## Course Changes for the Faculty of ALES
### AGRICULTURAL, FOOD AND NUTRITIONAL SCIENCE
#### 2014/15 Calendar Changes

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<tr>
<th>Current (2013/14) Calendar Entry</th>
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<tbody>
<tr>
<td><strong>New Course</strong></td>
<td>NU FS 250 Applied Food Theory</td>
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<tr>
<td></td>
<td>*3 (fi 6) (first term, 0-0-3). Practical application of food theory to household food preparation issues.</td>
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<tr>
<td><strong>Proposed by:</strong> H. Bates, Director, Integrated Dietetic Internship</td>
<td><strong>Rationale for Change:</strong> New course created to accommodate the Dietetic Specialization proposed in the BSc Nutrition and Food Science degree program.</td>
</tr>
<tr>
<td><strong>New Course</strong></td>
<td>NUTR 201 Role of the Dietitian in the Canadian Health Care System</td>
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<td></td>
<td>*3 (fi 6) (second term, 3-0-0). This course introduces students to the profession of dietetics and its position within the Canadian health care system. Topics covered include: history of dietetics; the structure of the health care system in Canada; roles of the Registered Dietitian, concepts of dietetic practice and jurisprudence for Registered Dietitians.</td>
</tr>
<tr>
<td><strong>Proposed by:</strong> H. Bates, Director, Integrated Dietetic Internship</td>
<td><strong>Rationale for Change:</strong> New course created to accommodate the Dietetic Specialization proposed in the BSc Nutrition and Food Science degree program.</td>
</tr>
<tr>
<td><strong>New Course</strong></td>
<td>NUTR 482 Introduction to Dietetic Practice</td>
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<tr>
<td></td>
<td>*3 (fi 6) (either, 3-0-0). Lectures and discussion to improve readiness of students to work independently in the development of professional practice skills in dietetics. Only open to students in the BSc Nutrition and Food Science, Dietetics Specialization Program. Required before placement in NUTR 483, 484, 485, 486, 487 and 488. Prerequisites: NU FS 223 and NUTR 468.</td>
</tr>
<tr>
<td><strong>Proposed by:</strong> H. Bates, Director, Integrated Dietetic Internship</td>
<td><strong>Rationale for Change:</strong> Course amended to accommodate the Dietetic Specialization proposed in the BSc Nutrition and Food Science degree program.</td>
</tr>
<tr>
<td><strong>New Course</strong></td>
<td>NUTR 483 Introductory Professional Practice In Clinical Dietetics</td>
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<tr>
<td></td>
<td>*3 (fi 6) (either, 4 weeks). Practical experience in provision of nutrition care, focusing on basic skills of assessment, planning, implementation and evaluation. Continuing care agencies, rural health centres and acute care hospitals. Students may take this course simultaneously with INT D 411. Only open to students in the BSc Nutrition and Food Science, Dietetics Specialization Program. Prerequisites: NU FS 223, NUTR 466, and 468.</td>
</tr>
<tr>
<td><strong>Proposed by:</strong> H. Bates, Director, Integrated Dietetic Internship</td>
<td><strong>Rationale for Change:</strong> Practicum course amended to accommodate the Dietetic Specialization proposed in the BSc Nutrition and Food Science degree program.</td>
</tr>
<tr>
<td><strong>New Course</strong></td>
<td>NUTR 484: Professional Practice In Community Nutrition</td>
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<td></td>
<td>*4.5 (fi 9) (either, 6 weeks). Practical experience in assessing needs; program planning; implementation; and evaluation in a variety of community settings. Only open</td>
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### Current (2013/14) Calendar Entry

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<tr>
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<tr>
<td>to students in the BSc Nutrition and Food Science, Dietetics Specialization Program. Prerequisites: NU FS 223, 377 and NUTR 482.</td>
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</tbody>
</table>

**Proposed by:** H. Bates, Director, Integrated Dietetic Internship  
**Rationale for Change:** Practicum course amended to accommodate the Dietetic Specialization proposed in the BSc Nutrition and Food Science degree program.

### New Course

- **Course:** NUTR 485: Professional Practice In Community Nutrition II  
  - *4.5 (fi 9) (either, 6 weeks). This course builds on NUTR 470 to enable students to consolidate skills and competency in assessing needs; program planning; implementation; and evaluation in a variety of community settings. Only open to students in the BSc Nutrition and Food Science, Dietetics Specialization Program. Prerequisite: NUTR 484. |

**Proposed by:** H. Bates, Director, Integrated Dietetic Internship  
**Rationale for Change:** Practicum course amended to accommodate the Dietetic Specialization proposed in the BSc Nutrition and Food Science degree program.

### New Course

- **Course:** NUTR 486: Professional Practice In Foodservice and Management I  
  - *4.5 (fi 9) (either, 6 weeks). Practical experience in assessing; process planning and implementation; and evaluation of foodservice and management operations in a variety of settings. Only open to students in the BSc Nutrition and Food Science, Dietetics Specialization Program. Prerequisites: (NU FS 363 or 361), NU FS 461, ACCTG 300, SMO 200 and 311. |

**Proposed by:** H. Bates, Director, Integrated Dietetic Internship  
**Rationale for Change:** Practicum course amended to accommodate the Dietetic Specialization proposed in the BSc Nutrition and Food Science degree program.

### New Course

- **Course:** NUTR 487: Professional Practice In Foodservice and Management II  
  - *4.5 (fi 9) (either, 6 weeks). This course builds on NUTR 472 to enable students to consolidate skills and competency in assessing; process planning and implementation; and evaluation of foodservice and management operations in a variety of settings. Only open to students in the BSc Nutrition and Food Science, Dietetics Specialization Program. Prerequisites: NUTR 486. |

**Proposed by:** H. Bates, Director, Integrated Dietetic Internship  
**Rationale for Change:** Practicum course created to accommodate the Dietetic Specialization proposed in the BSc Nutrition and Food Science degree program.

### New Course

- **Course:** NUTR 488: Professional Practice In Clinical Dietetics  
  - *9 (fi 18) (either, 15 weeks). Practical experience in a variety of acute, continuing care and ambulatory care settings. The student is expected to demonstrate professional competencies in assessment, planning, |
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<td>development and monitoring of nutrition care plans for patients and clients. Only open to students in the BSc Nutrition and Food Science, Dietetics Specialization Program. Prerequisites: NUTR 476, 482 and 483.</td>
<td></td>
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</table>

*Proposed by:* H. Bates, Director, Integrated Dietetic Internship  
*Rationale for Change:* Practicum course created to accommodate the Dietetic Specialization proposed in the BSc Nutrition and Food Science degree program.
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<tr>
<td><strong>AREC 214 Applications of Linear Models to Food, Resources and the Environment</strong>&lt;br&gt; *3 (fi 6) (either term, 3-0-2). An introduction to methods and tools that are used to solve linear quantitative problems. Emphasis is on the use of these techniques for economic analysis in applications related to agriculture, food, forestry, and the environment. Classroom examples, laboratory assignments and computer tutorials are provided to give practice in applying quantitative tools to empirical problems.**&lt;br&gt; Prerequisite: Pure Mathematics 30 or Mathematics 30-1.&lt;br&gt;Credit will be granted for only one of AREC 214 and AG EC 316.</td>
<td><strong>AREC 214 Applications of Linear Models to Food, Resources and the Environment</strong>&lt;br&gt; *3 (fi 6) (either term, 3-0-2). An introduction to methods and tools that are used to solve linear quantitative problems. Emphasis is on the use of these techniques for economic analysis in applications related to agriculture, food, forestry, and the environment. Classroom examples, laboratory assignments and computer tutorials are provided to give practice in applying quantitative tools to empirical problems.**&lt;br&gt; Prerequisite: Mathematics 30-1.&lt;br&gt;Credit will be granted for only one of AREC 214 and AG EC 316.</td>
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### Course Changes for the Faculty of ALES

**ENCS Program**  
**2014/15 Calendar Changes**

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<th>Current (2013/14) Calendar Entry</th>
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<tr>
<td><strong>34.8 BSc in Environmental and Conservation Sciences</strong></td>
<td><strong>34.8 BSc in Environmental and Conservation Sciences</strong></td>
</tr>
<tr>
<td><strong>34.8.1 General Information</strong></td>
<td><strong>34.8.1 General Information</strong></td>
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<tr>
<td>(1) The BSc in Environmental and Conservation Sciences program is for students interested in the natural world, its management, conservation and ecological perspectives. Graduates have a strong background in basic and applied sciences. They are able to evaluate effects of human land use on plant, soil, water, animal, and human resources and to assess and facilitate conservation, reclamation and remediation measures for natural, managed and damaged ecosystems. They are not only reactive but also agents for positive, responsible stewardship and change. Graduates understand the role that social, economic, and political forces play in natural resource management. They integrate knowledge from various disciplines and are cognizant of the various philosophies about the role of humans in the environment. They are able to employ balanced judgment based on a foundation of environmental ethics and philosophy, and suggest appropriate use of natural resources. The BSc in Environmental and Conservation Sciences emphasizes integrating natural science, management, and social science as related to environmental issues. It offers a program of study emphasizing applied problem solving and environmental management. Employment opportunities include career paths with government or non-government agencies (such as private corporations and private consulting) concerned with forestry, parks, nature reserves, nature centres, environmental education, recreational areas, wildlife management, environmental policy analysis, rangeland management, land reclamation, environmental sociology, ecotourism, environmental planning, environmental assessment and environmental management. Students are also well prepared for entry into graduate studies.</td>
<td>(1) The BSc in Environmental and Conservation Sciences program is for students interested in the natural world, its management, conservation and ecological perspectives. Graduates have a strong background in basic and applied sciences. They are able to evaluate effects of human land use on plant, soil, water, animal, and human resources and to assess and facilitate conservation, reclamation and remediation measures for natural, managed and damaged ecosystems. They are not only reactive but also agents for positive, responsible stewardship and change. Graduates understand the role that social, economic, and political forces play in natural resource management. They integrate knowledge from various disciplines and are cognizant of the various philosophies about the role of humans in the environment. They are able to employ balanced judgment based on a foundation of environmental ethics and philosophy, and suggest appropriate use of natural resources. The BSc in Environmental and Conservation Sciences emphasizes integrating natural science, management, and social science as related to environmental issues. It offers a program of study emphasizing applied problem solving and environmental management. Employment opportunities include career paths with government or non-government agencies (such as private corporations and private consulting) concerned with forestry, parks, nature reserves, nature centres, environmental education, recreational areas, wildlife management, environmental policy analysis, rangeland management, land reclamation, environmental sociology, ecotourism, environmental planning, environmental assessment and environmental management. Students are also well prepared for entry into graduate studies.</td>
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<tr>
<td>Graduates would qualify to apply to be Articling</td>
<td>With appropriate course selection, graduates may...</td>
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<tr>
<td>Current (2013/14) Calendar Entry</td>
<td>Proposed (2014/15) Calendar Entry</td>
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<tr>
<td>Agrologists which can lead to status as Professional Agrologists.</td>
<td>qualify for Professional Agrologist or Professional Biologist designations. Students are advised to select their courses in consultation with an academic advisor early in their program to be sure they can meet these professional organization requirements.</td>
</tr>
<tr>
<td>(2) The BSc in Environmental and Conservation Sciences program requires coursework in basic sciences, environmental sciences, resource assessment, environmental philosophy, environmental policy, and natural resource/environmental economics. Students must choose a major by their second year of study. Students should consult with the Undergraduate Student Services Office (231 GSB) about selection of Approved Program Electives.</td>
<td>(2) The BSc in Environmental and Conservation Sciences program requires coursework in basic sciences, environmental sciences, resource assessment, environmental philosophy, environmental policy, and natural resource/environmental economics. Students must choose a major by their second year of study. Students should consult with the Undergraduate Student Services Office (231 GSB) about selection of Approved Program Electives.</td>
</tr>
<tr>
<td>(3) Requirements of the BSc in Environmental and Conservation Sciences Program Core (*84)</td>
<td>(3) Requirements of the BSc in Environmental and Conservation Sciences Program Core (*69)</td>
</tr>
<tr>
<td>a. *6 ENGL: (two of ENGL 121, 122, 123, 124 or 125), or ALES 204 and *3 ENGL</td>
<td>a. *6 ENGL: (two of ENGL 121, 122, 123, 124 or 125), or *3 ENGL and ALES 204 or WRS</td>
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<tr>
<td>b. AREC 214, 323, and 365</td>
<td>b. AREC 365</td>
</tr>
<tr>
<td>c. ECON 101 and 102</td>
<td>c. ECON 101</td>
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<tr>
<td>d. STAT 151</td>
<td>d. STAT 151</td>
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<tr>
<td>e. BIOL 108 and 208</td>
<td>e. BIOL 108 and 208</td>
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<tr>
<td>f. (CHEM 101 and 261) or (CHEM 164 and 263)</td>
<td>f. CHEM 101</td>
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<td>g. REN R 205, 260, 307, and 473</td>
<td>g. REN R 110, 201, 210, 205, 260, 307, and 350</td>
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<tr>
<td>h. REN R 299 (field school) (See Note 1)</td>
<td>h. REN R 299 (field school) (See Note 1)</td>
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<tr>
<td>i. MATH 113 or 114</td>
<td>i. MATH 113 or 114</td>
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<tr>
<td>j. REN R 110 and 250</td>
<td>k. R SOC 375</td>
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<td>l. REN R 240</td>
<td>l. ENCS 473</td>
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<td>m. PL SC 221</td>
<td>m. PL SC 221</td>
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<tr>
<td>n. *9 Free Electives</td>
<td>n. *9 Free Electives [see §34.1(6) and Notes]</td>
</tr>
<tr>
<td>o. *3 Capstone Course [see §34.1(6) and Notes]</td>
<td>Notes (1)REN R 299 is a spring course normally taken between second and third year. (2) See §34.1 for program planning and structure details. (3) All majors in the ENCS program have a minimum *3 capstone. See specific majors for more details.</td>
</tr>
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</table>

**Notes**

(1)REN R 299 is normally taken in the spring between second and third year.

(2) See §34.1 for program planning and structure details.

Rationale for change:

Revision and clarification was made to the statements on professional designation in the description of the ENCS program.

Five courses were removed and two added to the ENCS core resulting in a *60 core of common courses to all majors (50% of all programs) plus *9 Free Electives totaling *69.

Note that the *3 Capstone statement was removed from the ENCS core statement since it now varies between majors from *3 to *6. To recognize that this program has a capstone, but not specifying a credit level here, we have added a note to inform students of the presence of a *3 to *6 capstone course and to
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<tr>
<td>Removed from the program core are the following five courses:</td>
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<tr>
<td>1. <strong>ECON 102</strong> (Introduction to Macroeconomics),</td>
<td></td>
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<tr>
<td>2. <strong>CHEM 261/263</strong> (Organic Chemistry),</td>
<td></td>
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<tr>
<td>3. <strong>AREC 214</strong> (Applications of Linear Models to Food, Resources and the Environment),</td>
<td></td>
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<tr>
<td>4. <strong>AREC 323</strong> (Introduction to Management for Agri-Food, Environmental, and Forestry Businesses), and</td>
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<tr>
<td>5. <strong>RSOC 355</strong> (Principles of Rural Sociology).</td>
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<tr>
<td>Rationale for removal of courses, but not necessarily from individual ENCS majors (many are retained in at least one major):</td>
<td></td>
</tr>
<tr>
<td>1. <strong>ECON 102</strong>: It was left to individual majors to the inclusion of Macroeconomics in which only the Environmental Economics &amp; Policy major retained it. Moreover, it was felt that other applied numeracy topics like <strong>REN R 201</strong> (Introduction to Geomatic Techniques in Natural Resource Management) would better serve all ENCS students as this topic (GIS) is now expected by employers and further provides a foundation for understanding how to measure natural resources and for use in third and fourth year courses using spatial analytical methods. See details below for the addition of the REN R 201 course to the ENCS core.</td>
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</tr>
<tr>
<td>2. <strong>CHEM 261/263</strong>: Organic chemistry is not typically used in the majority of ENCS majors and was therefore removed from the ENCS core with individual majors deciding on its inclusion. Land Reclamation has retained this course for their major given their focus on remediation that necessitates more chemistry.</td>
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<tr>
<td>3. <strong>AREC 214</strong>: It was left to individual majors on whether to include this course. A couple of majors have it retained it for their major core including the Conservation Biology and Environmental Economics &amp; Policy majors.</td>
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<tr>
<td>4. <strong>AREC 323</strong>: This course was removed from the ENCS core. Likewise, no individual major retained it for their core major courses.</td>
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<tr>
<td>5. <strong>RSOC 355</strong>: Removal of this course is being offset by the addition to the ENCS core of <strong>RSOC 375</strong> (Public Participation and Conflict Resolution). In addition, a few majors have retained (added) R SOC 355 back into their program as their major core. This includes the Environmental Economics &amp; Policy, Human Dimensions, and Wildlife and Rangeland Resources Management majors.</td>
<td></td>
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<tr>
<td>Added to program are the following two courses:</td>
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</tr>
<tr>
<td>1. <strong>REN R 201</strong> (Introduction to Geomatic Techniques in Natural Resource Management) and</td>
<td></td>
</tr>
<tr>
<td>2. <strong>RSOC 375</strong> (Public Participation and Conflict Resolution).</td>
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<tr>
<td>Rationale for addition of courses to all ENCS majors:</td>
<td></td>
</tr>
<tr>
<td>1. <strong>REN R 201</strong> (Introduction to Geomatic Techniques in Natural Resource Management) is a natural resource geomatics course (i.e., GIS, remote sensing, GPS) that provides the fundamental background for understanding how to measure natural resources which are inherently spatial in nature. This course provides the techniques and numeracy skills needed for some upper level courses in some ENCS majors. It is also consistently asked for in students by employers.</td>
<td></td>
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<tr>
<td>2. <strong>RSOC 375</strong> (Public Participation and Conflict Resolution) will be a new course added to the calendar and effectively replace <strong>RSOC 355</strong> in the ENCS core. The course covers the anatomy of environmental and resource management conflict examined through a lens of sociological theory and deliberative democracy (conflict in energy production, forestry, conservation and protected areas management, social practices and strategies for conflict resolution are explored. This course is new and will be submitted for a future calendar addition.</td>
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Change *81 to *69 to reflect the changes in core ENCS courses. With the reduction in common credits, more credits are now available to individual majors, while still maintaining more than 50% overlap among all courses taken in all ENCS majors.

Specific changes to the lettered items above, include:
a. **Add or WRS 101 (Exploring Writing) to the list of *6 English options. Written communication continues to be a challenge for students. To address this, we have provided an option for students to take a Writing Studies course.**

b. **Remove AREC 214 and AREC 323 as explained above. Note that AREC 214 was retained in two majors (Conservation Biology and Environmental Economics & Policy), while no major retained AREC 323 (see sections below for individual majors).**

c. **Remove ECON 102 as explained above. Note that ECON 102 was retained in the Environmental Economics & Policy major.**

d. Remove CHEM 261 or CHEM 164 and 263 (keep CHEM 101). Note that the Land Reclamation major has retained organic chemistry as explained above and in the section for the major.

g. **Remove REN R 473. This is an error. REN R 473 should be ENCS 473 as the course name did not change. ENCS 473 is now in letter "l" explanation.**

j. **Remove REN R 110 and 210. This is now listed under the REN R list of courses in what is now letter “g”.**

k. **Change R SOC 355 to R SOC 375.**

l. **Add ENCS 473 which was mistakenly labeled REN R 473 under letter “g” (it never changed to a REN R course).**

m. **Add notes at the end of the Free Elective statement.**

n. **Remove “o” from original listing that described capstone course of *3. We are now describing the capstone principle as a note and more specifically describing it in each major.**

*Revise Notes*, specifically the language in Note (1) and add Note (3). Note (3) identifies to students that all ENCS majors have a capstone course that varies from *3 to *6 and to see the individual majors.

### 34.8.2 Conservation Biology Major

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

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

**a.** *9 from BIOL 332, BOT 332, ENCS 356, 406; REN R 322, 376, 476

**b.** REN R 364

**c.** REN R 462**

**d.** REN R 366 or 440**

### 34.8.2 Conservation Biology Major

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

(1) **Requirements of the Major (** *51**

**a.** AREC 214

**b.** REN R 120, 322, 364, 376, 464

**c.** *3 from REN R 468, 469 or 480

**d.** REN R 366 or 440**
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<tr>
<td>d. <strong>3</strong> REN R 120, 327; ENCS 406, 407 or BOT 322</td>
<td>e. REN R 462 or 476</td>
</tr>
<tr>
<td>e. <strong>2</strong> Approved Program Electives [see §34.1(4) and Note]</td>
<td>f. <strong>3</strong> Capstone Course [REN R 496]</td>
</tr>
<tr>
<td>g. <strong>2</strong> Approved Program Electives [see §34.1(4)]</td>
<td>g. <strong>2</strong> Approved Program Electives [see §34.1(4)]</td>
</tr>
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</table>

**Note:** The Capstone Course for this major is REN R 464.

**Rationale for change:**

a. 
**AREC 214** (Applications of Linear Models to Food, Resources and the Environment) was removed from the ENCS core, but retained in the major. Students require knowledge of linear optimization for future courses in the major, particularly for their capstone (REN R 496).

b. 
Add **REN R 120** (Woody Plants I), **REN R 322** (Forest Ecosystems), **REN R 376** (Fish and Wildlife Management), **REN R 464** (Conservation and Management of Endangered Species), and **REN R 472** (Quantitative Conservation Biology). **REN R 120** was previously listed as a **3** option, but is now added as a required course to ensure a foundation in plant identification. **REN R 322** (Forest Ecosystems) was previously listed as a **3** option, but is now added as a required course to ensure a foundation in understanding ecosystem structure and function and to also better align the major with the Forestry degree. **REN R 376** (Fish and Wildlife Management) was previously listed as a **3** option, but is now added as a required course to ensure students are exposed to wildlife management techniques critical for training in conservation biology. **REN R 464** (Conservation and Management of Endangered Species) was previously listed as the capstone but is now being listed as a fourth year course. **REN R 472** (Quantitative Conservation Biology) is being added as a required fourth year course to expose students to advanced topics and analyses in conservation biology including population viability, conservation genetics, and biodiversity analysis (COURSE NOT YET APPROVED).

c. 
Add **3** **REN R 440** (Disturbance Ecology) or **REN R 366** (Restoration Ecology). These options were added to the major to expose students to issues and management of anthropogenic disturbances or approaches for rebuilding ecosystem structure, function, and biodiversity in highly altered environments. **REN R 366** (Restoration Ecology) is a new proposed course to be taken by students in both Conservation Biology and Land Reclamation majors (COURSE NOT YET APPROVED).

d. 
Add **REN R 476** (Dynamics of Wildlife and Rangeland Ecosystems). This course was previously listed as a **3** option, but is now added as a **3** option with **REN R 462** (Protected Areas Planning and Management). This provides additional choice for students interested in wildlife management.

e. 
Capstone course changed from **REN R 464** (Conservation and Management of Endangered Species) to **REN R 496** (Conservation Planning). **REN R 496** synthesizes information on natural, economic, and social dimension for prioritizing and planning conservation actions within a land use planning exercise more consistent with other capstone courses in the ENCS majors.

f. 
Just change the letter under the APE description.

Remove Note as the capstone is now described under point “e”.

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**34.8.3 Environmental Economics and Policy Major**

Graduates choosing this major develop skills in the economic analysis of environmental problems and the policy process associated with environmental issues. The interaction among economic, social, political, and legal elements of environmental problems is addressed. The Environmental Economics and Policy major builds on the Environmental and Conservation Sciences Core with a block of courses intended to provide the background for economic, social, and legal approaches to environmental problems and to build quantitative and analytical skills. Extensions into **34.8.3 Environmental Economics and Policy Major**

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

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

(1) Requirements of the Major (*39)
   a. AREC 313
   b. AREC 465
   c. ECON 281 and 282
   d. ENCS 352
   e. ECON 369 (see Note 1)
   f. *21 Approved Program Electives [see §34.1(4) and Note 2]

Notes
(1) For students in BSc Environmental and Conservation Sciences - Bilingual, ECONE 369 is taken and an Approved Program elective is given in its place.
(2) The Capstone Course for this major is AREC 410.

Rationale for change:
   a. Add AREC 214 (Applications of Linear Models to Food, Resources and the Environment). AREC 214 was removed from the ENCS core, but retained in the major. Students require knowledge of linear optimization for future courses. Move AREC 465 (Advanced Natural Resource Economics) from point “b.” to point “a.” to simplify the listing of requirements.
   b. Add ECON 102 (Introduction to Macroeconomics). This course was previously in the ENCS core and removed, but retained here for this major. New label of “b.” for what was previously “c.”
   c. New label of “c.” for what was previously “d.”
   d. New label of “d.” for what was previously “e.”
   e. Add R SOC 355 (Principles of Rural Sociology). This course was removed from the ENCS core, but retained in the major given its relevance.
   f. Add description of capstone: *6 Capstone Course [AREC 410]. AREC 410 is Advanced Methods and Applications in Applied Economics. Note the change from *3 capstone to *6 capstone.
   g. Modify APEs from *21 to *18. The reduction reflects more credits towards the capstone course and other additions to the major’s core courses.

Remove Note 2 since the capstone statement is now under point “f”.

34.8.4 Human Dimensions of Environmental Management Major

Students in this major will learn about the role of collective action, institutions, policy, and management approaches to address environmental and natural resource issues. A firm foundation in the natural sciences allows students to understand the complexities of environmental change and then
Current (2013/14) Calendar Entry

| focus on the social context and organization through which environmental problems are addressed. Students will take a variety of courses that will prepare them to work in the areas of natural resource management, parks planning, management and interpretation, public outreach for environmental and parks policies and programs, and in other settings as liaisons between members of the public and resource management agencies. See §34.10 for information on the BSc in Environmental and Conservation Sciences/BA in Native Studies combined degrees with the Human Dimensions of Environmental Management major. |

(1) Requirements of the Major (*39)

a. ENCS 352
b. R SOC 365
c. R SOC 450
d. REN 271
e. SOC 315
f. *24 Approved Program Electives [see §34.1(5) and Note]

Note: The Capstone Course for this major is R SOC 430.

Rationale for change:

a. Add R SOC 355 (Rural Communities and Global Economies) and R SOC 450 (Environmental Sociology). R SOC 355 was originally part of the ENCS core and removed but is fundamental to the major and thus added back. R SOC 450 is a core course to the Human Dimension and Economics & Policy majors.
b. Add AREC 173 (The Plate, the Planet and Society). This course acts as a first year cornerstone / capture course for the major.
c. Add SOC 291 (Introduction to Environmental Sociology). This course is a foundation in sociology providing context for subsequent courses in human dimensions.
d. Add R SOC 430 (Social Impact Assessment), R SOC 442 (Resilience and Global Change) or R SOC 460 (Perspectives on Traditional Knowledge) as a *6 option or basically a highly prescribed APE list of *6. R SOC 442 explores linkages between community and environmental sustainability through the lens of social-ecological resilience. R SOC 460 explores the use of traditional knowledge in the sustainability and social / cultural well-being of indigenous peoples.e. *6 Capstone is now R SOC 410 (Human Dimensions Capstone), while R SOC 430 is now part of a choice of 2 of 3 courses listed under “e.”
f. APE credits drop from *24 (8 courses) to *15 (5 courses). This reflects the more prescriptive listing of courses described in point “e” (*6 from 3 courses).

34.8.5 Land Reclamation Major

This major combines the natural and applied sciences to understand, assess, and minimize the impacts of anthropogenic activities on natural resources, with emphasis on soil, plant and water components of the ecosystem. The program emphasizes understanding, planning, rebuilding and

Proposed (2014/15) Calendar Entry

| focus on the social context and organization through which environmental problems are addressed. Students will take a variety of courses that will prepare them to work in the areas of natural resource management, parks planning, management and interpretation, public outreach for environmental and parks policies and programs, and in other settings as liaisons between members of the public and resource management agencies. See §34.10 for information on the BSc in Environmental and Conservation Sciences/BA in Native Studies combined degrees with the Human Dimensions of Environmental Management major. |

(1) Requirements of the Major (*51)

a. ENCS 352
b. R SOC 355, 365, 450
c. AREC 173
d. REN 271
e. SOC 291 and 315
f. *6 from R SOC 430, 442 or 460
g. *6 Capstone Course [R SOC 410]
h. *15 Approved Program Electives [see §34.1(5)]

34.8.5 Land Reclamation Major

This major combines the natural and applied sciences to understand, assess, and minimize the impacts of anthropogenic activities on natural resources, with emphasis on soil, plant and water components of the ecosystem. The program emphasizes understanding, planning, rebuilding and
managing the complex ecological relationships of natural and anthropogenically disturbed environments. Graduates will be able to conduct and/or direct remediation, soil reclamation, revegetation and conservation measures to maintain quality environments and to reclaim disturbed and damaged ecosystems.

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

(1) Requirements of the Major (*39)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>REN R 482 and 483</td>
</tr>
<tr>
<td>b.</td>
<td>*3 from BOT 322; ENCS 406, 407; REN R 120, 327</td>
</tr>
<tr>
<td>c.</td>
<td>*3 from ENCS 356, 406, 407; PL SC 352, 354; REN R 120</td>
</tr>
<tr>
<td>d.</td>
<td>*6 from REN R 441, 442, 443, 444, 445</td>
</tr>
<tr>
<td>e.</td>
<td>*3 Capstone Course [See Note]</td>
</tr>
<tr>
<td>f.</td>
<td>*18 Approved Program Electives [see §34.1(4)]</td>
</tr>
</tbody>
</table>

**Note:** The Capstone Course for this major is REN R 495 (*6). *3 of this course fulfills the Program requirement for a *3 Capstone Course; the remaining *3 is a requirement for the Land Reclamation major.

Rationale for change:

a. Add CHEM 261 or CHEM 164. This was removed from ENCS core program, but is fundamental to the Land Reclamation major given soil and water remediation topics and thus added back in.

b. REN R 120 (Woody Plants I) was previously listed as a *3 option, but is now added as a required course to ensure a foundation in plant identification. REN R 366 (Restoration Ecology) is added to the major to expose students to issues and management of anthropogenic disturbances or approaches to rebuilding ecosystem structure, function, and biodiversity to altered ecosystems (also being offered for Conservation Biology majors). REN R 366 would be a new course that would need to be developed.

c. Remove BOT 322 (Field Botany), ENCS 406 (Rangeland Plant Communities of Western Canada), ENCS 407 (Rangeland Plant Communities of North America), REN R 120 (Woody Plants I), and REN R 327 (The Mosses of Alberta: Conservation and Identification). Modify *3 selection to only be fourth year soils courses in REN R 442 (Soil Biogeochemistry), REN R 443 (Soil Physics), REN R 444 (Soil Environmental Chemistry), and REN R 445 (Soil Fertility). Plant courses are now found under “d.” and “e.” which are described below.

d. Remove REN R 120 (Wood Plants I) and REN R 441 (Soil Formation and Landscape Processes) as both are now required in the major core (see point “b” above). Remove ENCS 356 (Principles of Rangeland Conservation and Habitat Management) and PL SC 354 (Forage Crops) as those components are now covered by *6 in point “e.” described below. Add BOT 322 (Field Botany) and
### Current (2013/14) Calendar Entry

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>REN R 327</td>
<td>(The Mosses of Alberta: Conservation and Identification) to provide further options for students emphasizing their interests in plant and forest reclamation.</td>
</tr>
<tr>
<td>e. Remove REN R 441 (Soil Formation and Landscape Processes) as it is now a required course (see point &quot;b&quot; above). Add BOT 322 (Field Botany), ENCS 406 (Rangeland Plant Communities of Western Canada), REN R 407 (Rangeland Plant Communities of North America), REN R 321 (Tree Physiology), REN R 327 (The Mosses of Alberta: Conservation and Identification), and PL SC 352 (Weeds and Weed Control).</td>
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</tr>
<tr>
<td>f. Add selection of courses for students to choose from including REN R 366 (Restoration Ecology; COURSE NOT YET APPROVED) and REN R 440 (Disturbance Ecology). This is similar to the Conservation Biology major, but with greater selection of other courses related to that topic.</td>
<td></td>
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<tr>
<td>g. Increase capstone credits from *3 to *6 and indicate specifically which course it is: REN R 495.</td>
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<tr>
<td>h. Reduce credits of APEs from *18 to *15.</td>
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</tbody>
</table>

### Proposed (2014/15) Calendar Entry

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>REN R 327</td>
<td>(The Mosses of Alberta: Conservation and Identification) to provide further options for students emphasizing their interests in plant and forest reclamation.</td>
</tr>
<tr>
<td>e. Remove REN R 441 (Soil Formation and Landscape Processes) as it is now a required course (see point &quot;b&quot; above). Add BOT 322 (Field Botany), ENCS 406 (Rangeland Plant Communities of Western Canada), REN R 407 (Rangeland Plant Communities of North America), REN R 321 (Tree Physiology), REN R 327 (The Mosses of Alberta: Conservation and Identification), and PL SC 352 (Weeds and Weed Control).</td>
<td></td>
</tr>
<tr>
<td>f. Add selection of courses for students to choose from including REN R 366 (Restoration Ecology; COURSE NOT YET APPROVED) and REN R 440 (Disturbance Ecology). This is similar to the Conservation Biology major, but with greater selection of other courses related to that topic.</td>
<td></td>
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<tr>
<td>g. Increase capstone credits from *3 to *6 and indicate specifically which course it is: REN R 495.</td>
<td></td>
</tr>
<tr>
<td>h. Reduce credits of APEs from *18 to *15.</td>
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</tbody>
</table>

### 34.8.6 Northern Systems Major

Canada’s North is experiencing unprecedented rates of change in environmental, social, and economic conditions, due to climate change, new governance structures, and accelerated industrial and infrastructure development. These pressures are apparent throughout the Circumpolar North, and create significant challenges for northern communities, management of northern resources, and maintenance of northern values. This major is offered in partnership with Yukon College, and delivered primarily by University of Alberta faculty and instructors based in Whitehorse.

The program applies a systems perspective to understanding the implications of rapid environmental and social change affecting the North, and developing responses that promote resilience and adaptation in socio-ecological systems. Strong foundations in natural and social sciences provide a platform for exploring approaches to conservation and sustainability in northern regions. Students will learn about systems in the North, in a learning environment respectful of the area’s unique ecological, cultural and social realities. Graduates are prepared for careers in federal, territorial and First Nations governments, with resource industries, conservation organizations, and consulting companies operating in the North, and in environmental education and outreach.

**Requirements of the Major (*51)**

a. NS 200, 390, 435  
b. R SO 355  
c. ENCS 352  
d. REN R 364, 376, 464  
e. *27 Approved Program Electives

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### 34.8.6 Northern Systems Major

Canada’s North is experiencing unprecedented rates of change in environmental, social, and economic conditions. This major is offered in partnership with Yukon College, and primarily delivered in Whitehorse, Yukon. The program applies a systems perspective to understanding the implications of rapid change affecting the North, and developing responses that promote resilience and adaptation. Strong foundations in natural and social sciences provide a platform for exploring approaches to conservation and sustainability in northern regions. Students will experience a learning environment respectful of the area’s ecological, cultural and socio-economic realities. Graduates are prepared for careers in federal, territorial and First Nations governments, with resource industries, conservation organizations, and consulting companies operating in the North, and in environmental education and outreach.

**Requirements of the Major (*51)**

a. NS 200, 390, 435  
b. REN R 364, 376, 463, 466, 473, 480  
c. *3 Capstone Course [REN R 491]  
d. *18 Approved Program Electives [see §34.1(4)]
Current (2013/14) Calendar Entry

Note: The program core for the Northern Studies Major has been modified to reflect the unique nature of the Major. AREC 214, 323, CHEM 261, and R SOC 355 are deleted from the program core, and have been replaced with additions to the Major core.

Proposed (2014/15) Calendar Entry

Rationale for change:

a. **Delete NS 290** (Introduction to Research and Inquiry) as it is not required as a prerequisite for NS 390 for students in this major, given other program content,
b. **Remove R SOC 355** (Rural Communities), see rationale in ENCS program description.

b. **Remove ENCS 352** (Environmental Law). **ENCS 473** (Environmental Policy), which is required in the program core, is better suited.

c. **Delete REN R 464** (Conservation and Management of Endangered Species) which was previously listed as the capstone but has been replaced with **REN R 491** (Northern Land-use Planning). **Add** new courses specific to this major, which were developed consistent with the UofA/Yukon College BSc ENCS Collaborative Program Agreement for this initiative: **REN R 365** (Ecology of Northern Landscapes), **REN R 463** (Biological Adaptation to Northern Environments), **REN R 466** (Climate Change and the North), and **RENR 473** (Northern Resource Management), as well as **REN R 480** (Experimental Design and Data Analysis) which rounds out the students quantitative skills in conjunction with **STATS 151**, **MATH 113**, **REN R 110** (Natural Resource Measurements) and **REN R 201** (Geomatics).

c. **Add** capstone course **REN R 491** (Northern Land-use Planning), which addresses the integration of social, environmental and economic dimensions of land-use planning in northern regions of Canada through case studies and exercises, consistent with other capstone courses in the ENCS majors.

d. **Reduce APEs** from *27 to *18 reflecting the introduction of new, required courses in the major.

**Remove Note** as it is no longer needed with the description of the capstone now in point “c.”

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**34.8.7 Sustainable Agriculture Major**

The complexity associated with individual components of conventional agricultural systems such as annual cropping operations (including plants, soil, water and other resources) has rapidly expanded, including their response to intensive management practices, but less is known about how these lands can be managed using specific production practices and land use systems that optimize their long-term productivity while mitigating impacts on the environment. This program provides a basic introduction to agricultural production systems on western Canadian landscapes, and examines alternative management systems and practices that conserve soil and water resources while optimizing agricultural productivity and the provision of ecological goods and services deemed important for society. International, regional and local perspectives are included, as well as the role of various social organizations in promoting sustainable agriculture.

Graduates are prepared for careers in agribusiness, extension, consulting and government administration, in support of primary agriculture and environmental stewardship.
<table>
<thead>
<tr>
<th></th>
<th>Current (2013/14) Calendar Entry</th>
<th>Proposed (2014/15) Calendar Entry</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>*<em>(1) Requirements of the Major (<em>39)</em></em></td>
<td>*<em>(1) Requirements of the Major (<em>51)</em></em></td>
</tr>
<tr>
<td>a.</td>
<td>REN R 360 and 483</td>
<td>a. AN SC 200</td>
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<tr>
<td>b.</td>
<td>PL SC 495</td>
<td>b. AREC 200</td>
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<tr>
<td>c.</td>
<td>REN R 450</td>
<td>c. REN R 360 and 483</td>
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<tr>
<td>d.</td>
<td>REN R 445</td>
<td>d. PL SC 495</td>
</tr>
<tr>
<td>e.</td>
<td>*3 from ENT 207, PL SC 380 or PL SC 352</td>
<td>e. REN R 445, 446 450</td>
</tr>
<tr>
<td>f.</td>
<td>*3 from PL SC 354, PL SC 355 or REN R 414</td>
<td>f. *3 from ENT 207, PL SC 380 or PL SC 352</td>
</tr>
<tr>
<td>g.</td>
<td>*3 from REN R 441, 442, 443 or 444</td>
<td>g. *3 from PL SC 354, PL SC 355 or REN R 414</td>
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<tr>
<td>h.</td>
<td>*15 Approved Program Electives</td>
<td>h. *3 from REN R 441, 442, 443 or 444</td>
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<td></td>
<td><strong>Note:</strong> The Capstone Course for this major is PL SC 499.</td>
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</table>

**Rationale:** Creation of new major approved by GFC in June 2012, but still awaiting Government approval so did not appear in most recent Calendar.

Changes to major requirements are required due to proposed changes to the ENCS core.

- AN SC 200 (Principles of Animal Agriculture), AREC 200 (Current Economic Issues for Agriculture and Food) and REN R 446 (Climates and Ecosystems) were added to reflect stronger Agriculture content (chosen from the old major in the BSc Agriculture)
- *3 capstone added to major core.

### 34.8.6 Wildlife and Rangeland Resources Management Major

The Wildlife and Rangeland Resources Management major introduces the theory and practice of appropriately managing soil-plant-animal relationships on both private and public lands. Students will gain an understanding of important multiple use issues, including the integration of cattle grazing and wildlife management with intensive agriculture, forestry, recreational activities and other forms of natural resource use. This major examines the means to increase both the productivity and sustainable use of wild plants and animals within an ecosystem management framework.

Graduates are prepared for careers with government agencies, agricultural conservation associations, agri-businesses or other private firms dealing with management of wildlife and rangeland resources.

**Notes:**

- **(1) Requirements of the Major (**39**)
  - a. ENCS 356 and 406
  - b. REN R 376
  - c. REN R 441 or 445
  - d. REN R 450
  - e. REN R 474

- **(2) Requirements of the Major (**51**)
  - a. ENCS 356 and 406
  - b. REN R 120, 376, 474
  - c. REN R 441 or 445
  - d. PL SC 352 and 354
  - e. REN R 340 or 440

### 34.8.8 Wildlife and Rangeland Resources Management Major

The Wildlife and Rangeland Resources Management major introduces the theory and practice of sustainably managing soil-plant-animal relationships on both private and public lands. Students will gain an understanding of important multiple use issues, including the integration of cattle grazing and wildlife management with intensive agriculture, forestry, recreational activities and other forms of natural resource use. This major examines the means to increase both the productivity and sustainable use of wild plants and animals within an ecosystem management framework.

Graduates are prepared for careers with government agencies, agricultural conservation associations, agri-businesses or other private firms dealing with management of wildlife and rangeland resources.
<table>
<thead>
<tr>
<th>Current (2013/14) Calendar Entry</th>
<th>Proposed (2014/15) Calendar Entry</th>
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</thead>
</table>
| f. *24 Approved Program Electives [see §34.1(5) and Note] | f. AREC 333 or R SOC 355  
  g. *3 Capstone Course [AN SC 474, ENCS 471 or REN R 496]  
  h. *18 Approved Program Electives [see §34.1(5)] |

**Rationale for change:**

b. *Add REN R 120 (Woody Plants I) and REN R 474 (Utilization of Wildlife Resources). REN R 120 is added to ensure a foundation in plant identification. REN R 474 was added to simplify the listing of REN R courses in a single point now that many ENCS courses are redesignated as REN R. REN R 474 was previously listed in e.*  

d. *Remove REN R 450. Add PL SC 352 (Weeds and Weed Control) and PL SC 354 (Forage Crops). PL SC 352 and PL SC 354 previously listed in APEs but now required.*  

e. *Remove REN R 474 (Utilization of Wildlife Resources) since it is now listed in “b”. Add REN R 340 (Forest Fire Management) or REN R 440 (Disturbance Ecology). Courses previously listed as APEs and now one of two.*  

f. *Add AREC 333 (Production and Resource Management) or R SOC 355 (Principles of Rural Sociology). R SOC 355 was previously in the ENCS core and now back in this major as an option. AREC 333 is important for understanding economic business principles related to resource management.*  

g. *APEs are now *18 (reduction by one course).*  

h. *AN SC 474 (Applied Beef Cattle Science), ENCS 471 (Practical Case Studies in Rangeland Management and Conservation), or REN R 496 (Conservation Planning) represent different options for capstone courses in this major.*  

*Remove mention of note in original description.*
<table>
<thead>
<tr>
<th>CURRENT</th>
<th>PROPOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>34.10 BSc in Environmental and Conservation Sciences/ BA in Native Studies Combined Degrees – Human Dimensions of Environmental Management Major</td>
<td>34.10 BSc in Environmental and Conservation Sciences/ BA in Native Studies Combined Degrees – Human Dimensions of Environmental Management Major</td>
</tr>
<tr>
<td>(4) Requirements of the BA in Native Studies (*42)</td>
<td>(4) Requirements of the BA in Native Studies (*42)</td>
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<td>…</td>
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<tr>
<td>Notes</td>
<td>Notes</td>
</tr>
<tr>
<td>(2) Students with greater than *24 transfer credit will take NS 200-level or higher.</td>
<td>(2) Students with greater than *24 transfer credit will take NS 200-level or higher (excluding NS 200).</td>
</tr>
</tbody>
</table>
## Faculty of ALES Proposed 2013/14 Calendar Changes
### Forestry Program

<table>
<thead>
<tr>
<th>Current (2012/13) Calendar Entry</th>
<th>Proposed (2013/14) Calendar Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>34.12 BSc in Forestry</strong></td>
<td><strong>34.12 BSc in Forestry</strong></td>
</tr>
<tr>
<td><strong>34.12.1 General Information</strong></td>
<td><strong>34.12.1 General Information</strong></td>
</tr>
</tbody>
</table>

(1) Requirements of the BSc in Forestry Program (*123)

- a. *6 ENGL (two of ENGL 121, 122, 123, 124 or 125 recommended) or *3 ENGL and *3 WRS.
- b. ALES 204
- c. AREC 214 and 323
- d. ECON 101 and 102
- e. STAT 151
- f. CHEM 101 or 164
- g. BIOL 208
- h. REN R 205 or 364
- i. ENT 380
- j. REN R 299 (field school) (see Note 1)
- k. REN R 101, 215, 314, 322, and 323
- l. FOREC 345 and 473
- m. REN R 335 and 345
- n. MATH 113 or 114
- o. PLSC 221 and 385
- p. REN R 110, 120, 201, 321, 340, 350, and 430 (see Note 2)
- q. REN R 210
- r. *12 Approved Program Electives [see §34.1(4)]
- s. *12 Free Electives
- t. *3 Capstone Course [see Note 3 and §34.1(6)]

### Notes

1. FOR 101 (Introductory Field School) (*0) must be taken just before the start of regular classes in the first year. REN R 299 (Spring Field School) (*3) is normally taken in the spring between the second and third year, but must be taken before beginning fourth year (see §231 for Renewable Resources course descriptions).
2. Credit will be granted for only one of FOR 340 and REN R 340.
3. The Capstone Course for this program is REN R 431.
4. See §34.1 for program planning and structure details.

### RATIONALE:

Program requirement reduced to *120 for better alignment with other programs in the faculty.

The previous core requirements were reduced: 1) to create flexibility while maintaining external professional program accreditation (CFAB), and 2) to include requirements for increased exposure in forest conservation and social issues. Revised course requirements also reflect Renewable Resources course name/numbering changes.
<table>
<thead>
<tr>
<th>Current (2012/13) Calendar Entry</th>
<th>Proposed (2013/14) Calendar Entry</th>
</tr>
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<tbody>
<tr>
<td>in 2013/14 calendar.</td>
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</tbody>
</table>

**Program deletions**

- Reduction of English and writing courses from *9 to *6 to align with ENCS core.
- Delete *3 macroeconomics (ECON 102) to align with ENCS core.
- Delete PL SC 221 (Introduction to Plant Science) to rationalize redundancy/overlap with allied plant courses in program.
- Delete RENR 314 (Forest Soils). Content in REN R 210 (Introduction to Soils) and REN R 299 (Spring Field School) will meet basic academic and external accreditation standards for soil science.
- Replace PL SC 385 (Forest Pathology) and ENT 380 (Forest Entomology) with REN R 447 (new course), combining key curricula (interactions between plants, insects, and pathogens) from both previous courses.
- Delete REN R 335 (Forest Operations). Some of the basic academic and external accreditation standards for forest operations and planning will be delivered in REN R 201, (Introduction to Geomatics), REN R 299 (Spring Field School), REN R 323 (Silviculture), REN R 430 (Forest Management), REN R 431 (Integrated Forest Management) and AREC 323 (Introduction to Management to Agri-food, Environmental and Forest Businesses).
- Delete REN R 345 (Wood Science and Utilization) as it is not a key contributor to accreditation standards.

**Program additions**

- Add REN R 260 (History and Fundamentals of Environmental Protection and Conservation) to strengthen non-fibre elements of program, support external accreditation and align with ENCS program.
- Add R SOC 375 (new course in public participation and conflict resolution) to strengthen non-fibre elements of program, support external accreditation and align with ENCS program.
- Add REN R 364 (Biodiversity Conservation) to strengthen conservation component of program, add GIS exposure, and align with ENCS (Conservation Biology major).
- Add requirement for *6 from a group of foundational forestry courses (REN R 314, 327, 335, 345, 414, 421, 423, 426, 452, 456, 522, 523, 535, and 545) to add desired flexibility to the program.
### ALES 2014/15 Calendar Change Request Form
#### Human Ecology

<table>
<thead>
<tr>
<th>Current (2013/14) Calendar Entry; proposed deletions indicated</th>
<th>Proposed (2014/15) Calendar Entry; additions indicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>HECOL 562 Material Culture in the Home &amp; Community</td>
</tr>
<tr>
<td></td>
<td>*3 (either term, 2-0-3)</td>
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<tr>
<td></td>
<td>Framed within the context of theories in human ecology,</td>
</tr>
<tr>
<td></td>
<td>this course investigates material culture ranging from</td>
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<td></td>
<td>individual artifacts to local and global community</td>
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<td></td>
<td>environments. The roles and effects of material culture</td>
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<td>on individual, family, and community living are</td>
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<td></td>
<td>explored through literature, artifacts and life stories.</td>
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<td>These issues are examined through a combination of</td>
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<td>seminars and group work culminating in a project.</td>
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<td>Prerequisite: consent of Supervisor and Department.</td>
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</tbody>
</table>

**Rationale:** The subject matter in HECOL 462 is relevant to many graduate students studying material culture. Consequently, in recent years, a number of graduate students have completed a graduate-level version of HECOL 462 through an independent study course. These students attended HECOL 462 classes and completed additional course requirements as part of the independent study. We are requesting offering 562 concurrently with 462 to simplify registration and allow this subject matter to be more accessible to all graduate students.

<table>
<thead>
<tr>
<th>HECOL 613 Graduate Practicum in Human Ecology</th>
<th>HECOL 613 Graduate Practicum in Human Ecology</th>
</tr>
</thead>
<tbody>
<tr>
<td>*3 (either term, 0-0-3)</td>
<td>*3-6 (variable, variable)</td>
</tr>
<tr>
<td>Selected practicum placements to integrate</td>
<td>Selected practicum placements to integrate</td>
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<tr>
<td>theory and practice in a variety of agencies.</td>
<td>theory and practice in a variety of agencies.</td>
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<tr>
<td>Prerequisites: consent of Supervisor and</td>
<td>When used as the capping exercise for the</td>
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<tr>
<td>Department.</td>
<td>course-based Master’s program, requirements</td>
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<tr>
<td></td>
<td>include a written report and an oral</td>
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<tr>
<td></td>
<td>presentation to the Department and/or where</td>
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<tr>
<td></td>
<td>appropriate to relevant agency staff.</td>
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<tr>
<td></td>
<td>Prerequisites: consent of Supervisor and</td>
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<td></td>
<td>Department.</td>
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</tbody>
</table>

**Rationale:** In 2010 a change was approved to our course-based Master’s programs to allow a *6 practicum to serve as one kind of capping exercise. At that time, we failed to submit a request for a course change to our existing practicum course to allow the course weight to be variable *3 to *6 so that it can serve as the capping exercise for course-based students. We are requesting a change to the course description to allow our existing practicum course to also serve as the capping exercise in our course-based Master’s.

<table>
<thead>
<tr>
<th>HECOL 900 Directed Research Project</th>
<th>HECOL 900 Directed Research Project</th>
</tr>
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<tbody>
<tr>
<td>*6 (either term, 0-0-6)</td>
<td>*6 (variable, 0-0-6)</td>
</tr>
<tr>
<td>Comprises the capping exercise for</td>
<td>Comprises the capping exercise for</td>
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<td>the course-based Masters programs.</td>
<td>the course-based Master’s programs.</td>
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<tr>
<td>Requirements include conducting an</td>
<td>Requirements include conducting an</td>
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<tr>
<td>applied research project and both a</td>
<td>applied research project and both a</td>
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<tr>
<td>written project report and an oral</td>
<td>written project report and an oral</td>
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<tr>
<td>presentation to the Department and</td>
<td>presentation to the Department and</td>
</tr>
<tr>
<td>where appropriate to relevant</td>
<td>where appropriate to relevant</td>
</tr>
<tr>
<td>practicing professionals.</td>
<td>practicing professionals.</td>
</tr>
</tbody>
</table>

**Rationale:** Change to reflect the way projects are conducted.
### CURRENT

34.14 BSc in Human Ecology/Bed (Secondary) Combined Degrees

1. General Information (See also §§15.1.7, 15.6.6)

The Bachelor of Science in Human Ecology/Bachelor of Education (Secondary) Combined Degrees program provides a five-year integrated program of *150 that prepares graduates for teaching CTS strands such as Foods and Fashion Studies. Coursework within the two Faculties is taken concurrently. Students initially apply for admission to the Faculty of Agricultural, Life and Environmental Sciences 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/Bachelor of Education students will be promoted to Year 4 in the Faculty of Education provided a minimum GPA of 2.0 has been achieved and a minimum of *90 applicable to the BSc in Human Ecology/BEd (Secondary) Degrees program has been successfully completed. See §15.6.6 for detailed admission requirements and procedures for entry to Year 4 of this Combined Degrees Program.

Notes

(1) Students in Year 3 who have completed less than *90 toward the BSc in Human Ecology/BEd program, but who have a GPA of at least 2.0, may remain in Year 3 of that program in the Faculty of Agricultural, Life and Environmental Sciences for one additional year.

(2) A student who has been assigned a grade of “W” or “NC” 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 “NC” in the second attempt of a Field Experience course, will be required to withdraw from the combined degrees 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. Exemptions from this regulation can be made only with approval of the Faculty of Agricultural, Life and Environmental Sciences and the Faculty of Education.

(2) Program Requirements

Courses for the Combined BSc in Human Ecology/BEd Degrees must be carefully sequenced throughout the five years; therefore, students should plan their programs carefully with help from Academic Advisors from both Faculties.

Program Core (*84) (see Note 1 and 3)

a. 6 ENGL, or 3 ENGL and 3 WRS

### PROPOSED

34.14 BSc in Human Ecology/Bed (Secondary) Combined Degrees

1. General Information (See also §§15.1.7, 15.6.6 and 75.11)

The Bachelor of Science in Human Ecology/Bachelor of Education (Secondary) Combined Degrees program provides a five-year integrated program of *150 that prepares graduates for teaching CTS strands such as Foods and Fashion Studies. Coursework within the two Faculties is taken concurrently. Students initially apply for admission to the Faculty of Agricultural, Life and Environmental Sciences 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/Bachelor of Education students will be promoted to Year 4 in the Faculty of Education provided a minimum GPA of 2.0 has been achieved and a minimum of *90 applicable to the BSc in Human Ecology/BEd (Secondary) Degrees program has been successfully completed. See §15.6.6 for detailed admission requirements and procedures for entry to Year 4 of this Combined Degrees Program.

Notes

(1) Students in Year 3 who have completed less than *90 toward the BSc in Human Ecology/BEd program, but who have a GPA of at least 2.0, may remain in Year 3 of that program in the Faculty of Agricultural, Life and Environmental Sciences for one additional year.

(2) A student who has been assigned a grade of “W” or “NC” 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 “NC” in the second attempt of a Field Experience course, will be required to withdraw from the combined degrees 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. Exemptions from this regulation can be made only with approval of the Faculty of Agricultural, Life and Environmental Sciences and the Faculty of Education.

(2) Program Requirements

Courses for the Combined BSc in Human Ecology/BEd Degrees must be carefully sequenced throughout the five years; therefore, students should plan their programs carefully with help from Academic Advisors from both Faculties.

Program Core (*81) (see Note 1 and 3)

a. ENGL (*6) or ENGL (*3) and WRS (*3)
Faculty of Agricultural, Life & Environmental Sciences  
Calendar Changes, 2014-15

b. ALES 204  
c. ECON 101 and 102  
d. STAT 151 or SOC 210  
e. *6 Natural Sciences from BIOL, CHEM, PHYS, EAS (Faculty of Science), PSYCO (Faculty of Science) (see Note 4)  
f. *6 Free Electives  
g. HECOL 100, 170, 201, 210, 211, 250, 313, and 254  
h. HECOL 321 or 322  
i. *9 HECOL (see Note 4)  
j. *3 HECOL at 400-level  
k. HE ED 110  
l. *3 from NU FS 200, 223, 372, or 373  
m. NUTR 100 and NU FS 100  
n. *3 from MARK 312, NS 390, SOC 315, W ST 302

BEd Core *(69)  
a. Minor *(18) (See Note 2)  
b. EDU 100, 210 and 211 *(9)  
c. 300-level EDSE course (Minor) *(3)  
d. EDSE 307, 317, 417 (Major), 417 (Major), 417 (Major)  
e. EDPY 301, 303 and 304 *(9)  
f. EDFX 350, 450 *(15)  
g. EDIT 202

Notes  
(1) Professional Designation: To meet the educational requirements for Professional Human Ecologist designation, students must present *36 in Human Ecology, Nutrition and Food Science, or Nutrition, including HECOL 100, plus *12 in course work closely related to their specialization.  
(2) Students should declare their minor early in the program by filling out a form in 231 General Services Building. To decide on a minor, consult Education Chart 2.  
(3) The Management in Organizations and Capstone Course requirements in §§34.1 and 34.13 are met by completion of Faculty of Education requirements.  
(4) Students in the Combined BSc Human Ecology/BEd degree cannot take HECOL 301. HECOL 268, 270 or 354 are recommended. HECOL 300 is not recommended.

Year 1 *(30) Taken in the Faculty of Agricultural, Life and Environmental Sciences  
1. ENGL *(3)  
2. ENGL or WRS *(3)  
3. ECON 101 *(3)  
4. ECON 102 *(3)  
5. HECOL 100 *(3)  
6. HECOL 201 *(3)  
7. HECOL 170 *(3)  
8. Natural Sciences from BIOL, CHEM, PHYS, EAS (Faculty of Science), PSYCO (Faculty of Science) *(3)  
9. NUTR 100 *(3)  
10. Free elective *(3)  

b. ALES 204 *(3)  
c. ECON 101 and 102 *(6)  
d. STAT 151 or SOC 210 *(3)  
e. *6 Natural Sciences from BIOL, CHEM, PHYS, EAS (Faculty of Science), PSYCO (Faculty of Science) (see Note 4)  
f. Free Elective *(3)  
g. HECOL 100, 170, 201, 210, 211, 250, 313, 254 *(24)  
h. HECOL 321 or 322 *(3)  
i. HECOL *(9) (see Note 4)  
j. HECOL at 400-level *(3)  
k. HE ED 110 *(3)  
l. NU FS 200, 223, 372, or 373 *(3)  
m. NUTR 100 and NU FS 100 *(6)  
n. MARK 312, PSYCO 212, SOC 315 or W ST 302 *(3)
Year 2 (**30) Taken in the Faculty of Agricultural, Life and Environmental Sciences
1. ALES 204 (**3)
2. NU FS 100 (**3)
3. STAT 151 or SOC 210 (**3) (SOC 210 recommended) (See Note 1) (**3)
4. HECOL 250 (**3)
5. HECOL 210 (**3)
6. HECOL 211 (**3)
7. HE ED 110 (**3)
8. Natural Sciences from BIOL, CHEM, PHYS, EAS (Faculty of Science), PSYCO (Faculty of Science) (**3)
9. Minor: choose any course from the specific teaching minor (**6)

Year 3 (**30) Taken in the Faculty of Agricultural, Life and Environmental Sciences
1. EDIT 202 (**3)
2. MARK 312, NS 390, SOC 315, W ST 302 (**3) (See Note 1)
3. HECOL 313 (**3)
4. HECOL 321 or 322 (**3)
5. HECOL 254 (**3)
6. Education 250 (**3)
7. EDPY 200 (**3)
8. NU FS 200, 223, 372, or 373 (**3)
9. Minor: choose any two courses from the specific teaching minor (**6)

Year 4 (**30) Taken in the Faculty of Education
Term 1
Introductory Professional Term (See Notes 2 and 3)
1. EDFX 350 (**3)
2. EDPS 310 (**3)
3. EDPY 303 (**3)
4. EDSE 307 (**3)
5. EDSE 317 (**3) (Human Sciences)
Term 2
1. EDPY 301 (**3)
2. HECOL Option (**3)
3. Free elective (**3)
4. Minor: choose any two courses from the specific teaching minor (**6)

Year 5 (**30) Taken in the Faculty of Education
Term 1
1. EDPS 410 (**3)
2. EDSE 3XX (Minor) (**3)
3. HECOL Option (**3)
4. HECOL 400-level (**3)
5. Minor: choose any course from the specific teaching minor (**6)

Years 4 and 5 (**60) Taken in the Faculty of Education
Students should refer to their individual Program Sheet for proper course sequencing.

Course Requirements (**30)
1. EDSE 3XX (Minor) (**3)
2. EDPS 410 (**3)
3. EDPY 301 (**3)
4. EDPY 304 (**3)
5. HECOL Option (**9)
6. HECOL 400-level (**3)
7. Minor: choose any course from the specific teaching minor (**6)

Field Experience Terms (**30).
Courses taken in the Field Experience Terms are normally taken concurrently.

Introductory Professional Term (**15)
1. EDFX 350 (**6)
2. EDPS 310 (**3)
3. EDPY 307 (**3)
4. EDSE 317 (**3)

Advanced Professional Term (**15)
1. EDFX 450 (**9)
2. EDSE 451 (**3)
3. EDSE 417 (**3)
| (2) | All courses in the Introductory and Advanced Professional Terms are integrated and must be taken concurrently. |
| (3) | The Introductory Professional Term must be taken in Term 1, Year 4. |
| (4) | The Advanced Professional Term must be taken in Term 2, Year 5. |

<table>
<thead>
<tr>
<th>Notes</th>
<th>Students are advised to consider prerequisite courses for advanced courses when planning their program, e.g., SOC 315 requires SOC 100 and 210 as prerequisites.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>32. General Information</strong></td>
<td><strong>32. General Information</strong></td>
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<tr>
<td>32.1 General Information</td>
<td>32.1 General Information</td>
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<tr>
<td>The Faculty of Agricultural, Life</td>
<td>The Faculty of Agricultural, Life</td>
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<tr>
<td>and Environmental Sciences</td>
<td>and Environmental Sciences</td>
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<td>administers undergraduate programs</td>
<td>administers undergraduate programs</td>
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<td>that lead to the following degrees.</td>
<td>that lead to the following degrees.</td>
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<tr>
<td>BSc in Nutrition and Food Science</td>
<td>BSc in Nutrition and Food Science</td>
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<tr>
<td>BSc in Nutrition and Food Science,</td>
<td>BSc in Nutrition and Food Science,</td>
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<tr>
<td>Specialization in Food Science and</td>
<td>Dietetics Specialization</td>
</tr>
<tr>
<td>Technology</td>
<td>BSc in Nutrition and Food Science,</td>
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<tr>
<td>BSc in Nutrition and Food Science,</td>
<td>Food Science and Technology</td>
</tr>
<tr>
<td>Dietetics</td>
<td>Dietetics Specialization</td>
</tr>
<tr>
<td>BSc Honors in Food Science</td>
<td>BSc Honors in Food Science</td>
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<tr>
<td>BSc Honors in Nutrition</td>
<td>BSc Honors in Nutrition</td>
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</tbody>
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<thead>
<tr>
<th><strong>33.8 Time Limit to Complete Program</strong></th>
<th><strong>33.6 Time Limit to Complete Program</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no time limit for degree completion with the exception of the BSc Nutrition and Food Science, Dietetics Specialization. Students in the Dietetics Specialization must complete their program within six years from the year of original admission to the Dietetics Specialization. This time limit includes all time during which a student is not in attendance, either by personal choice or as a result of suspension or requirement to withdraw. It excludes approved absences (by advance application to the Faculty). Exception requests must be submitted to the Associate Dean (Academic).</td>
<td>Students in the BSc Nutrition and Food Science, Dietetics Specialization must complete their program within six years from the year of original admission to the Dietetics Specialization. This time limit includes all time during which a student is not in attendance, either by personal choice or as a result of suspension or requirement to withdraw. It excludes approved absences (by advance application to the Faculty). Exception requests must be submitted to the Associate Dean (Academic).</td>
</tr>
<tr>
<td>Eight years from the year of original admission to any of the other programs offered by the Faculty of Agricultural, Life and Environmental Sciences, students who have not yet completed their degree and wish to do so must follow the program requirements in the current Calendar. Exception requests must be submitted to the Associate Dean (Academic).</td>
<td>For all other programs offered by the Faculty, students who have not completed their degree within eight years from the year of original admission and wish to do so must follow the program requirements in the current Calendar. Exception requests must be submitted to the Associate Dean (Academic).</td>
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<table>
<thead>
<tr>
<th><strong>34.15 BSc Honors in Food Science, BSc Honors in Nutrition, and BSc in Nutrition and Food Science</strong></th>
<th><strong>34.15 BSc Honors in Food Science; BSc Honors in Nutrition; BSc in Nutrition and Food Science, Dietetics Specialization; and BSc in Nutrition and Food Science, Food Science and Technology Specialization.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>34.15.1. General Information</strong></td>
<td><strong>34.15.1. General Information</strong></td>
</tr>
<tr>
<td>The Faculty offers courses leading to the degree of BSc Honors</td>
<td>The Faculty offers courses leading to the degree of BSc Honors in Food Science, BSc Honors in Nutrition, BSc in Nutrition and Food</td>
</tr>
<tr>
<td>in Food Science, BSc Honors in Nutrition, and BSc in Nutrition</td>
<td>and Food Science, Dietetics Specialization, and BSc in Nutrition and Food Science (Dietetics Specialization), and BSc in Nutrition</td>
</tr>
<tr>
<td>and Food Science. A minimum of *120 is required to complete</td>
<td>and Food Science (Food Science and Technology Specialization). A minimum of *120 is required to complete</td>
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<tr>
<td>the degree programs. The programs incorporate experiential</td>
<td>the degree programs. The programs incorporate experiential</td>
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<tr>
<td>learning into coursework to enable students to develop</td>
<td>learning into coursework to enable students to develop</td>
</tr>
<tr>
<td>skills in nutrition and food science.</td>
<td>skills in nutrition and food science.</td>
</tr>
<tr>
<td>Honors programs are directed to highly-motivated students</td>
<td>Honors programs are directed to highly-motivated students</td>
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</table>
with exceptional ability. Two honors programs are available in the Faculty: BSc Honors in Food Science (see §34.15.1) and BSc Honors in Nutrition (see §34.15.2). Honors is the preferred program for students who aim for research-oriented careers or who plan to pursue graduate studies. Entrance to these programs takes place after at least one year of university (or equivalent) studies. The Honors in Food Science program meets the guidelines of the Institute of Food Technologists (IFT). Students normally complete their first year in the BSc Nutrition and Food Science General Program.

The Nutrition and Food Science General Program (see §34.15.3) provides students with a diverse education in nutrition and food science. The General Program is the preferred program for students planning to complement their science-based education related to nutrition and food with an interdisciplinary education related to health education, human ecology, food marketing, food quality and safety, or physical activity. Students in the General Program are encouraged to complete one of the eight available minors (Food Marketing, Food Policy, Food Quality and Safety, Food Service Management, Human Ecology, Nutrition Communication and Education, Nutrition and Health, Physical Activity). Students are recommended to select minors by the second year of their program to facilitate appropriate course selection. By completing a minor in Human Ecology, students can meet the educational requirements for registration as Professional Human Ecologists or Professional Home Economists.

The Specialization in Dietetics (see §34.15.4) is the program required for students planning to be Registered Dietitians. Students graduating with this Specialization meet the academic competencies and the internship requirements to be eligible for registration with the College of Dietitians of Alberta and membership in Dietitians of Canada. Entrance to this specialization takes place after at least one year of university (or equivalent) studies. Students normally complete their pre-professional year in the BSc Nutrition and Food Science General Program.

The Specialization in Food Science and Technology (see §34.15.5) is the preferred program for students planning a career in the Food Industry and related government sectors. The Specialization meets the guidelines of the Institute of Food Technologists (IFT). Entrance to this specialization takes place after at least one year of university (or equivalent) studies. Students normally complete their first year in the BSc Nutrition and Food Science General Program.

<table>
<thead>
<tr>
<th>34.15.2 BSc Honors in Food Science</th>
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<tbody>
<tr>
<td>The BSc Honors in Food Science program prepares students for admission to Graduate school leading to a Master of Science (MSc) or a Doctor of Philosophy (PhD). Additionally, it prepares students for careers in the food industry and related government sectors that include applied research and product development, and scientific</td>
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<thead>
<tr>
<th>34.15.2 BSc Honors in Food Science</th>
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<tr>
<td>The BSc Honors in Food Science program prepares students for admission to Graduate school leading to a Master of Science (MSc) or a Doctor of Philosophy (PhD). Additionally, it prepares students for careers in the food industry and related government sectors that include applied research and product development, and scientific</td>
</tr>
</tbody>
</table>

The Dietetics Specialization (see §34.15.4) is the program required for students planning to be pursuing a career as a Registered Dietitians. Students graduating with this Specialization meet the academic competencies and the internship requirements necessary to be eligible for registration with the College of Dietitians of Alberta. Entrance to this specialization takes place after at least one year of university (or equivalent) studies. Students normally complete their pre-professional year in the BSc Nutrition and Food Science General Program.

The Food Science and Technology Specialization (see §34.15.5) is the preferred program for students planning a career in the Food Industry and related government sectors. The Specialization meets the guidelines of the Institute of Food Technologists (IFT). Entrance to this specialization takes place after at least one year of university (or equivalent) studies. Students normally complete their first year in the BSc Nutrition and Food Science General Program.
research. The Honors in Food Science program meets the guidelines of the Institute of Food Technologists (IFT).

Students will be assessed annually to ensure that they maintain a GPA of at least 3.0 in the previous Fall/Winter [see §33.4.(2)]. Students who fail to complete the requirements for a degree with Honors in the fourth year will be granted a degree with Specialization in Food Science and Technology provided that they meet the graduation requirements.

(1) Residence Requirement
A student transferring to the BSc Honors in Food Science program with advanced standing must complete at least *60 (normally the last *60) while registered in the Faculty of Agricultural, Life and Environmental Sciences at the University of Alberta.

(2) Requirements of the Honors in Food Science program
Listed below are courses that fulfill the program requirements, and a recommended sequence for the courses.

### Year 1 (normally taken in the BSc Nutrition and Food Science Program)
- BIOL 107
- CHEM 101, 102, (164 or 261)
- *6 ENGL or equivalent
- NU FS 100
- (MATH 113 or 114)
- STAT 151
- *3 free elective

### Year 2
- ALES 204
- BIOCH 200
- CHEM 211, 263
- ECON 101, 102
- MICRB 265
- NU FS 201 or *3 PHYS
- NU FS 283, 372

### Year 3
- BIOCH 310
- *3 free elective
- *3 Approved Program Elective
- NU FS 306, 312, 353, 361, 374, 430, 454

### Year 4
- AFNS 401
- *9 Approved Program Electives selected from 300/400 level
- NU FS
- AREC 323 or SMO 301
- NU FS 407 (*6), NU FS 450, 490, 499

The Capstone course for Honors in Food Science is NU FS 450.
The BSc Honors in Nutrition provides students with a specialized academic program in nutritional science and the related physical, health and social sciences. The Honors in Nutrition prepares students for admission to Graduate school leading to a Master of Science (MSc) or a Doctor of Philosophy (PhD). In addition, it prepares students for careers in general health sciences, health promotion, education, government and health protection agencies, research and nutrition development.

Students will be assessed annually to ensure that they maintain a GPA of at least 3.0 in the previous Fall/Winter [see §33.4.(2)]. A student who completes the requirements for a degree with Honors in the fourth year but fails to maintain a graduating GPA of 3.0 will be granted a degree with BSc Nutrition and Food Science, General Program, provided they meet the graduation requirements of the BSc Nutrition and Food Science General Program.

(1) Residence Requirement
A student transferring to the BSc Honors in Nutrition program with advanced standing must complete at least 60 (normally the last 60) while registered in the Faculty of Agricultural, Life and Environmental Sciences at the University of Alberta.

(2) Requirements of the Honors in Nutrition program
Listed below are courses required to fulfill the program requirements, and a recommended sequence of the courses:

Year 1 (normally taken in the BSc Nutrition and Food Science General Program)
*3 from (ANTHR 100 or SOC 100); NU FS 100, PSYCO 104
BIOL 107
CHEM 101, 102, (164 or 261)
*6 ENGL or equivalent
NU FS 100
STAT 151

Year 2
ALES 204
*3 of ANAT 200, BIOL 207, or PHARM 204
BIOCH 200, 340
CHEM 263
NU FS 223, 250, 372
PHYS 212 and 214

Year 3
*3 of IMMUN 371 or NU FS 361
MICR 265
NU FS 356, 377
NU TR 301, 302, 400, 468
STAT 252
*3 Free Elective
34.15.4 BSc Nutrition and Food Science, General Program

The General Program in Nutrition and Food Science provides students with a diverse and interdisciplinary education in nutrition and food science. Graduates have a working knowledge of the fundamentals of nutritional science coupled with basic knowledge in applied chemistry and microbiology as it pertains to food manufacturing, preservation, storage and distribution. This degree integrates a sound scientific education with course work related to applied economics, sociology and education, and applied science.

Students in the BSc Nutrition and Food Science, General Program must select one of the six minors available in the program. Students who choose not to select a minor are required to discuss their course selection with their academic advisor.

Graduates of this major may find employment opportunities in a variety of public or private enterprises including health education, health industry or international aid. Careers are guided by the selection of a minor in Food Marketing, Food Policy, Food Safety and Quality, Food Service Management, Human Ecology, Nutrition Communication and Education, Nutrition and Health, or Physical Activity, [see §34.15.3(4)]. Each minor positions graduates for careers in lifestyle management, the community-based human ecology sector, policy-making bodies in government or non-government institutions, or the food industry and food service management. Students are recommended to select minors by the second year of their program to facilitate appropriate course selection.

Students in the General Program may transfer to the Honors Food Science or Honors Nutrition programs, the Dietetics Specialization, the Specialization in Food Science and Technology if they meet the admission requirements. This transfer is normally done after the first year (see §§15.1.9 to 15.1.12). Students who transfer after their first year often require more than four years completing the entire program.

(1) Residence Requirement
A student registered in the BSc Nutrition and Food Science, General Program must complete at least 60 (normally the last 60) while registered in the Faculty of Agricultural, Life and Environmental Sciences at the University of Alberta.

### (2) Requirements of the BSc Nutrition and Food Science General Program

Listed below are courses required to fulfill the program requirements, and a recommended sequence of the courses:

#### Year 1
- **BIOL 107**
- **CHEM 101, 102, (164 or 261)**
- **ECON 101**
- **6 ENGL or equivalent**
- **NUTR 100**
- **NU FS 100**
- **STAT 151**

#### Year 2
- **ALES 204**
- **ANAT 200, BIOL 207, NU FS 200, PHYS 124 or PMCOL 200**
- **ANTHR 101, AN SC 100, ECON 102, or SOC 100**
- **BIOCH 200 or PLSC 331**
- **CHEM 263**
- **NU FS 223, (NU FS 372 or 373)**
- **PHYSL 210**

#### Year 3
- **AREC 323 or SMO 301**
- **NU FS 201, 306, 311, 356, 374**
- **NU FS 361 or 363**
- ***6 minor**
- **3 minor or free elective**

#### Year 4
- **NU FS 377**
- **NU FS 425 or 450**
- **NUTR 400**
- **9 minor**

*6 Approved Program Electives and *6 free electives.

The Capstone course for the BSc Nutrition and Food Science General Program is (NU FS 425 or 450 or 458).

### Note 1:
Students should refer to the requirements of their chosen Minor or to the requirements of their intended Specialization area (i.e. Dietetics or Food Science and Technology), to ensure that they select the appropriate courses required for that area of study.

### Note 2:
A course can only be counted once in the Program.

### Note 3:
The Capstone course for the BSc Nutrition and Food Science General Program is (NU FS 425 or 458). Students in some minors may select an alternative capstone course.
(3) Minors in the BSc Nutrition and Food Science General Program.

Students in the BSc Nutrition and Food Science General Program are encouraged to choose a minor in by incorporating at least 15 applicable to one of the minors into their program. Students who choose not to select a minor are required to discuss their course selection with their academic advisor.

Minor in Food Marketing

A minor in Food Marketing provides the opportunity to apply a nutrition and food science background to consumer behaviour and food marketing.

Requirements for the Minor (*15)
AREC 200, 384, 484
*6 from AREC 323 (if not taken to fulfill program core), AREC 473, 482, 485, PSYCO 281.
AREC 423 is an alternative capstone course for this minor.

Minor in Food Policy

A minor in Food Policy provides the opportunity to apply a nutrition and food science background to a health, fiscal and agricultural policy perspective to issues of health and food.

Requirements for the Minor (*15)
AREC 423 is an alternative capstone course for this minor.
AREC 200, 471, 473
ENCS 271
HECOL 300

Minor in Food Safety and Quality

A minor in Food Safety and Quality provides the opportunity to apply a nutrition and food science background to aspects related to food safety, food quality assurance, and food product development.

Requirements for the Minor (*18)
CHEM 211 (taken as free elective)
NU FS 312, 430, (NU FS 353 or 454), NU FS 427, 499
*3 of NU FS 402, 403, 404, 406, 426, 428, 480, or 481
NU FS 450 (taken as capstone course).

Minor in Food Service Management.

A minor in Food Service Management combines a nutrition and food science background to issues related to business management, human resources, and quality assurance as appropriate for a career in the food service industry.

Requirements for the Minor (*18)
ACCTG 300
AREC 484
MATH 113 (taken as free elective)
### Minor in Human Ecology
A minor in human ecology provides the opportunity to acquire knowledge and skills for developing, delivering and evaluating programs and services that enhance the well-being of individuals and families. Students who complete this minor may be eligible to apply for the registered designation of Professional Human Ecologist (information available from 3-02 HEB). This minor also provides access to the Human Ecology Practicum Program (HECOL 408 and 409) and through careful selection of courses and use of free electives, as well as approval of the Department of Human Ecology, a student can complete a practicum in a community agency that links with their career goals.

#### Requirements for the Minor (*18)
- HECOL 100 and 301
- *12 of HECOL 210, 300, 310, 313, 315, 321, 322, 408, 412, 414, 440, or 443
- Note: Students choosing to participate in the Human Ecology Practicum Program are required to take HECOL 408 as part of the minor requirements, and *6 HECOL 409 as free elective. HECOL 408 and 409 must be taken in sequence in the final year of study and an application is required. Please contact the human ecology practicum coordinator regarding application and registration in HECOL 408 and 409.

### Minor in Nutrition Communication and Education
A minor in Nutrition Communication and Education provides the opportunity to apply knowledge in nutrition communication and education to the planning and delivery of a broader range of educational programs.

#### Requirements for the Minor (*15)
- HECOL 301
- HE ED 320
- NU FS 410-424
- NUTR 443

### Minor in Nutrition and Health
A minor in Nutrition and Health provides the opportunity to apply knowledge in nutritional science to understand the

### Minor in Global Health
A minor in Global Health provides students with the
biochemical and physiological mechanisms of how macro- and micro-nutrients, and other dietary components modulate metabolic pathways in health and disease, and translation to the development of food products and food policy.

Requirements for the Minor (*18)
AREC 200, 471
HECOL 300
NUTR 443 or 480
NU FS 428, 424

Minor in Physical Activity
A minor in Physical Activity provides the opportunity to integrate nutrition and food sciences with health, health education, and physical activity.

Requirements for the Minor (*15)
HE ED 110, 220, and 321
*3 of HE ED 221, PEDS 391, PERLS 104, or RLS 100
NUTR 480

34.15.5 BSc Nutrition and Food Science, Dietetics Specialization.
The BSc Nutrition and Food Science, Dietetics Specialization prepares students for a career as Registered Dietitian. The Dietetics Specialization enables students to acquire both the knowledge and the practical skills needed to practice as a Registered Dietitian or Registered Nutritionist.

Registered Dietitians/Registered Nutritionists are uniquely trained food, diet and nutrition experts. As essential members of the interprofessional healthcare team, they contribute to health and well-being by translating scientific, medical and nutrition information into practical individualized therapeutic diets and meal plans for people. Registered Dietitians/Registered Nutritionists manage nutrition for health promotion, disease prevention, and treatment of acute and chronic diseases. They provide information and counseling that enables consumers to make informed decisions about food choices and nutrition services. Registered Dietitians also influence the development and promotion of consumer products and manage quality food service in healthcare institutions.

The Dietetics Specialization curriculum includes courses from the Faculty of Agricultural, Life and Environmental Sciences as well as those from other University of Alberta programs of study. During their second, third and fourth years in the specialization, students participate in professional practice or field experiences in various community settings, such as hospitals, foodservice operations, schools, and community agencies/clinics. Experience in rural settings is required. Students admitted to the Dietetics Specialization are also required to complete

opportunity to apply knowledge in human nutritional science to issues that are relevant to food availability and accessibility, dietary intake, nutritional status, food security, and food policy across the global community.

Requirements for the Minor (*21) include some courses selected within the General Program Core.
ECON 101
ANTHR 207, 372
NU FS 377
AREC 375
INT D 404
*3 from NU FS 410, 428, NUTR 443, AREC 471

Minor in Physical Activity
A minor in Physical Activity provides the opportunity to integrate nutrition and food sciences with health, health education, and physical activity.

Requirements for the Minor (*18) include some courses selected within the General Program Core.
HE ED 110, 220, and 321
NUFS 377
NUTR 480
*3 of HE ED 221, PEDS 391, PERLS 104, or RLS 100

34.15.5 BSc Nutrition and Food Science, Dietetics Specialization.
The BSc Nutrition and Food Science, Dietetics Specialization prepares students for a career as a Registered Dietitian. The Dietetics Specialization enables students to acquire both the knowledge and practical skills needed to be eligible to practice as a Registered Dietitian or Registered Nutritionist.

Registered Dietitians/Registered Nutritionists are uniquely trained food and nutrition experts. As essential members of the interprofessional healthcare team, they contribute to health and well-being by translating scientific, medical and nutrition information into practical individualized therapeutic diets and meal plans for people. Registered Dietitians/Registered Nutritionists manage nutrition for health promotion, disease prevention, and treatment of acute and chronic diseases. They provide information and counseling that enables consumers to make informed decisions about food choices and nutrition services. Registered Dietitians also influence the development and promotion of consumer products and manage nutrition and food services in healthcare institutions.

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Compliance with immunization requirements is mandatory for students in the BSc in Nutrition and Food Science, Dietetics Specialization program. It is important to note that all students must be immunized against, or provide proof of immunity to, poliomyelitis, diphtheria, tetanus, measles, mumps, and rubella. Varicella screening is required in the first year of the program and should be performed by the University Health Centre. In addition, students must have their immunization status reviewed by the University Health Centre upon acceptance to the BSc in Nutrition and Food Science, Dietetics Specialization program.

Completion of the BSc in Nutrition and Food Science, Dietetics Specialization achieves the minimum academic and practical training requirements accepted by the College of Dietitians of Alberta for registration to practice dietetics in Alberta. To register as a Dietitian in Alberta, a graduate must complete all of the requirements of the specialization including the professional practice courses. In addition to completing the requirements of the BSc in Nutrition and Food Science, Dietetics Specialization, graduates must successfully complete the Canadian Dietetics Registration Examination (CDRE) administered by the Alliance of Canadian Dietetic Regulatory Bodies. Information concerning the CDRE and/or registration requirements for dietitians in Alberta can be obtained from the Registrar, College of Dietitians of Alberta, 740, 10707 100 Avenue, Edmonton, Alberta T5J 3M1.

(1) Faculty Accreditation

The BSc in Nutrition and Food Science, Dietetics Specialization program at the University of Alberta has been approved by the College of Dietitians of Alberta and granted accreditation by Dietitians of Canada for a XXX year term, XXXX—XXXX.

(2) Admission, Academic Standing and Graduation

Entrance to this program takes place after at least one pre-professional year of university (or equivalent) studies. Students normally complete their pre-professional year in the BSc Nutrition and Food Science General Program. See §15.1.11 for details on the admission requirements. Students will be assessed annually to ensure that they maintain a GPA of 2.7 and passing grades in the professional practice courses [see §33.4.(3)]. Students who complete the course requirements for a degree with the Dietetics Specialization in the fourth year but fail to maintain a graduating GPA of 2.7 will be granted a degree with BSc Nutrition and Food Science General Program, provided they meet the graduation GPA of the general program.

(3) Health and Safety Requirements

Note: For updates on changes to health and safety requirements refer to the Faculty of Agricultural, Life and Environmental Sciences website at: www.ales.ualberta.ca/

(a) Immunization: To ensure, insofar as possible, both student and patient safety, the Faculty requires immunization against, or proof of immunity to, poliomyelitis, diphtheria, tetanus, measles, mumps, and rubella. Varicella screening is required in the first year of the program and should be performed by the University Health Centre. In addition, students must have their immunization status reviewed by the University Health Centre upon acceptance to the BSc in Nutrition and Food Science, Dietetics Specialization program.

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Specialization program. Immunizations may require updating based on individual assessment. Any fees associated with immunization updates or boosters are the responsibility of the student.

(b) Criminal Record Check: Under the Protection for Persons in Care Act, a criminal record check may be required by any site providing clinical practicums. The clinical practice site will determine the criteria for acceptance/denial of a placement. Students are responsible for having a criminal record check completed within 90 days of commencement of all clinical practicums. Students who have concerns related to their ability to satisfy a criminal record check should consult with the Faculty of Agricultural, Life and Environmental Sciences immediately upon being admitted to the program. The ultimate responsibility for meeting this requirement lies with the student. Other background checks may be required by a clinical agency such as a Vulnerable Sector Check, Child Welfare Check or Child Intervention Check. Students will be advised if any additional background checks are required by a clinical agency. Fees may be charged by police departments, RCMP detachments or government agencies for the criminal record and background checks. These fees are the responsibility of the student. For more information see §23.8.3.

(c) Respiratory Mask Fit Testing: Prior to acute care clinical practice placements, all students must be fitted for N95 Respiratory Masks in accordance with the contractual placement agreement with Alberta Health Services. These masks are worn when caring for patients with highly infectious diseases. The Health Sciences Council of the University of Alberta coordinates mask fit testing and the Faculty of Agricultural, Life and Environmental Sciences will notify students of fitting dates. A fee may be charged for mask fit testing. This fee is the responsibility of the student.

(4) Professional Practice Requirements

(a) Professional Ethics, Standards of Practice or Care, Policies and Procedures: All students enrolled in the Dietetics Specialization are bound by, and shall comply with the Professional Codes of Ethics governing the profession and practice of Dietetics, as well as the policies and procedures of the placement site and those of the Dietetics Specialization:

(b) Criminal Record Check: Under the Protection for Persons in Care Act (Alberta, 1998), all persons working or volunteering in designated agencies (hospitals, nursing homes, lodges, group homes, etc.) are required to provide the results of a current police information check (also known as a security clearance or criminal records check), which must include a Vulnerable Sector Check. This includes students in the Integrated Dietetic Internship who are placed in any of these designated agencies.

The host agency will determine the criteria for acceptance/denial of an intern placement. Students enrolled in the Integrated Dietetic Internship are responsible for having a Police Information Check completed prior to commencement of their professional practice placements. See § 23.8.3 for more information on the general requirements concerning Criminal Record Checks and the fees associated with them.

Students who have concerns related to their ability to provide a clear Police Information Check should consult with the Director, Integrated Dietetic Internship immediately upon being admitted to the program.

The ultimate responsibility for ensuring that the requirements of a placement site are met lies with the student. Students should be aware that in addition to the Police Information Check, other background checks may be required by a placement agency, such as a child intervention record check. Students will be advised if any additional background checks are required by a clinical agency.

(c) Respiratory Mask Fit Testing: Prior to all clinical practice placements, students must be fitted for N95 Respiratory Masks in accordance with the contractual placement agreements with Alberta Health Services and other placement sites. These masks are worn when caring for patients with highly infectious diseases. The Health Sciences Council of the University of Alberta coordinates mask fit testing and the Faculty of Agricultural, Life and Environmental Sciences will notify students of fitting dates. A fee may be charged for mask fit testing. This fee is the responsibility of the student.

(4) Professional Practice Requirements

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(b) Practicum Intervention Policy: The Dean, or supervisor acting on behalf of the Dean, may immediately deny assignment of a student to, withdraw a student from, or vary terms, conditions or site of a practicum/clinical placement if the Dean or supervisor has reasonable grounds to believe that this is necessary in order to protect the public interest. (See §23.8.2 and Practicum Intervention Policy.) For unprofessional, incompetent or unsafe practice on the part of the student not directly related to medical issues, the transcript will reflect the practices and sanctions delineated in the Code of Student Behaviour. Amendments to the Code of Student Behaviour occur throughout the year. The official version of the Code of Student Behaviour, as amended from time to time, is housed on the University Governance website at www.governance.ualberta.ca. The sanction typically includes a grade of F being assigned. The student has the right to appeal the Dean’s decision to the GFC Practice Review Board (PRB).

(c) Clinical and Professional Practice Performance:
- Students must complete theory and practice components of professional practice nutrition and dietetics courses to receive credit. Students who have not received a pass in the clinical/professional practice portion of a professional practice course are not given credit for the course and must repeat both the clinical and non-clinical portions of the course. The clinical component, explained in the course outline, must be completed for credit to be granted.
- A student who is absent more than one clinical day in any one clinical course may need to make up the lost time before being allowed to continue in the program.
- Students who fail the same professional practice course twice will be required to withdraw from the specialization.

(d) Rural Placement Requirement: All students enrolled in

- “Professional Codes of Ethics” means the current College of Dietitians of Alberta’s Code of Ethics for Registered Dietitians and Registered Nutritionists, as well as all other relevant professional codes and practice standards for Registered Dietitians.
- It is the responsibility of all students enrolled in the Dietetics Specialization to obtain, and be familiar with, such Professional Codes of Ethics, and their amendments as may be made from time to time. (See §30.1 and 30.2 of the Code of Student Behaviour. The official version of the Code of Student Behaviour, as amended from time to time, is housed on the University Governance website at www.governance.ualberta.ca).
- Students enrolled in professional practice placement courses are required to follow the administrative procedures and regulations (including dress requirements) of the placement site. Students are responsible for their transportation to practice placements and for the costs of travel and accommodations.
- For current information on the policies and procedures of the Dietetics Specialization, refer to the Faculty of Agricultural, Life and Environmental Sciences website at: www.ales.ualberta.ca/
the Dietetics Specialization are required to relocate to rural centres across Alberta on one or more occasions during their professional practice course work in order to acquire an understanding of this setting.
- “Rural” is defined as towns or municipalities outside the commuting zone of larger urban centres (with 10,000 or more population).
- Access to transportation and accommodation is not considered in arranging rural professional practice placements. The student is responsible for transportation to and from work each day and for finding his or her own accommodation while engaged in all professional practice courses.
- All costs associated with relocation to rural centres are the responsibility of the student. This includes transportation, accommodations, food, clothing, and learning resources.

(e) Accommodation for Persons with Disabilities: The Faculty of Agricultural, Life and Environmental Sciences supports the principle of accommodation and all reasonable efforts to meet the disability-related needs of students enrolled in the Dietetics Specialization. Student’s in need of accommodations must submit a written request for and formalize a professional practice accommodation plan one term prior to the planned start of a professional practice course. Detailed information on the Faculties policies and procedures related to accommodations during professional practice courses can be obtained from the Faculty Student Services Office.

(5) Residence Requirement
A student transferring to the Dietetics Specialization must complete at least *60 (normally the last *60) while registered in the Faculty of Agricultural, Life and Environmental Sciences at the University of Alberta.

(6) Requirements of the Dietetics Specialization
Listed below are courses required to fulfill the program requirements, and a recommended sequence of the courses:
Course sequencing for Professional Practice in Dietetics courses may vary based on the availability of placement sites.

<table>
<thead>
<tr>
<th>Pre-professional Year (normally taken in the BSc Nutrition and Food Science General Program)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 107</td>
</tr>
<tr>
<td>CHEM 101, 102, (164 or 261)</td>
</tr>
<tr>
<td>*6 ENGL or equivalent</td>
</tr>
<tr>
<td>NUTR 100</td>
</tr>
<tr>
<td>STAT 151</td>
</tr>
<tr>
<td>*6 free electives</td>
</tr>
</tbody>
</table>

Note: Credit acquired during the pre-professional year does not count towards the degree requirements for the BSc in Nutrition and Food Science, Dietetics Specialization. The required admission courses to be taken during the pre-professional year are shown here for information and program planning purposes only.

Pre-professional Year (normally taken in the BSc Nutrition and Food Science General Program)
BIOL 107
CHEM 101, 102, (164 or 261)
*6 ENGL or equivalent
NUTR 100
STAT 151
*6 free electives

Note: Credit acquired during the pre-professional year does not count towards the degree requirements for the BSc in Nutrition and Food Science, Dietetics Specialization. The required admission courses to be taken during the pre-professional year are shown here for information and program planning purposes only.
Year 1
ALES 204
BIOCH 200, 310
CHEM 263
NU FS 223, 250, 373
NUTR 201
PHYSL 210 (*6)
*3 Approved Program Elective

Year 2
Fall/Winter Terms
NU FS 363, 374, 377, 464
NUTR 301, 302, 400, 466, 468
SMO 204

Spring / Summer Terms
NUTR 469 – Professional Practice in Dietetics I (four week practicum)

Year 3
Fall/Winter Terms
ACCTG 300,
INT D 410
NUTR 450, 476
NU FS 410, 424, 428, NUTR 443, 452, 476, 477, 478, or 479 must be completed in Year 3 (Fall/Winter Terms)
*6 Approved Program Electives

Spring/Summer Terms
NUTR 470 – Professional Practice in Dietetics II (six week practicum)
NUTR 471 – Professional Practice in Dietetics III (six week practicum)

Year 4 (see Note 1)
Fall Term:
NUTR 472 – Professional Practice in Dietetics IV (six week practicum)
NUTR 473 – Professional Practice in Dietetics V (six week practicum)

Winter Term
NUTR 474 – Professional Practice in Dietetics VI (15 week practicum)
The Capstone course for the Dietetics Specialization NUTR 450

Year 1
ALES 204
BIOCH 200, 310
CHEM 263
NU FS 223, 250, 363
NUTR 201
PHYSL 210 (*6)

Year 2
Fall/Winter
NU FS 356, 373, 374, 377
NUTR 301, 302, 468, 482
ACCTG 300
*3 Approved Program Elective

Summer/Summer
NUTR 483

Year 3
Fall/Winter
NU FS 461
SMO 200, 311
*6 of NU FS 410, 424, 428, NUTR 443, 452, 477, 478, 479, 480 or HECOL 315 must be completed in Year 3
*3 Approved Program Electives

Spring/Summer
Two of NUTR 484, 485, 486 or 487

Year 4
Two of NUTR 484, 485, 486 or 487
NUTR 488

Note 1: The Capstone course for the Dietetics Specialization is NUTR 450

34.15.6 BSc Nutrition and Food Science, Food Science and Technology Specialization.
The Specialization in Food Science and Technology prepares students for careers in the Food Industry and related government sectors. The Specialization meets the guidelines of the Institute of Food Technologists (IFT). This academic program focuses on applying chemistry, microbiology, and engineering to the food systems and technological processes used in food manufacturing.

34.15.6 BSc Nutrition and Food Science, Food Science and Technology Specialization.
The Food Science and Technology Specialization prepares students for careers in the food industry and related government sectors. The Specialization meets the guidelines of the Institute of Food Technologists (IFT). This academic program focuses on applying chemistry, microbiology, and engineering to the food systems and technological processes used in food manufacturing.
preservation, storage, and distribution. Graduates of this major may enter the food industry as technical specialists or quality control managers. Opportunities also exist in government employment as inspectors, laboratory managers, and extension workers; in international development agencies; and in private laboratories providing consultative or technical service to the food industry and food marketing chains. Students who complete the course requirements for the Specialization in Food Science and Technology but fail to maintain a graduating grade point average of 2.7 will be granted a degree with BSc Nutrition and Food Science, General Program, provided they meet the graduation grade point average of the General Program.

(1) Residence Requirement
A student transferring to the Specialization in Food Science and Technology must complete at least *60 (normally the last *60) while registered in the Faculty of Agricultural, Life and Environmental Sciences at the University of Alberta.

(2) Requirements of the Specialization in Food Science and Technology
Listed below are courses required to fulfill the program requirements, and a recommended sequence of the courses:

**Year 1 (normally taken in the BSc Nutrition and Food Science General Program)**
- BIOL 107
- *6 ENGL or equivalent
- CHEM 101, 102, (164 or 261)
- MATH 113 or 114
- NU FS 100
- STAT 151
- *3 free elective

**Year 2**
- ALES 204
- *3 BIOCH
- CHEM 211, 263
- ECON 101, 102
- MICRB 265
- NU FS 201 or *3 PHYS
- NU FS 283, 372

**Year 3**
- *3 Approved Program Elective
- NU FS 306, 312, 353, 361, 374, 430, 454
- *6 free elective

**Year 4**
- AREC 323 or SMO 301
- NU FS 401, 450, 490, 499
- *9 Approved Program Electives selected from 300/400-level
- NU FS
- *6 Approved Program Electives
  The Capstone course for Specialization in Food Science and Technology is NU FS 450.

Note 1: The Capstone course for the Food Science and Technology Specialization is NU FS 450.

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

Students who complete the course requirements for the Food Science and Technology Specialization but fail to maintain a graduating grade point average of 2.7 will be granted a degree with BSc Nutrition and Food Science, General Program, provided they meet the graduation grade point average of the General Program.

(1) Residence Requirement
A student transferring to the Food Science and Technology Specialization must complete at least *60 (normally the last *60) while registered in the Faculty of Agricultural, Life and Environmental Sciences at the University of Alberta.

(2) Requirements of the Food Science and Technology Specialization
Listed below are courses required to fulfill the program requirements, and a recommended sequence of the courses:

**Year 1 (normally taken in the BSc Nutrition and Food Science General Program)**
- BIOL 107
- *6 ENGL or (*3 ENGL and *3 WRS)
- CHEM 101, 102, (164 or 261)
- MATH 113 or 114
- NU FS 100
- STAT 151
- *3 free elective

**Year 2**
- ALES 204
- BIOCH 200
- CHEM 211, 263
- ECON 101, 102
- MICRB 265
- NU FS 201 or *3 PHYS
- NU FS 283, 372

**Year 3**
- NU FS 305, 312, 353, 361, 374, 430, 454
- *6 Approved Program Elective
- *3 Free Elective

**Year 4**
- AREC 323 or SMO 301
- NU FS 401, 450, 490, 499 (see Note 1)
- *9 Approved Program Electives selected from 300/400-level
- NU FS
- *3 Approved Program Elective
- *3 Free Elective

Note 1: The Capstone course for the Food Science and Technology Specialization is NU FS 450.