Adjunct Professors

TM Beckley, PhD (Forest
Sociology)

GW Lamble, PhD (Extension
Education)

B LaPlante, PhD (Environmental
Economics)

GA Mumej, PhD (Finance,
Management)

BT Oleson, PhD (Marketing,
Trade)

WA White, PhD (Forest
Economics)

Faculty Service Officer

JH Copeland, MSc

Additional Members of Faculty Council

**Representatives from Other
Faculties**

Faculty of Arts—one
representative

Faculty of Business—one
representative

Faculty of Education—one
representative

Faculty of Engineering—one
representative

Faculty of Extension—one
representative

Faculty of Science—four
representatives

Office of the Registrar—one
representative

Health Sciences Area (rotating
among Faculties of Pharmacy,
Rehabilitation Medicine, and
Nursing)—one representative

**Representatives from
Professional Associations**

KC Davies, BScAg, Alberta
Institute of Agrologists

D Gelinis, BScF, Canadian
Institute of Forestry

L Heyworth, BEd (Home
Economics), Alberta Registered

Dietitians Association

J McGregor, BSc (Home
Economics), Alberta Home

Economics Association, Alberta
Society of Biologists

Student Representatives

Students from each of the
undergraduate degree
programs are to be elected on
the basis of one representative
to Faculty Council per 100
students or portion thereof in
each program by the students
in that program, for a one year
term with provision for
additional terms.

Graduate student
representatives are to be
elected from among all those
pursuing graduate studies in
the departments of the Faculty
on the basis of one
representative per 100 students
or portion thereof.

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/BEd 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 <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
- (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 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). The amount of transfer credit is determined by the same regulations applicable to those students who are transferring from one faculty to another within the University.
- (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., a sessional 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 Academic Standing and Graduation

(1) Academic Record

Students should be aware that their academic record (i.e. their transcript) is a continuing one and that all matters relating to courses, grades, academic standing, and probation will permanently appear on the academic record. The GPA is printed on the official transcript and on the Statement of Results which is issued after each session.

(2) Academic Performance

Academic standing will be assessed on the basis of a sessional grade point average (GPA). Students are expected to maintain a GPA of at least 5.0. Students who do not maintain this level of academic performance may be permitted to continue under Academic Warning or may be required to withdraw.

A review of academic performance is conducted for each student at the end of each Winter Session and Intersession.

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.

(3) Sessional Grade Point Average

The Grade Point Average refers to the sessional GPA and is defined by the following formula:

$$\text{GPA} = \frac{\text{sum of (grade} \times \text{units of course weight)}}{\text{sum of units of course weight}}$$

- a. The GPA for any session shall be based on the final grades in all courses taken during that session, including single term courses repeated in the second term and courses extra to the degree program;
- b. An alphabetical grade of WF will be counted as a numeric grade of 1.0 in the computation of the GPA;
- c. Grades of Credit/No Credit and Pass/Fail will not be included in the computation of the GPA;
- d. The sessional GPA will be rounded to the nearest single decimal place using standard rounding rules - that is, it will be rounded up with a value of 5 or greater in the second decimal place and rounded down with a value of 4 or less in the second decimal place.
- (4) **Categories of Academic Standing**
- A student's academic standing will fall into one of the following categories based on GPA:
- a. **Satisfactory Standing** - student eligible to continue. GPA of 5.0 or higher.
- b. **Marginal Standing** - student is on academic warning. GPA between 4.5 and 4.9 inclusive.
- c. **Unsatisfactory Standing** - student required to withdraw. GPA of 4.4 or lower.
- (5) **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 sessional 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 sessional 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 of the Winter Session may not register for the following summer term of Intersession. Students who register for summer term courses prior to the requirement to withdraw will have their registration cancelled without penalty. Subject to Petition and Appeals see §33.4.

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 sessional 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 sessional GPA to at least 5.0. Should their sessional 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.

- (6) **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 first and second terms in Winter Session. Students who attend in only one term of the Winter Session are eligible if they complete at least ★12 with a minimum GPA of 7.5.
- (7) **Dean's List:** This designation is given to students who achieve a GPA of at least 8.0 on a minimum of ★18 in Winter Session. Students who attend in only one term of Winter Session are eligible if they complete at least ★9 with a minimum GPA of 8.0.
- (8) 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 Winter Session. Those completing degree requirements during the first term of Winter Session will graduate at the Spring Convocation, whereas those completing degree requirements during Intersession will graduate at the Fall Convocation.
- (9) **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 §§34.2 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.
- All students who, upon admission to the Faculty of Agriculture, Forestry, and Home Economics, present less than ★24 transferable to the University are required to take a student orientation seminar UNIV 100 (★2) during the first term in which they are registered in the Faculty. Students who present at least ★24 transferable to the University will receive credit for UNIV 100 (★2). In addition 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 ★122 to graduate. Students registered in the BSc in Forestry and Forest Business Management degree programs require ★125 to graduate. Students registered in the BSc (Human Ecology)/BEd Combined degree program require ★152 to graduate.
- (10) **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.

(11) 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 (12) below) and obtain a grade point average of at least 5.0 on their last ★60 normally taken during the third and fourth years while registered in the Faculty.

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 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 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 with the 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.

(12) Extension to the Graduating Year

Students who have successfully completed at least ★122, ★125 or ★152 (for programs as indicated in (9)) 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 Winter session 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 Winter session of study. Students must complete at least ★9 in order to meet the “Satisfactory Standing” requirement for graduation (see (11) above).

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

(13) 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 (11) above applies.

(14) Reexamination Policy

See §23.5.5 for University Regulations.

(15) 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 34.9 for appropriate number of course weights for your program of study).

33.3 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).

33.4 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.

33.5 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 Structure of Degree Programs

The Faculty offers programs leading to eight BSc degrees in Agricultural/Food Business Management; Agriculture; Environmental and Conservation Sciences; Forest Business Management; Nutrition and Food Sciences; Forestry; Human Ecology; and Human Ecology/BEd Combined Degree.

General information and specific course requirements for each degree, major, and area of concentration are in §§34.2 to 34.10.

The degree programs in the Faculty have a common structure:

- (1) The Faculty Common Core consists of ★38 required for most degree programs (except the BSc Agricultural/Food Business Management, the BSc Forest Business Management and the BSc Human Ecology) plus ★12 in enrichment (free) electives. The Common Core provides a broad university education. It also facilitates interprogram transfers within the Faculty in the first two years of study.
 - ★38 in the following areas are required in the Faculty Common Core:
 - Ecology or Global Ecosystems and Human Involvement (★3)
 - Communication (★3)
 - Quantitative/Qualitative Methods (★9 for most degree programs except for BSc Human Ecology which has ★6 requirement)
 - Life Sciences (For most degree programs this area includes two of the following five areas: Plant Biology, Animal Biology, Genetics, Microbiology, and Biochemistry courses. The BSc Human Ecology program may add Chemistry courses to this list.)
 - English (★3)
 - Economics (★6)
 - Basic Social Sciences/Humanities (★3) (See note below.)
 - Human Resource Management (★3)
 - Student Orientation (★2)

Note: For all degrees, except the BSc Human Ecology, courses from the basic Social Sciences/Humanities may be selected from Family Studies, Human Ecology, Rural Sociology; Native Studies (except NS 100); Anthropology, Classics, Comparative and Other 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.

 - ★12 enrichment (free) electives to be chosen by the student within or outside the Faculty of Agriculture, Forestry, and Home Economics.

(2) **Natural Sciences or Social Sciences Common Core:** ★6 or ★12, respectively

(3) **Degree Program Core:** ★18 to ★36 (depending on the program)

(4) **Major or Area of Concentration:** ★30 to ★48 (depending on the program)

(5) **Program Structure for BSc Human Ecology/BEd**

Human Ecology: ★38 comprising ★32 Faculty core and ★6 program core, which parallel the BSc in Human Ecology degree requirements. (EDSE 432 and 433 are taken in place of HECOL 480/481 or 482).

Education: ★45 taken in the Faculty of Education to meet the requirements for teaching certification.

Major: ★48 to meet both the major requirements in the BSc in Human Ecology program and the requirements for a teachable major in the BEd program.

Minor: ★18 to meet the requirements for a teachable minor in the BEd program.

Optional Component: free elective ★3

Students have considerable opportunity to pursue areas of interest in their programs. To obtain the best possible program, students should work closely with their academic advisors.

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. Students approved to enter this stream, normally register for a continuous sequence of WKEXP courses 981 through 983. During this 12-month period, students are considered to be full-time students at the University of Alberta.

The first four months of this internship are a trial period for both the student and the employer. WKEXP 981-983 are 0 credit, pass/fail courses. The graduation requirements for the Internship designation include successful completion of WKEXP 981-983 plus CAPS 444 Internship Seminar. CAPS 444 must be taken in the term immediately following WKEXP 983.

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.

34.3 BSc in Agricultural/Food Business Management

34.3.1 General Information

(1) This four-year program of Science in Agricultural/Food Business Management develops graduates with the capability of practising improved management in the agricultural and food industries. Graduates have a strong understanding of business concepts and principles as

applied to either the agricultural industry or the food industry, and have a basic knowledge of the technical processes involved.

The program provides the background for a career in an agricultural or food business setting. Some 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. Others 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 and Canadian economies.

(2) 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 admission.

Students are provided with the analytical, scientific and broad 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.

(3) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 1.

Agriculture, Forestry, and Home Economics Chart 1 Required Courses and Sample Course Sequence for BSc Agricultural/Food Business Management Degree

Agricultural Business Management				
	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★35)	1. AGFOR 204 2. CMPT (★3) 3. ECON 101 4. ECON 102 5. ENGL (★3) 6. MATH 113 or 114 7. UNIV 100 (★2)	1. AG EC 316 2. STAT 151	1. AG EC 416 2. ECON 281 3. ECON 282	
Free Electives (★15) in or outside the Faculty	1. Free Elective (★3)	1. Free Electives (★6)	1. Free Elective (★3)	1. Free Elective (★3)
Supporting Courses (★9)	1. One of AGFOR 100; BIOL 208; INT D 369; MGTSC 428 2. Two of BIOL 107; BIOL 108; PL SC 221 or 235			
Business Courses (★15)		1. ACCTG 311 2. ACCTG 322	1. FIN 301 2. MARK 301 3. ORG A 301	
Technical Courses (★15)		1. Three of AG EC (300-level or higher); BIOEN (300-level or higher); AN SC (200-level or higher); ENT 207; PL SC (200-level or higher); SOILS 210		1. (★6) 300-level or higher in selected introductory technical courses (Refer to Year 2: Three of AG EC, BIOEN, AN SC, ENT, PL SC, SOILS)
Program Electives (★33) (See Notes 1, 2, 3, and 4)		1. AG Elective	1. AG Elective 2. AG Elective 3. AG or BUS Elective	1. AG Elective 2. AG Elective, 400-level 3. AG Elective, 400-level 4. AG or BUS Elective 5. BUS Elective, 400-level 6. BUS Elective, 400-level 7. CAPS 423
Notes				
(1) AG Electives are courses in the Faculty of Agriculture, Forestry, and Home Economics.				
(2) BUS Electives are courses in the Faculty of Business.				
(3) In the Agricultural Business Management Major and Food Processing Major, no more than ★15 of the AG Electives can be Social Science courses.				
(4) A list of AG Electives that qualify as Social Sciences courses may be obtained from an academic advisor.				

Agriculture, Forestry, and Home Economics Chart 1 Required Courses and Sample Course Sequence for BSc Agricultural/Food Business Management Degree (cont'd)

Food Processing Business Management				
	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★35)	1. AGFOR 204 2. COMPUT (★3) 3. ECON 101 4. ECON 102 5. ENGL (★3) 6. MATH 113 or 114 7. UNIV 100 (★2)	1. AG EC 316 2. ECON 281 3. STAT 151	1. AG EC 416 2. ECON 282	
Free Electives (★12) in or outside the Faculty		1. Free Elective (★3)	1. Free Elective (★3)	1. Free Electives (★6)
Supporting Courses (★12)	1. CHEM 161 and 163 2. BIOL 107 or BIOL 108 3. NU FS 100			
Business Courses (★15)		1. ACCTG 311 2. ACCTG 322	1. FIN 301 2. MARK 301 3. ORG A 301	
Technical Courses (★15)		1. NU FS 283 2. NU FS 363 3. NU FS 373	1. NU FS 353 2. NU FS 454	
Program Electives (★33) (See Notes 1, 2, 3, and 5)		1. AG Elective	1. AG Elective 2. AG or BUS Elective	1. AG Elective 2. AG Elective 3. AG Elective, 400-level 4. AG Elective, 400-level 5. AG or BUS Elective 6. BUS Elective, 400-level 7. BUS Elective, 400-level 8. CAPS 423
Food Service Business Management				
	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★35)	1. AGFOR 204 2. COMPUT (★3) 3. ECON 101 4. ECON 102 5. ENGL (★3) 6. MATH 113 or 114 7. UNIV 100 (★2)	1. AG EC 316 2. ECON 281 3. STAT 151	1. AG EC 416 2. ECON 282	
Free Electives (★12) in or outside the Faculty		1. Free Electives (★6)	1. Free Elective (★3)	1. Free Elective (★3)
Supporting Courses (★12)	1. BIOL 107 or BIOL 108 2. CHEM 161 and 163 3. NU FS 100			
Business Courses (★15)		1. ACCTG 311 2. ACCTG 322	1. FIN 301 2. MARK 301 3. ORG A 301	
Technical Courses (★18)		1. NU FS 363 2. NU FS 373 3. NU FS 374	1. NU FS 323	1. NU FS 461 2. NU FS 463
Program Electives (★30) (See Notes 1, 2, 4, and 5)			1. AG Elective 2. AG Elective 3. AG or BUS Elective	1. AG Elective 2. AG Elective, 400-level 3. AG Elective, 400-level 4. AG or BUS Elective 5. BUS Elective, 400-level 6. BUS Elective, 400-level 7. CAPS 423
Notes	(1) AG Electives are courses in the Faculty of Agriculture, Forestry, and Home Economics. (2) BUS Electives are courses in the Faculty of Business. (3) In the Agricultural Business Management Major and Food Processing Major, no more than ★15 of the AG Electives can be Social Science courses. (4) In the Food Service Major, no more than ★12 of the AG Electives can be Social Science courses. (5) A list of AG Electives that qualify as Social Sciences courses may be obtained from an academic advisor.			

34.3.2 Cooperative Education Option

(1) 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.

(2) In order to successfully complete the Cooperative Education option, students accepted into the option 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 pass/fail 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 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.

(3) Sequence of Courses

The required courses and sample course sequence for Cooperative Education students is the same as provided in Agriculture, Forestry, and Home Economics Chart 1. 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.

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 Agrologists in Training 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 Sciences [Individual], Animal Science, Applied Economics, Crop and Horticultural Science, or Land Resource Science). This must be chosen before entering the third year but may be chosen as early as the beginning of the first year. Required courses for each major are listed in Agriculture, Forestry, and Home Economics Chart 2.
- (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 receive credit for courses already completed successfully.

34.4.2 Agricultural Sciences (Individual)

- (1) **General Information:** This major is for highly motivated students who want to develop their own program in some area of Agricultural Sciences. The choice of program may be narrow or broad, but it must include indepth study of at least one approved discipline. Students may choose to modify an existing BSc program major to better satisfy individual needs. Appropriate disciplines and depth are subject to approval of an academic advisor and the Dean. After consulting an academic advisor, a student submits a four-year plan outlining the intended courses for the program. The advisor submits the plan to the Program Planning Committee for endorsement and subsequent final approval by the Associate Dean.

The course program provides students with a sound understanding of the scientific disciplines underlying the fields of interest they have chosen to study.

Graduates with this major find opportunities to work and serve in technical or management positions in the areas they have chosen to study. They also should be well prepared to enter a graduate study program in the area or discipline they have chosen to study.

- (2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 2.

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) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 2.

34.4.4 Applied Economics Major

- (1) **General Information:** The Applied Economics Major offers studies in applying economics to agricultural production systems and related industries.

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 to 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) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 2.

34.4.5 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 a sound 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) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 2.

34.4.6 Land Resource Science Major

(1) **General Information:** The Land Resource Science Major allows students to study soils as natural and managed components of terrestrial ecosystems.

The Land Resource Science Major offers students a thorough background in the fundamentals of soil and land resource science so that they can understand and assess these concerns and recommend appropriate action.

Career opportunities for the Land Resource Science Major are many, and, as awareness grows of the need to preserve and sustain soil and land quality, other career paths emerge. Opportunities include employment with the traditional government agencies (Agriculture at the federal and provincial levels). Opportunities are also available in other government agencies at the municipal level (regional and city planning agencies, engineering and agricultural projects, and extractive resource-based industries) that operate in agricultural areas.

(2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 2.

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

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) **Course Sequence:**

The course sequences for Years 1 and 2 are as follows:

Year 1

AGFOR 100	CHEM 161 and 163
AGFOR 204	ENGL (★3)
BIOL 107	MATH 113 (or 114)
BIOL 108	UNIV 100
CHEM 101 and 102	

Note: These courses must be taken in Year 1. Students transferring from other programs or institutions must complete all of the above courses in which they are deficient during their first year in attendance in the Pre-Veterinary Medicine program at the University of Alberta.

Year 2

BIOCH 203 and 205 or PL SC 331 and AN SC 391	PHYS 100 and 101 STAT ★3
BIOL 207 and 208	Elective ★3
ECON 101 and 102	

Note: Students may wish to extend the pre-veterinary medicine requirements over more than two years. This should be done in consultation with the Pre-Veterinary Medicine program advisor.

(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.

Agriculture, Forestry, and Home Economics Chart 2 Required Courses and Sample Course Sequence for BSc Agriculture

Agricultural Sciences (Individual) (Refer to Notes 1 and 2)

	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. AGFOR 204 3. ECON 101 4. ECON 102 5. ENGL (★3) 6. MATH 113 or 114 7. UNIV 100 (★2)	1. Two of Biochemistry (★3); (BIOL 107, 108, 207, 208); (PL SC 211, 221 or 235)	1. Two of (AG EC 316 or MATH 120); (CMPUT 101 or 114); Physics (★3); STAT 151 2. Basic Social Sciences/ Humanities (★3) (See Note 1)	1. One of AG EC 323, ORG A 301, 311, 321
Free Electives (★12) in or outside the Faculty			1. Free Elective (★3)	1. Free Electives (★9)
Natural Sciences Common Core (★12)	1. ★6 of Organic Chemistry, Inorganic Chemistry, or Physics	1. Two of Biochemistry (★3); (BIOL 107, 108, 207, 208); (PL SC 211, 221 or 235) (if courses not taken as part of the Faculty Common Core)		
Social Sciences Common Core	n/a	n/a	n/a	n/a
Program Core (★27)	1. AN SC 200 2. Plant Science (★3)	1. One of AG EC 333, 384; INT D 365 2. One of BIOEN 200, NU FS 283, Physics (★3) 3. ENT 207 4. SOILS 210	1. One of AN SC 374, 471, 472, 474, 475, 476; ENT 392; PL SC 352, 380, 495 2. ENCS 361 or FOR 350	1. CAPS 400
Major Requirements (★33)		1. Approved Program Electives (★6)	1. Approved Program Electives (★12)	1. Approved Program Electives (★15)

Notes

- (1) Courses from the basic Social Sciences/Humanities may be selected from Rural Sociology, Family Studies, Human Ecology, Native Studies (except NS 100), Anthropology, Theology, Classics, Comparative and Other Literature, Earth and Atmospheric Sciences (Arts), History, Languages, Linguistics, Philosophy, Political Science, Psychology (Arts), Religious Studies, Sociology and courses defined by the Faculty of Arts as Fine Arts.
- (2) This major is for highly focused students who wish to develop their own program in an area not covered by the established majors in this degree program. Students must submit to the Faculty for approval a four-year plan outlining the intended courses for the program that was completed in consultation with an academic advisor.

Agriculture, Forestry, and Home Economics Chart 2 Required Courses and Sample Course Sequence for BSc Agriculture (cont'd)

Animal Science (Refer to Notes 1 and 2)

	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. BIOL 107 3. BIOL 208 or PL SC 211, 221, 235 4. ECON 101 5. ECON 102 6. MATH 113 or 114 7. UNIV 100 (★2)	1. ENGL (★3) 2. STAT 151	1. AGFOR 204 2. CMPUT 101 or 114	1. One of AG EC 323, ORG A 301, 311, 321 2. Basic Social Sciences/Humanities (★3) (See Note 1)
Free Electives (★12)		1. Free Elective (★3)		1. Free Electives (★9)
Natural Sciences Common Core (★12)	1. CHEM 161 and 163	1. BIOCH 203 or 220 or PL SC 331 2. BIOCH 205 or AN SC 391		
Social Sciences Common Core	n/a	n/a	n/a	n/a
Program Core (★27)	1. AN SC 200 2. Plant Science (★3)	1. ENT 207 or AN SC 374 2. SOILS 210	1. AG EC 333 or 384 2. One of AN SC 471, 472, 474, 475, 476 3. One of BIOEN 200, NU FS 283, Physics (★3) 4. ENCS 361 or FOR 350	1. CAPS 400
Major Requirements (★33) Requirements (★18-★21) Approved Program Electives (★12-★15) (See Note 2)		1. AN SC 310 2. BIOL 207 3. NUTR 260 or 301 (See Note 2)	1. AN SC 311 2. AN SC 385 or 484 3. NUTR 302 or Approved Program Elective 4. Approved Program Elective (★3)	1. NUTR 365 2. Approved Program Electives (★9)

Applied Economics (Refer to Note 1)

	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AG EC 316 or MATH 120 2. AGFOR 100 3. Two of Biochemistry (★3); (BIOL 107, 108, 207, 208); (PL SC 211, 221, 235) 4. ECON 101 5. ECON 102 6. ENGL (★3) 7. MATH 113 or 114 8. STAT 151 9. UNIV 100 (★2)	1. Basic Social Sciences/Humanities (★3) (See Note 1)	1. AGFOR 204	1. One of AG EC 323; ORG A 301, 311, 321
Free Electives (★12) in or outside the Faculty		1. Free Elective (★3)	1. Free Elective (★3)	1. Free Electives (★6)
Natural Sciences Common Core	n/a	n/a	n/a	n/a
Social Sciences Common Core (★12)		1. ★3 from AG EC, R SOC, or SOC courses 2. One of R SOC 355, 391 or 100-level SOC	1. ECON 281 2. ECON 282	
Program Core (★27)	1. Plant Science (★3)	1. One of AG EC 333 or 384 or INT D 365 2. AN SC 200 3. One of BIOEN 200, NU FS 283, Physics (★3) 4. ENT 207 5. SOILS 210	1. One of AN SC 374, 471, 472, 474, 475, 476; ENT 392; PL SC 352, 380. 2. ENCS 361 or FOR 350	1. CAPS 400
Major Requirements (★33) Requirements (★18) Approved Program Electives (★15)		1. ACCTG 300	1. Three of AG EC 333, 373, 384; INT D 365 (not previously taken) 2. Approved Program Elective (★3)	1. AG EC 400-level electives (★6) 2. Approved Program Electives (★12)

Notes

- Courses from the basic Social Sciences/Humanities may be selected from Rural Sociology, Family Studies, Human Ecology, Native Studies (except NS 100), Anthropology, Theology, Classics, Comparative and Other Literature, Earth and Atmospheric Sciences (Arts), History, Languages, Linguistics, Philosophy, Political Science, Psychology (Arts), Religious Studies, Sociology and courses defined by the Faculty of Arts as Fine Arts.
- Students who take NUTR 301 must follow this with NUTR 302 and should select a total of 12 Approved Program Electives. Students who take NUTR 260 should follow this with an Approved Program Elective and thus will select a total of 15 Approved Program Electives.

Agriculture, Forestry, and Home Economics Chart 2 Required Courses and Sample Course Sequence for BSc Agriculture (cont'd)

Crop and Horticultural Science (Refer to Note)				
	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. ECON 101 3. ECON 102 4. ENGL (★3) 5. PL SC 221 or 235 6. MATH 113 or 114 7. UNIV 100 (★2)	1. One of AG EC 316; CMPUT 101 or 114; MATH 120 2. STAT 151	1. AGFOR 204 2. BIOL 207 3. Basic Social Sciences/ Humanities (★3) (See Note)	1. One of AG EC 323, ORG A 301, 311, 321
Free Electives (★12) in or outside the Faculty		1. Free Elective (★3)	1. Free Elective (★3)	1. Free Electives (★6)
Natural Sciences Common Core (★12)	1. CHEM 161 and 163	1. BIOL 107	1. PL SC 331	
Social Sciences Common Core	n/a	n/a	n/a	n/a
Program Core (★27)	1. AN SC 200 2. Plant Science (★3)	1. ENT 207 2. SOILS 210	1. AG EC 333 or 384 2. One of BIOEN 200, NU FS 283 or Physics (★3) 3. ENCS 361 or FOR 350 4. PL SC 352	1. CAPS 400
Major Requirements (★33) Requirements (★18) Approved Program Electives (★15)		1. BOT 240 2. PL SC 380 3. 300- or 400-level PL SC course 4. PL SC 324	1. Approved Program Elective (★3)	1. Approved Program Electives (★12) 2. ENCS 360 or SOILS 460 3. PL SC 465
Land Resource Science (Refer to Note)				
	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. BIOL 107 3. BIOL 208; PL SC 211, 221, 235 4. ECON 101 5. ECON 102 6. ENGL (★3) 7. MATH 113 or 114 8. UNIV 100 (★2)	1. STAT 151	1. One of AG EC 316; CMPUT 101 or 114; MATH 120 2. AGFOR 204	1. One of AG EC 323, ORG A 301, 311, 321 2. Basic Social Sciences/ Humanities (★3) (See Note)
Free Electives (★12) in or outside the Faculty		1. Free Elective (★3)	1. Free Elective (★3)	1. Free Electives (★6)
Natural Sciences Common Core (★12)	1. CHEM 161 and 163	1. Biochemistry (★3) 2. BIOL 108 or 207		
Social Sciences Common Core	n/a	n/a	n/a	n/a
Program Core (★27)	1. Plant Science (★3)	1. AN SC 200 2. ENT 207 3. SOILS 210	1. One of BIOEN 200, NU FS 283, Physics (★3) 2. One of AG EC 333, 384 or INT D 365 3. ENCS 361 or FOR 350 4. One of PL SC 352, 380; AN SC 374, 471, 472, 474, 475, 476	1. CAPS 400
Major Requirements (★33) Requirements (★21) Approved Program Electives (★12)		1. Approved Program Elective (★3) 2. One of BOT 202, 210; REN R 120; ENCS 356, 406 3. One of EAS 101, 201, 225	1. SOILS 330 or 430 2. SOILS 420 3. SOILS 450	1. Approved Program Electives (★9) 2. REN R 425 3. SOILS 440
Note: Courses from the basic Social Sciences/Humanities may be selected from Rural Sociology, Family Studies, Human Ecology, Native Studies (except NS 100), Anthropology, Theology, Classics, Comparative and Other Literature, Earth and Atmospheric Sciences (Arts), History, Languages, Linguistics, Philosophy, Political Science, Psychology (Arts), Religious Studies, Sociology and courses defined by the Faculty of Arts as Fine Arts.				

34.5 BSc in Environmental and Conservation Sciences

34.5.1 General Information

(1) The Faculty's program in environmental and conservation sciences is suited to students interested in conservation and environmental matters. Graduates of this program are able to evaluate effects of human land use and industrial activity on plant, soil, water, and animal resources. They are able to assess and facilitate conservation measures and remediation for natural and damaged ecosystems.

Graduates of the Bachelor of Science in Environmental and Conservation Sciences have a strong background in the basic and applied

sciences. A further objective of the program is to develop graduates who 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. Graduates are able to employ balanced judgment based on a foundation of environmental ethics and philosophy, and suggest wise 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. These two programs allow students to study environmental science at the undergraduate level.

Employment opportunities include work with government or non-government agencies concerned with forestry, parks, nature reserves, nature centres, environmental education, recreational areas, fish and wildlife management, environmental policy analysis, rangeland management, land reclamation, and ecotourism. Employment opportunities also exist with private corporations and consulting firms concerned with environmental planning, management and remediation strategies and related areas.

- (2) The BSc Environmental and Conservation Sciences program follows the Faculty Core and Natural Sciences Core. The Program Core extends the Faculty Core and Natural Sciences Core by requiring coursework in resource assessment, environmental philosophy, environmental policy, and natural resource/environmental economics. Students must choose an area of concentration or construct an independent program in consultation with a Faculty advisor. In the second year, students should begin to develop a program of study in consultation with an Environmental and Conservation Sciences academic advisor.

Required courses for all areas of concentration are detailed in Agriculture, Forestry, and Home Economics Chart 3.

34.5.2 Conservation Biology and Management Concentration

- (1) **General Information:** This concentration emphasizes a foundation in ecological sciences and natural resources for the management and stewardship of protected areas and critical ecological environments. The program emphasizes understanding, planning, management and communications regarding complex ecological relationships of natural environments; securing the biological integrity of those environments; and arranging, where appropriate, their use for outdoor recreation, ecotourism, and environmental education. Students selecting this concentration most often focus on landscapes designated as national and provincial parks, ecological reserves, nature sanctuaries, wildlife refuges, and wilderness areas.

Employment opportunities include work with government or non-government agencies concerned with forestry, parks, nature reserves, nature centres, environmental education, recreational areas, fish and wildlife, and ecotourism. Employment opportunities also exist with private corporations and consulting firms concerned with planning and management strategies.

- (2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 3.

34.5.3 Environmental Economics and Policy Concentration

- (1) **General Information:** Graduates choosing this area of concentration 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 Concentration builds on the Environmental and Conservation Sciences Core with a block of courses intended to provide the background for economic, political, social, and legal approaches to environmental problems. Extensions into advanced economic theory, political theory, social theory or other policy sciences may be considered by the student in consultation with an academic advisor.

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

- (2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 3.

34.5.4 Independent Concentration

- (1) **General Information:** The individual option within the BSc Environmental and Conservation Sciences is a flexible program for students with a specific desire to design their own programs of study in consultation with an academic advisor. Details on the programs and academic advisors are available from the Student Services Office, 2-10 Agriculture-Forestry Centre. On consulting an academic advisor, a student submits a four-year plan outlining the intended courses for the program. The advisor submits the plan to the Program Planning Committee for endorsement and subsequent final approval by the Associate Dean (Academic Programs).
- (2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 3.

34.5.5 Land Remediation, Reclamation, and Conservation Concentration

- (1) **General Information:** This concentration combines the natural and applied sciences to understand and minimize the effects of anthropogenic activities on natural resources, with emphasis on soil, plant, and water components of the ecosystem. Graduates should be able to conduct and/or direct remediation strategies and conservation measures to maintain quality environments and to reclaim damaged ecosystems.

Graduates are prepared for careers in government and private industry as environmental scientists dealing with a broad range of issues related to soil and water pollution, land reclamation, and soil and water conservation. Graduates should also be able to contribute natural science expertise to environmental impact assessments and land-use planning.

- (2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 3.

34.5.6 Wildlife and Rangeland Conservation

- (1) **General Information:** The Wildlife and Rangeland Conservation Concentration introduces the theory and practice of managing soil-plant-animal relationships. Students have an understanding of multiple uses of wildlands and the integration of wildlife and landscape conservation with agriculture, forestry and other forms of natural resource use. This concentration deals with the means to increase productivity and diversity of wild plants and animals.

Graduates are prepared for careers with government agencies or private firms dealing with management of wildlife, rangelands, and forests.

- (2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 3.

34.5.7 Wildlife Restoration Concentration

- (1) **General Information:** This area of concentration provides opportunities for students interested in captive breeding, repatriation, and rehabilitation of wildlife, an increasingly important part of maintaining biological diversity. Students gain a background in nutrition, physiology, diseases, husbandry, and welfare to prepare them for careers with breeding programs for endangered species, rescue centres, wildlife management agencies, zoos, private reserves, and wildlife production enterprises. This background also prepares them for graduate studies in laboratory disciplines such as forensic science, conservation genetics, reproductive technologies, bioenergetics, and environmental physiology. If courses are properly sequenced and free electives are carefully selected, the concentration also meets the entrance requirements of the Western College of Veterinary Medicine for students who want careers as wildlife veterinarians (see §34.4.7).

- (2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 3.

Agriculture, Forestry, and Home Economics Chart 3 Required Courses and Sample Course Sequence for BSc Environmental and Conservation Sciences

Conservation Biology and Management (Refer to Notes 1, 2, 3, and 4)

	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. ECON 101 3. ECON 102 4. ENGL (★3) 5. Basic Life Sciences Options (★6) (See Note 1) 6. MATH 113 or 114 7. STAT 151 8. UNIV 100 (★2)	1. One of AG EC 316, BIOEN 200, MATH 120 2. AGFOR 204 3. Basic Social Sciences/Humanities (★3) (See Note 2)	1. One of AG EC 323, ORG A 301, 311, 321	
Free Electives (★12) in or outside the Faculty		1. Free Elective (★3)	1. Free Electives (★6)	1. Free Elective (★3)
Natural Sciences Common Core (★6)	1. Organic Chemistry, Inorganic Chemistry, or Physics (★6)			
Program Core (★27)		1. Basic Ecological Principles (★3) (See Note 3) 2. ENCS 201 3. ENCS 203 4. ENCS 204 5. ENCS 260 6. SOILS 210	1. INT D 365 or 369	1. CAPS 410 2. ENCS 473
Areas of Concentration (★39) Requirements (★12) Approved Program Electives (★27)			1. Approved Program Electives (★12) (See Note 4) 2. ENCS 462 3. ZOO 467	1. Approved Program Electives (★15) (See Note 4) 2. ENCS 464 3. ENCS 467

Environmental Economics and Policy (Refer to Notes 1, 2, 3, and 4)

	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. ECON 101 3. ECON 102 4. ENGL (★3) 5. Basic Life Sciences Options (★6) (See Note 1) 6. MATH 113 or 114 7. STAT 151 8. UNIV 100 (★2)	1. One of AG EC 316, BIOEN 200, MATH 120 (See Note 2) 2. AGFOR 204 3. Basic Social Sciences/Humanities (★3) (See Note 2)	1. One of AG EC 323, ORG A 301, 311, 321	
Free Electives (★12) in or outside the Faculty			1. Free Electives (★9)	1. Free Elective (★3)
Natural Sciences Common Core (★6)	1. Organic Chemistry, Inorganic Chemistry, or Physics (★6)			
Program Core (★27)		1. Basic Ecological Principles (★3) (See Note 3) 2. ENCS 201 3. ENCS 203 4. ENCS 204 5. ENCS 260 6. INT D 365 7. SOILS 210		1. CAPS 410 2. ENCS 473
Areas of Concentration (★39) Requirements (★12) Approved Program Electives (★27)			1. Approved Program Electives (★12) (See Note 4) 2. ENCS 352 or AG EC 435 3. INT D 369	1. AG EC 416 or ENCS 472 2. Approved Program Electives (★15) (See Note 4) 3. INT D 465

Notes

- (1) Basic Life Sciences: BIOL 107 and 108 recommended.
- (2) AG EC 310 or MATH 120 recommended Environmental Economics and Policy concentration.
- (3) Courses from the basic Social Sciences/Humanities may be selected from Rural Sociology, Family Studies, Human Ecology, Native Studies (except NS 100), Anthropology, Theology, Classics, Comparative and Other Literature, Earth and Atmospheric Sciences (Arts), History, Languages, Linguistics, Philosophy, Political Science, Psychology (Arts), Religious Studies, Sociology, and courses defined by the Faculty of Arts as Fine Arts.
- (4) BIOL 208 recommended.
- (5) Approved Program Electives must be selected with an academic advisor.

Agriculture, Forestry, and Home Economics Chart 3 Required Courses and Sample Course Sequence for BSc Environmental and Conservation Sciences (cont'd)

Independent Concentration (Refer to Notes 1, 2, 3, and 4)				
	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. ECON 101 3. ECON 102 4. ENGL (★3) 5. Basic Life Sciences Options (★6) (See Note 1) 6. MATH 113 or 114 7. STAT 151 8. UNIV 100 (★2)	1. One of AG EC 316, BIOEN 200 or MATH 120 2. AGFOR 204 3. Basic Social Sciences/Humanities (★3) (See Note 2)	1. One of AG EC 323, ORG A 301, 311, 321	
Free Electives (★12) in or outside the Faculty		1. Free Elective (★3)	1. Free Electives (★6)	1. Free Elective (★3)
Natural Sciences Common Core (★6)	1. Organic Chemistry, Inorganic Chemistry or Physics (★6)			
Program Core (★27)		1. Basic Ecological Principles (★3) (See Note 3) 2. ENCS 201 3. ENCS 203 4. ENCS 204 5. ENCS 260 6. SOILS 210	1. INT D 365 or 369	1. CAPS 410 2. ENCS 473
Areas of Concentration (★39) Requirements (★12)			1. Areas of Concentration (★6) (See Note 5) 2. Approved Program Electives (★12) (See Note 5)	1. Areas of Concentration (★6) (See Note 5) 2. Approved Program Electives (★15) (See Note 5)
Land Remediation, Reclamation and Conservation (Refer to Notes 1, 2, 3, and 4)				
	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. ECON 101 3. ECON 102 4. ENGL (★3) 5. Basic Life Sciences Options (★6) (See Note 1) 6. MATH 113 or 114 7. STAT 151 8. UNIV 100 (★2)	1. One of AG EC 316, BIOEN 200, MATH 120 2. AGFOR 204 3. Basic Social Sciences/Humanities (★3) (See Note 2)	1. One of AG EC 323, ORG A 301, 311, 321	
Free Electives (★12) in or outside the Faculty		1. Free Elective (★3)	1. Free Electives (★6)	1. Free Elective (★3)
Natural Sciences Common Core (★6)	1. Organic Chemistry, Inorganic Chemistry or Physics (★6)			
Program Core (★27)		1. Basic Ecological Principles (★3) (See Note 3) 2. ENCS 201 3. ENCS 203 4. ENCS 204 5. ENCS 260 6. SOILS 210	1. INT D 365 or 369	1. CAPS 410 2. ENCS 473
Areas of Concentration (★39) Requirements (★12) Approved Program Electives (★27)			1. Approved Program Electives (★12) (See Note 4) 2. One of SOILS 420, 430, 440, 450 3. ENCS 360	1. Approved Program Electives (★15) (See Note 4) 2. Two of ENCS 455, 475, REN R 475, 485
Notes				
(1) Basic Life Sciences: BIOL 107 and 108 recommended. (2) Courses from the basic Social Sciences/Humanities may be selected from Rural Sociology, Family Studies, Human Ecology, Native Studies (except NS 100), Anthropology, Theology, Classics, Comparative and Other Literature, Earth and Atmospheric Sciences (Arts), History, Languages, Linguistics, Philosophy, Political Science, Psychology (Arts), Religious Studies, Sociology, and courses defined by the Faculty of Arts as Fine Arts. (3) BIOL 208 recommended. (4) Approved Program Electives must be selected with an academic advisor. (5) Independent concentration is intended for clearly defined programs that do not fall within established concentrations. Area of Concentration (★12) and Approved Program Electives (★27) must be selected with an academic advisor and approved by the ENCS Program Committee.				

Agriculture, Forestry, and Home Economics Chart 3 Required Courses and Sample Course Sequence for BSc Environmental and Conservation Sciences (cont'd)

Wildlife and Rangeland Conservation (Refer to Notes 1, 2, 3, and 4)				
	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. ECON 101 3. ECON 102 4. ENGL (★3) 5. Basic Life Sciences Options (★6) (See Note 1) 6. MATH 113 or 114 7. STAT 151 8. UNIV 100 (★2)	1. One of AG EC 316, BIOEN 200, MATH 120 (★3) 2. AGFOR 204 3. Basic Social Sciences/Humanities (★3) (See Note 2)	1. One of AG EC 323, ORG A 301, 311, 321	
Free Electives (★12) in or outside the Faculty		1. Free Elective (★3)	1. Free Electives (★6)	1. Free Elective (★3)
Natural Sciences Common Core (★6)	1. Organic Chemistry, Inorganic Chemistry, or Physics (★6)			
Program Core (★27)		1. Basic Ecological Principles (★3) (See Note 3) 2. ENCS 201 3. ENCS 203 4. ENCS 204 5. ENCS 260 6. SOILS 210	1. INT D 365 or 369	1. CAPS 410 2. ENCS 473
Areas of Concentration (★39) Requirements (★12) Approved Program Electives (★27)			1. Approved Program Electives (★12) (See Note 4) 2. ENCS 356 3. ENCS 376	1. Approved Program Electives (★15) (See Note 4) 2. ENCS 406 3. One of ENCS 407, 464, 471, 476 or REN R 475
Wildlife Restoration (Refer to Notes 1, 2, 3, 4, and 5)				
	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. ECON 101 3. ECON 102 4. ENGL (★3) 5. Basic Life Sciences Options (★6) (See Note 1) 6. MATH 113 or 114 7. STAT 151 8. UNIV 100 (★2)	1. One of AG EC 316, BIOEN 200, MATH 120 2. AGFOR 204 3. Basic Social Sciences/Humanities (★3) (See Note 2)	1. One of AG EC 323, ORG A 301, 311, 321	
Free Electives (★12) in or outside the Faculty		1. Free Elective (★3)	1. Free Electives (★6)	1. Free Elective (★3)
Natural Sciences Common Core (★6)	1. Organic Chemistry, Inorganic Chemistry, or Physics (★6)			
Program Core (★27)		1. Basic Ecological Principles (★3) (See Note 3) 2. ENCS 201 3. ENCS 203 4. ENCS 204 5. ENCS 260 6. SOILS 210	1. INT D 365 or 369	1. CAPS 410 2. ENCS 473
Areas of Concentration (★39) Requirements (★12) Approved Program Electives (★27)			1. Approved Program Electives (★12) (See Note 4) 2. AN SC 311 3. NUTR 260	1. ENCS 464 2. AN SC 475 3. Approved Program Electives (★15) (See Note 4)
Notes				
(1) Basic Life Sciences BIOL 107 and 108 recommended.				
(2) Courses from the basic Social Sciences/Humanities may be selected from Rural Sociology, Family Studies, Human Ecology, Native Studies (except NS 100), Anthropology, Theology, Classics, Comparative and Other Literature, Earth and Atmospheric Sciences (Arts), History, Languages, Linguistics, Philosophy, Political Science, Psychology (Arts), Religious Studies, Sociology, and courses defined by the Faculty of Arts as Fine Arts.				
(3) BIOL 208 recommended.				
(4) Approved Program Electives must be selected with an academic advisor.				
(5) To be eligible for the Western College of Veterinary Medicine at the end of Year 2, CHEM 101/102; Physics ★3 and BIOL 207 must be taken as Free Electives; CHEM 161 and 163 must comprise the Natural Science Core; an additional ★3 of Physics should be taken instead of BIOEN 200; and BIOCH 203/205 or PL SC 331 and AN SC 391 must be taken as Approved Program Electives.				

34.6 BSc in Forest Business Management

34.6.1 General Information

(1) 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 forestry industry.

Students may choose one of two specializations: Forestry Business Management and Forest Resource Business Management. Both specializations provide the background for a career in forestry, or with government or private sector organizations. The Forestry Business Management specialization is intended to prepare students for careers as professional foresters and is for individuals planning careers focusing on forest practices, but that also demand specialized knowledge in business management practices. In contrast, the Forestry Resource Business Management specialization is more flexible and is for those individuals planning careers that focus on business management, but that also require special expertise related to forestry products and processes. Students graduating from this specialization are not automatically eligible to apply for Registered Professional Forester status. Graduates from both specializations 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 and Canadian economies.

(2) 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 for both specializations includes courses in areas such as ecology, engineering and conservation. Students choosing the Forestry Business Management specialization complete additional coursework in areas such as entomology, forestry engineering, forest fire management, plant physiology and silviculture. This specialization is intended to prepare students for careers as registered professional foresters and is for individuals for whom professional certification is important.

In contrast, the Forest Resource Business Management specialization is more flexible. This flexibility is provided through approved program electives and additional business electives. These electives allow students to emphasize certain aspects of forest resource management or business management within their program and is for individuals who desire a more open structure for their studies.

The program core for both specializations 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.

(3) **Required Courses and Sample Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 4.

Agriculture, Forestry, and Home Economics Chart 4 Required Courses and Sample Course Sequence for BSc Forest Business Management

Forestry Business Management (Refer to Notes 1 and 2)				
	Year 1 (★32)	Year 2 (★33)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★35)	1. AGFOR 204 2. BIOL 108 3. ECON 101 4. ECON 102 5. ENGL (★3) 6. MATH 113 or 114 7. REN R 220 8. UNIV 100 (★2)	1. AG EC 316 2. STAT 151	1. AG EC 416 2. ECON 281	
Free Electives (★6) in or outside the Faculty				1. Free Electives (★6)
Supporting Courses (★3)	1. CHEM 161			
Business Courses (★15)		1. ACCTG 311 2. ACCTG 322	1. FIN 301 2. MARK 301 3. ORG A 301	
Technical Courses (★60)	1. FOR 101 (★0) (See Note 1) 2. REN R 110 3. REN R 120	1. FOR 302 (★1) (See Note 1) 2. FOR 303 (★1) (See Note 1) 3. FOR 304 (★1) (See Note 1) 4. FOR 210 5. FOR 314 6. FOR 322 7. FOREN 201 8. REN R 321 9. SOILS 210	1. ENT 280 2. FOR 323 3. FOR 340 4. FOREC 345 5. FOREN 335	1. CAPS 423 2. ENCS 201 3. FOREC 473 4. FOREN 355 5. PL SC 385 6. REN R 430
Program Electives (★6) (See Note 2)				1. Approved Program Electives (★6) (See Note 2)
Notes				
(1) FOR 101 should be taken in the student's first year (or in the student's initial year in the BSc Forest Business Management program) just before the start of regular classes. Register for FOR 302, 303, 304 as Intercession courses. They must be taken in the spring between second and third years.				
(2) For students in the Forestry Business Management specialization, these Approved Program Electives must be 400-level courses in the Faculty of Business.				

Agriculture, Forestry, and Home Economics Chart 4 Required Courses and Sample Course Sequence for BSc Forest Business Management (cont'd)

Forest Resource Business Management (Refer to Notes 1 and 2)

	Year 1 (★32)	Year 2 (★33)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★35)	1. AGFOR 204 2. BIOL 108 3. ECON 101 4. ECON 102 5. ENGL (★3) 6. MATH 113 or 114 7. REN R 220 8. UNIV 100 (★2)	1. AG EC 316 2. STAT 151	1. AG EC 416 2. ECON 281	
Free Electives (★12) in or outside the Faculty		1. Free Elective (★3)		1. Free Electives (★9)
Supporting Courses (★3)	1. CHEM 161			
Business Courses (★15)		1. ACCTG 311 2. ACCTG 322	1. FIN 301 2. MARK 301 3. ORG A 301	
Technical Courses (★36)	1. FOR 101 (★0) (See Note 1) 2. REN R 110 3. REN R 120	1. FOR 302 (★1) (See Note 1) 2. FOR 303 (★1) (See Note 1) 3. FOR 304 (★1) (See Note 1) 4. FOREN 201 5. SOILS 210 6. FOR 210 7. FOR 322	1. FOREC 345 2. PL SC 385 or ENT 280	1. FOREC 473 2. CAPS 423 3. REN R 430
Program Electives (★24) (See Note 3)		1. Approved Program Elective (★3)	1. Approved Program Electives (★9)	1. Approved Program Electives (★12)

Notes

- (1) FOR 101 should be taken in the student's first year (or in the student's initial year in the BSc Forest Business Management program) just before the start of regular classes. Register for FOR 302, 303, 304 as Intersession courses. They must be taken in the spring between second and third years.
- (2) For students in the Forest Resource Business Management specialization, ★9 of Approved Program Electives must be courses in the Faculty of Business, of which at least ★6 must be at the 400-level.

34.6.2 Cooperative Education Option

- (1) 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.
- (2) In order to complete successfully the Cooperative Education option, students accepted into the option 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 pass/fail 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.

(3) Course Sequence

The required courses and sample course sequence for Cooperative Education students is the same as provided in Agriculture, Forestry, and Home Economics Chart 4. 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.

34.7 BSc in Forestry

34.7.1 General Information

- (1) The Faculty offers courses leading to the degree of Bachelor of Science in Forestry. Students may major in either Forest Management or Forest

Resources. The program consists of four years of University study with a yearly 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.

The field of Forestry embraces topics as diverse as economics, ecology, engineering and conservation. As a consequence, a broad range of career opportunities exists for graduates of the Forestry program. The Forest Management Major prepares students for careers as Registered Professional Foresters, whereas the Forest Resource Major's greater flexibility enables students to pursue specific interests in the field of Forestry.

- (2) The BSc Forestry program follows the Faculty Core and the Natural Sciences Core. The program core consists of ★33 including four one-week field camps (FOR 101, 302, 303, and 304). FOR 101 must be taken in the student's first year just before the start of regular classes, and FOR 302, 303, and 304 are taken in the spring between second and third years. Camp exercises provide training in technical aspects of Forestry, including forest mensuration, engineering, ecology, and silviculture.

All students must complete a Capstone course (CAPS 431) in Integrated Resources Management. This course is normally taken in the

final year and focuses on integrating concepts from various disciplines within the natural and social sciences (including Forest Policy and Natural Resource Economics) and their application to problems and challenges in forest resource management.

- (3) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 5.

34.7.2 Forest Management Major

- (1) **General Information:** This major focuses on forest management, which has been defined as "the protection, manipulation and use of the forest, assuring the viability of the living components as well as providing for the economic, social, cultural and spiritual needs of man."

Graduates from this major are eligible to become Registered Professional Foresters. The Forest Management Major is intended for persons interested in pursuing careers with government or industrial organizations or as consultants, and for whom professional certification is essential. Elective courses can be used to develop enrichment in a particular area, although students desiring more flexibility in course selection may want to consider the Forest Resources Major.

- (2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 5.

Agriculture, Forestry, and Home Economics Chart 5 Required Courses and Sample Course Sequence for BSc Forestry

Forest Management (Refer to Notes 1, 2, 3, and 4)				
	Year 1 (★32)	Year 2 (★33)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 204 2. BIOL 108 3. REN R 220 4. ENGL (★3) 5. MATH 113 or 114 6. ENCS 201 7. UNIV 100 (★2)	1. AG EC 316 or MATH 120 2. ECON 101 3. ECON 102 4. Basic Social Sciences/ Humanities (★3) (See Note 1) 5. STAT 151	1. One of AG EC 323; ORG A 301, 311, 321	
Free Electives (★12) in or outside the Faculty				1. Free Electives (★12)
Natural Sciences Common Core (★6)	1. ★6 in Organic Chemistry, Inorganic Chemistry, or Physics. CHEM 161 plus one of CHEM 101, 163; PHYS 100, 108. (CHEM 101 recommended.)			
Program Core (★36)	1. FOR 101 (★0) (See Note 2) 2. REN R 110 3. REN R 120	1. FOR 302 (★1) (See Note 2) 2. FOR 303 (★1) (See Note 2) 3. FOR 304 (★1) (See Note 2) 4. FOREN 201 5. SOILS 210 6. FOR 210	1. FOR 322 2. FOREC 345 3. PL SC 385 4. REN R 430	1. CAPS 431 (See Note 3) 2. FOREC 473 (See Note 3)
Major Requirements (★33) Requirements (★21) Approved Program Electives (★12)		1. FOR 314 2. REN R 321	1. ENT 280 2. FOR 323 3. FOR 340 4. FOREN 335	1. Approved Program Electives (★12) (See Note 4)
Notes				
(1) Courses from the basic Social Sciences/Humanities may be selected from Rural Sociology, Family Studies, Human Ecology, Native Studies (except NS 100), Anthropology, Theology, Classics, Comparative and Other Literature, Earth and Atmospheric Sciences (Arts), History, Languages, Linguistics, Philosophy, Political Science, Psychology (Arts), Religious Studies, Sociology, and courses defined by the Faculty of Arts as Fine Arts.				
(2) FOR 101 must be taken in the student's first year just before the start of regular classes. Register for FOR 302, 303, 304 as Intersession courses. They must be taken in the spring between second and third years.				
(3) FOREC 473 and CAPS 431 must be taken concurrently.				
(4) Approved Program Electives must be chosen in consultation with an academic advisor.				

Agriculture, Forestry, and Home Economics Chart 5 Required Courses and Sample Course Sequence for BSc Forestry (cont'd)

Forest Resources (Refer to Notes 1, 2, 3, and 4)				
	Year 1 (★32)	Year 2 (★33)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 204 2. BIOL 108 3. REN R 220 4. ENGL (★3) 5. MATH 113 or 114 6. ENCS 201 7. UNIV 100 (★2)	1. AG EC 316 or MATH 120 2. ECON 101 3. ECON 102 4. Basic Social Sciences/ Humanities (★3) (See Note 1) 5. STAT 151	1. One of AG EC 323; ORG A 301, 311, 321	
Free Electives (★12) in or outside the Faculty				1. Free Electives (★12)
Natural Sciences Common Core (★6)	1. ★6 in Organic Chemistry, Inorganic Chemistry, or Physics. CHEM 161 plus one of CHEM 101, 163; PHYS 100, 108. (CHEM 101 recommended.)			
Program Core (★36)	1. FOR 101 (★0) (See Note 2) 2. REN R 110 3. REN R 120	1. FOR 302 (★1) (See Note 2) 2. FOR 303 (★1) (See Note 2) 3. FOR 304 (★1) (See Note 2) 4. FOREN 201 5. SOILS 210 6. FOR 210	1. FOR 322 2. FOREC 345 3. PL SC 385 or ENT 280 4. REN R 430	1. CAPS 431 (See Note 3) 2. FOREC 473 (See Note 3)
Major Requirements (★33) Approved Program Electives (★33)		1. Approved Program Electives (★6) (See Note 4)	1. Approved Program Electives (★15) (See Note 4)	1. Approved Program Electives (★12) (See Note 4)
Notes				
(1) Courses from the basic Social Sciences/Humanities may be selected from Rural Sociology, Family Studies, Human Ecology, Native Studies (except NS 100), Anthropology, Theology, Classics, Comparative and Other Literature, Earth and Atmospheric Sciences (Arts), History, Languages, Linguistics, Philosophy, Political Science, Psychology (Arts), Religious Studies, Sociology, and courses defined by the Faculty of Arts as Fine Arts.				
(2) FOR 101 must be taken in the student's first year just before the start of regular classes. Register for FOR 302, 303, 304 as Intersession courses. They must be taken in the spring between second and third years.				
(3) FOREC 473 and CAPS 431 must be taken concurrently.				
(4) Approved Program Electives must be chosen in consultation with an academic advisor.				

34.7.3 Forest Resources Major

(1) **General Information:** This major is less prescribed than the Forest Management Major. It emphasizes forest resources, defined as "any physical or biological components, or cultural values, recognized within a forest." Nearly one third of the units of course weight are electives; this major is for those who prefer a more open program than the Forest Management Major.

Completing this major is appropriate for those who wish to pursue particular interests in forest resources or forest sciences, such as grazing, wildlife, hydrology, physiology, ecology, economics, soils, conservation, protection. Graduates are not eligible to become Registered Professional Foresters.

(2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 5.

34.8 BSc in Human Ecology

34.8.1 General Information

The Faculty offers a program leading to the Degree of Bachelor of Science in Human Ecology. Human Ecology is the interdisciplinary study of the human ecosystem: humans as social, physical, and biological beings in interaction with each other and with their physical, socio-cultural, esthetic, and biological environments, and with the material and human resources of these environments. Humans and their near environments are viewed as integrated wholes, mutually influencing each other. Human ecology views the near environment as a source of essential resources and as the setting for human behavior and development. Applied aspects of the program allow students to learn to apply knowledge and develop skills to meet the need of employers and the community. These include coursework in communication and in program planning, implementation, and evaluation. An important part of the program is the practicum (field placement) in the final year.

Three majors are offered within the Human Ecology program: Consumer Studies; Family Studies; and Textiles, Clothing and Culture. Graduates from each major meet the educational requirements for registration as a professional home economist in Alberta.

34.8.2 Consumer Studies Major

(1) **General Information:** The Consumer Studies major allows students to become familiar with various theoretical approaches to the study of consumer behavior and to the consideration of current consumer issues and policies.

The major enables students to gain a multidisciplinary understanding of how and why consumers behave the way they do, and how to influence their behavior through education, marketing, individual counselling, and public policy. Students learn how to apply their knowledge to the analysis and management/resolution of current issues and problems faced by Canadian consumers.

Through careful selection of electives, students may design programs that enable them to pursue careers in consumer education, consumer advocacy, consumer relations, merchandising, or financial counselling and planning.

(2) **Course Requirements and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 6.

34.8.3 Family Studies Major

(1) **General Information:** The Family Studies major is for students who want to pursue careers in the helping professions and/or want a concentrated study of families. Within this major, family issues are studied with a human ecological approach that addresses the personal, interpersonal, and environmental contexts of families. The primary focus is the integration of knowledge of family units and their environments with professional practice skills.

(2) **Course Requirements and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 6.

34.8.4 Textiles, Clothing and Culture

(1) **General Information:** The Textiles, Clothing and Culture major provides the opportunity to study textiles and clothing as part of material culture and as an important part of people's near environment. Human issues are addressed in a human ecological and global context. The social sciences, physical sciences, and humanities are applied to the study of people's most personal environment: their clothing and shelter. Through choice of suitable options, the program can be designed for a broad university education or as preparation for careers in education, business, extension, and cultural agencies in areas such as textile science, textile and apparel design, textile conservation and curatorship, or consumer affairs.

Students choosing this route should consult an academic advisor or the Student Services Office (2-10 Agriculture-Forestry Centre).

(2) **Course Requirements and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 6.

Agriculture, Forestry, and Home Economics Chart 6 Required Courses and Sample Course Sequence for BSc Human Ecology

Consumer Studies (Refer to Notes 1 and 2)				
	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★35)	1. AGFOR 100 2. ECON 101 3. ECON 102 4. ENGL 101 (★6) 5. ★6 chosen from BIOL 107, 108, 207, 208; CHEM 101, 102, 161, 163 6. UNIV 100 (★2)	1. AGFOR 204 or HECOL 259 2. SOC 210 or STAT 151 3. One of MARK 412, PHIL 265, SOC 315, NS 390, W ST 302	1. One of AG EC 323; ORG A 301, 311, 321	
Free Electives (★12) in or outside the Faculty		1. Free Elective (★3)	1. Free Electives (★6)	1. Free Elective (★3)
Social Sciences/Humanities Common Core (★12)	1. ★6 chosen from Social Sciences/Humanities (See Note 1)	1. ★3 at 200-level or above chosen from Social Sciences/Humanities (See Note 1)	1. ★3 at 200-level or above chosen from Social Sciences/Humanities (See Note 1)	
Program Core (★18)	1. HECOL 102	1. HECOL 238	1. HECOL 380	1. HECOL 480 2. HECOL 482 (★6)
Major Requirements (★45) Requirements (★24) Approved Program Electives (★21)		1. CONS 220 or MARK 422 2. FAM 110 3. TCC 150 or 151 4. Approved Program Elective (★3) (See Note 2)	1. CONS 330 2. CONS 340 3. MARK 301 4. Approved Program Electives (★6) (See Note 2)	1. CONS 420 or MARK 423 2. CONS 430 3. Approved Program Electives (★12) (See Note 2)
Family Studies (Refer to Notes 1 and 2)				
	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★35)	1. AGFOR 100 2. ECON 101 3. ECON 102 4. ENGL 101 5. ★6 chosen from BIOL 107, 108, 207, 208; CHEM 101, 102, 161, 163; ZOOL 260 6. UNIV 100 (★2)	1. AGFOR 204 or HECOL 259 2. SOC 210 or STAT 151	1. One of AG EC 323; ORG A 301, 311, 321 2. One of W ST 302; PHIL 265, 316, 375; SOC 315; NS 390	
Free Electives (★12) in or outside the Faculty		1. Free Elective (★3)	1. Free Elective (★3)	1. Free Electives (★6)
Social Sciences/Humanities Common Core (★12)	1. ★3 chosen from Social Sciences/ Humanities (See Note 1)	1. ★3 chosen from Social Sciences/Humanities (See Note 1) 2. ★6 at 200-level or above chosen from Social Sciences/Humanities (See Note 1)		
Program Core (★18)	1. HECOL 102	1. HECOL 238	1. HECOL 380	1. HECOL 480 2. HECOL 482 (★6)
Major Requirements (★45) Requirements (★24) Approved Program Electives (★21)	1. FAM 110	1. FAM 215 2. Approved Program Electives (★6) (See Note 2)	1. CONS 340 2. FAM 323 3. Approved Program Electives (★12) (See Note 2)	1. FAM 410 or 420 2. FAM 411 3. FAM 412 4. Approved Program Electives (★6) (See Note 2)
Notes				
(1) For Consumer Studies and Family Studies Majors, courses in the Social Sciences/Humanities Core can be chosen from the following areas: Agricultural Economics, Arts, Business, Education, Earth and Atmospheric Sciences (Arts), Native Studies, Physical Education and Recreation, and Rural Sociology.				
(2) Approved Program Electives must be chosen in consultation with an academic advisor. ★9 of all the Approved Program Electives must be chosen from CONS, FAM, HECOL, NU FS, NUTR, or TCC, or from an approved list of courses consistent with the Human Ecology program.				

Agriculture, Forestry, and Home Economics Chart 6 Required Courses and Sample Course Sequence for BSc Human Ecology (cont'd)

Textiles, Clothing and Culture (Refer to Notes 1, 2, 3 and 4)

	Year 1 (★32) (See Note 1)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★35)	1. AGFOR 100 2. ECON 101 3. ECON 102 4. ENGL 101 5. UNIV 100 (★2)	1. AGFOR 204 or HECOL 259 2. ★6 chosen from CHEM 101, 102, 161, 163; or courses in Biology, Botany, Genetics, Microbiology, Physics, or Zoology 3. STAT 151 or SOC 210	1. One of AG EC 323; ORG A 301, 311, 321; CONS 340 2. One of W ST 302; INT D 498; PHIL 265, 316; SOC 315; MARK 412; NS 390	
Free Electives (★12) in or outside the Faculty			1. Free Elective (★3)	1. Free Electives (★9)
Social Sciences/Humanities Common Core (★12)	1. ★9 chosen from Social Sciences/Humanities (See Note 2)	1. ★3 chosen from Social Sciences/Humanities (See Note 2)		
Program Core (★15–18)	1. HECOL 102	1. HECOL 238	1. HECOL 380	1. HECOL 480 2. HECOL 481 (★3) or 482 (★6) (See Note 3)
Major Requirements (★45–48) Requirements (★9) Approved TCC Electives (★24–27) (See Note 3) Approved Program Electives (★12)	1. TCC 150	1. TCC 270 2. Approved TCC Electives (★6) 3. Approved Program Elective (★3) (See Note 4)	1. Approved TCC Electives (★6) 2. Approved TCC Electives (★6) 300-level or above 3. Approved Program Electives (★6) (See Note 4)	1. TCC 467 2. Approved TCC Elective (★3) 300-level or above 3. Approved TCC Electives (★3–★6) 400- or 500-level (See Note 3) 4. Approved Program Elective (★3) 300-level or above (See Note 4)

Notes

- (1) Students are advised to consider the prerequisites for advanced courses when selecting courses.
- (2) For Textiles, Clothing and Culture Majors, courses in the Social Sciences/Humanities Core can be chosen from SOC 100, 101, 102; ECON 281; PSYCO 104, 105; ANTHR 101, 307; ART H 101, 102, 209; ART 131; or courses in Agricultural Economics, Canadian Studies, Earth and Atmospheric Sciences (Arts), Philosophy, Rural Sociology, and Women's Studies.
- (3) Students who take HECOL 482 should select only ★24 of Approved TCC Electives under Major Requirements.
- (4) Approved Program Electives must be chosen in consultation with an academic advisor.

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 ★152 leading to the degrees of Bachelor of Science in Human Ecology and Bachelor of Education. Beginning in the 1998/99 Winter Session, 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 ★92 applicable to the BSc in Human Ecology/BEEd program has been successfully completed.

Notes

- (1) Students in Year 3 must submit a Readmission/On-Campus Transfer application form. Students in Year 3 who have completed less than

★92 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 and Sample Course Sequence

The Combined BSc in Human Ecology/BEEd degree program course sequence follows. Courses must be carefully sequenced throughout the five years; therefore, students should plan their programs carefully with help from academic advisors from both Faculties. Refer to Agriculture, Forestry, and Home Economics Chart 7.

Agriculture, Forestry, and Home Economics Chart 7 Required Courses and Sample Course Sequence for BSc Human Ecology/BEd Combined

BSc/BEd Combined (Refer to Note)				
	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Years 4 and 5 (★60)
Agriculture, Forestry, and Home Economics Common Core (★32)	1. AGFOR 100 2. ★6 CHEM 161, 163 or ★6 BIOL 107, 108 3. ECON 101, 102 4. ENGL 101 5. UNIV 100 (★2)	1. AGFOR 204 or HECOL 259 2. SOC 210 or STAT 151		1. One of INT D 498; MARK 412; PHIL 265, 316, 375; SOC 315, 417, 418, 419, 443; W ST 301, 302
Minor (★18) (See Note)			1. Minor (★9)	1. Minor (★9)
Human Ecology Core (★6)	1. HECOL 102	1. HECOL 238		
Major Requirements (★48)	1. FAM 110 2. TCC 150	1. CONS 220 2. FAM 222 3. HE ED 110 4. NUTR 100 5. TCC 254 6. TCC 270	1. CONS 330 or 340 2. FAM 215 3. NU FS 100, 372, or 373 4. TCC 350 or Computing (★3) 5. ★6 CONS, FAM, HECOL, NU FS, or TCC (★3 at 300-level or above)	1. ★6 CONS, FAM, NU FS, or TCC (at 400-level or above)
Electives (★3)				1. Open Option (★3)
BEd Core (★45)		1. EDFX 200	1. EDPY 200	1. EDFX 350 2. EDPS 310 3. EDPY 301 4. EDPY 303 5. EDSE 3XX (Minor) 6. EDFX 450 (★6) 7. EDFX 451 8. EDSE 432 9. EDSE 433 10. EDPS 410 11. ED option (★6)
Note: For selection of courses for a minor, see Education Chart 3.				

34.10 BSc in Nutrition and Food Sciences

34.10.1 General Information

(1) The Faculty offers courses leading to the degree of Bachelor of Science in Nutrition and Food Sciences. Three majors are offered: Food Science and Technology, Foods and Nutrition, and Nutrition.

The BSc in Nutrition and Food Sciences follows the Faculty Core and the Natural Sciences Core listed in Agriculture, Forestry, and Home Economics Chart 8. The program core and major requirements (Agriculture, Forestry, and Home Economics Chart 8) extend these common Faculty components with fundamental and advanced nutrition and food science courses. The three majors in the degree program are built on a common degree core, and students may readily change majors during the first two years of their program. Before their second year, students should develop their program of study in consultation with an academic advisor.

(2) 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).

Students from each of the three majors may select courses enabling them to apply for entry into a 12-month post-degree dietetic internship approved by the Dietitians of Canada. Students must consult an academic advisor during their second year to develop a program of study to obtain eligibility for approved General, Clinical, Administrative, and Community Nutrition Internships. Students may also apply for the departments'

Coordinated Dietetics Program (CDP), an alternative to the traditional 12-month dietetic internship. In the CDP, academic terms alternate with internship terms in cooperation with health care facilities throughout Alberta; a degree and internship can normally be completed in 4.5 years and the individual is eligible for membership in the Dietitians of Canada. Applications to the CDP are accepted during the second academic year.

Dietitians are employed in health care institutions, industry, government services, retail food services, teaching, community clinics, public relations, the media, and private practice.

Students in the Foods and Nutrition and Nutrition Majors can meet the educational requirements for registration as professional home economists with appropriate electives in Human Ecology.

34.10.2 Food Science and Technology Major

(1) **General Information:** 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 or product 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 chain.

(2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 8.

Agriculture, Forestry, and Home Economics Chart 8 Required Courses and Sample Course Sequence for BSc Nutrition and Food Science

Food Science and Technology (Refer to Note 1)

	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. AGFOR 204 3. BIOL 107 4. ENGL (★3) 5. MATH 113 or 114 6. MATH 115 7. UNIV 100 (★2)	1. BIOCH 203, 220, or PL SC 331 2. STAT 151	1. ECON 101 2. ECON 102 3. Basic Social Sciences/ Humanities (★3) (See Note 1)	1. One of AG EC 323, ORG A 301, 311, 321
Free Electives (★12) in or outside the Faculty			1. Free Electives (★6)	1. Free Electives (★6)
Natural Sciences Common Core (★6)	1. CHEM 101 and 102			
Program Core (★15)	1. CHEM 161 and 163	1. NUTR 303	1. NU FS 361	1. CAPS 440
Major Requirements (★51) Requirements (★30) Approved Program Electives (★21)		1. CHEM 211 and 213 2. NU FS 283 3. PHYS 100 or 108 4. NU FS 372 5. NU FS 374 6. BIOL 108	1. NU FS 312 2. NU FS 353 3. NU FS 454 4. Approved Program Elective (★3)	1. Approved Program Electives (★18)

Foods and Nutrition (Refer to Notes 1 and 2)

	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. BIOL 107 3. ECON 101 4. ECON 102 5. ENGL (★3) 6. MATH 113 or 114 7. UNIV 100 (★2)	1. BIOCH 203, 220, or PL SC 331 2. CMPT 101 or 114 3. Basic Social Sciences/ Humanities (★3) (See Note 1) 4. STAT 151 5. AGFOR 204		1. One of AG EC 323, ORG A 301, 311, 321
Free Electives (★12) in or outside the Faculty			1. Free Electives (★6)	1. Free Electives (★6)
Natural Sciences Common Core (★6)	1. CHEM 101 and 102			
Program Core (★15)	1. CHEM 161 and 163	1. NUTR 301 or 303 (See Note 2)	1. NU FS 363	1. CAPS 440
Major Requirements (★51) Requirements (★27) Approved Program Electives (★24)		1. NU FS 323 2. NU FS 372 or 373 (See Note 2) 3. NU FS 374 4. AN SC 391 or BIOCH 205	1. NUTR 302 2. NU FS 468 3. PHYS 252 (★6) 4. Approved Program Electives (★9)	1. NU FS 461 2. Approved Program Electives (★15)

Nutrition (Refer to Note 1)

	Year 1 (★32)	Year 2 (★30)	Year 3 (★30)	Year 4 (★30)
Faculty Common Core (★38)	1. AGFOR 100 2. AGFOR 204 3. BIOL 107 4. ENGL (★3) 5. MATH 113 or 114 6. UNIV 100 (★2)	1. BIOCH 203, 220 or PL SC 331 2. CMPT 101 or 114 3. ECON 101 4. STAT 151	1. ECON 102 2. Basic Social Sciences/ Humanities (★3) (See Note 1)	1. One of AG EC 323, ORG A 301, 311, 321
Free Electives (★12) in or outside the Faculty			1. Free Elective (★3)	1. Free Electives (★9)
Natural Sciences Common Core (★6)	1. CHEM 101 and 102			
Program Core (★15)	1. CHEM 161 and 163	1. NU FS 361 or 363 2. NUTR 301		1. CAPS 440
Major Requirements (★51) Requirements (★27) Approved Program Electives (★24)	1. BIOL 207	1. AN SC 310 and 311; or PHYS 210; or ZOO 241 and 242 2. AN SC 391 or BIOCH 205 3. NU FS 283 or 323 or 373	1. NUTR 302 2. ★9 from AN SC 461; BIOCH 410; NUTR 365, 410; NU FS 452, 468, 476, 477, 478, 479 3. Approved Program Electives (★9)	1. Approved Program Electives (★15)

Notes

- (1) Courses from the basic Social Sciences/Humanities may be selected from Rural Sociology, Family Studies, Human Ecology, Native Studies (except NS 100), Anthropology, Theology, Classics, Comparative and Other Literature, Earth and Atmospheric Sciences (Arts), History, Languages, Linguistics, Philosophy, Political Science, Psychology (Arts), Religious Studies, Sociology and courses defined by the Faculty of Arts as Fine Arts.
- (2) Students in the Foods and Nutrition Major who select NUTR 301 must take NU FS 373, whereas those who select NUTR 303 must take NU FS 372.

34.10.3 Foods and Nutrition Major

- (1) **General Information:** This major builds on a strong background in basic sciences and emphasizes two fundamental areas: (a) food quality (sensory, physical, chemical, nutritional, safety, and sociocultural/psychological aspects); and (b) human nutrition focusing on the relationships of dietary components and dietary patterns to health and disease. This foods and human nutrition emphasis is integrated with knowledge of management of quality/quantity food service operations, and the behavioral and social sciences.

Graduates of this major are suited for food industry or government positions requiring expertise in the interrelationships of food, human nutrition, and its application to people, as well as careers in health sciences, education, and private practice.

- (2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 8.

34.10.4 Nutrition Major

- (1) **General Information:** 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 health sciences, 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.

- (2) **Required Courses and Sample Course Sequence:** Refer to Agriculture, Forestry, and Home Economics Chart 8.

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)
 Animal Science (AN SC)
 Bioresource Engineering (BIOEN)
 Capstone Course (CAPS)
 Consumer Studies (CONS)
 Environmental and Conservation Sciences (ENCS)
 Family Studies (FAM)
 Forest Economics (FOREC)
 Forest Engineering (FOREN)
 Forest Science (FOR)
 Human Ecology (HECOL)
 Interdisciplinary Courses (INT D)
 Nutrition (NUTR)
 Nutrition and Food Sciences (NU FS)
 Plant Science (PL SC)
 Renewable Resources (REN R)
 Rural Sociology (R SOC)
 Soil Science (SOILS)
 Textiles, Clothing, and Culture (TCC)
 University (UNIV)