**Faculty of Environmental Studies**

**Introduction**
The Faculty of Environmental Studies is composed of the Department of Environment and Resource Studies, Department of Geography, and School of Planning. An undergraduate program in Environment and Business, as well as graduate programs in Local Economic Development, and Tourism Policy and Planning are administered by the Office of the Dean. As a whole and within these units, the Faculty concentrates on using diverse knowledge and methods from different disciplines to understand human relationships with both built and natural environments. The Faculty uses the best of traditional teaching methods combined with innovative techniques to explore the many contemporary issues in environmental studies.

Planning is a professional school and, therefore, vocation oriented. Through the Faculty of Environmental Studies, they are integrated into the mainstream of the University’s concern with humankind and the environment through the two main thrusts of research and practical applications.

The academic departments, Environment and Resource Studies and Geography, have the interaction of people with the environment as their core. Both the Environment and Resource Studies and Geography Departments are interdisciplinary in nature and interact with many fields of study and research from the Arts, Science, Social Sciences, Mathematics, and Engineering.

Environment and Business is a faculty-level program that has contributions from ten different academic units across campus. Concerned with the ways in which business and the environment interact, this program investigates innovative approaches to the ways in which environmental issues affect business operations and business skills influence environmental agendas.

One of the innovative aspects of the Faculty of Environmental Studies is the high degree of interaction among its three units. Faculty members in each School or Department participate in the curriculum of the other units. Interaction with other parts of the University is also fostered, and joint appointments of faculty members with other Faculties and Schools/Departments have been made. Students are not only free to, but are encouraged to, choose courses from across the whole University.

**Degrees**

The Faculty of Environmental Studies offers the undergraduate degree, Bachelor of Environmental Studies (BES). A Master of Arts (MA), Master of Environmental Studies (MES) and a Doctoral (PhD) degree may be obtained in both Geography and Planning. A Master of Environmental Studies (MES) may be obtained in Environment and Resource Studies. The Faculty offers a Master of Applied Environmental Studies (MAES) in Local Economic Development, Planning, and Tourism Policy and Planning. In addition, the Environment and Resource Studies and Geography Departments offer Joint Honours plans at the undergraduate level with many other Departments in the University (see department sections for other details). Normally, admission to Joint Honours plans will be at the Year Two level.

Degrees may be obtained in the following areas:

- **BES** Honours Environment and Business (4-4/3 years with rotating work/study terms)
- **BES** Honours Environment and Resource Studies (4 years)
- **BES** Honours Co-operative Environment and Resource Studies (4-4/3 years with rotating work/study terms)
- **BES** Honours Geography (4 years)
- **BES** Honours Co-operative Geography (4-4/3 years with rotating work/study terms)
- **BES** General Geography (3 years)
- **BES** Honours Planning (4 years)
- **BES** Honours Co-operative Planning (4-4/3 years with rotating work/study terms)

- **MA** Geography
- **MA** Planning
- **MES** Environment and Resource Studies
- **MES** Geography
- **MES** Planning
- **MAES** Local Economic Development
- **MAES** Tourism Policy and Planning
- **PhD** Geography
- **PhD** Planning

The student should apply to the unit most suited to her/his interests. There is considerable freedom to transfer to other Faculties after Year One, depending upon the student’s academic record and plan. Ease of transferring between the units within the Faculty of Environmental Studies varies. Transfer to the Department of Environment and Resource Studies and the School of Planning is not normally permitted above Year Two.

The Faculty has several awards granted to students for meritorious performance, e.g., Dean’s Honours List, Alumni Gold Medal, monetary prizes. Further information can be obtained from the Office of the Associate Dean, Undergraduate Studies.

**University of Waterloo – Undergraduate Research Internship (UW-URI)**

For details, please refer to this section in Chapter 1 or visit www.ucalendar.uwaterloo.ca/UW/research_internship.html.

**Admission**

The admission categories, requirements, and procedures are outlined in detail in the “Admissions” section of this Calendar or the Faculty website at www.fes.uwaterloo.ca/admissions/programs.html.
Transfer Credit
Generally transfer credit is given for courses completed at accredited post-secondary institutions in which a grade of 60% or better was obtained. The exception is Planning, which requires a grade of 65% or better in courses completed at accredited post-secondary institutions.

A maximum of 10.0 units may be considered for transfer credit for an Honours Program and 7.5 units for a three-year program. The exception is Planning, where a maximum of 5.0 units may be considered. The maximum number of transfer credits may not be granted due to the specific plan requirements needed for the degree.

Students transferring from Faculties within the University, or former University of Waterloo students returning after an absence, generally have the option of either transferring previous UW courses with 60% or better (Planning requires 65%) without including these in the cumulative average, or transferring all relevant courses passed, and including all courses passed and failed in the cumulative average. The specific transfer credit policies as outlined in the paragraph above vary with each plan or Faculty. Students are advised to refer to the departmental or Faculty sections in the Calendar for detailed regulations. For “Failed Required to Withdraw” or readmission internal transfer credit, refer to the Environmental Studies Examinations and Standings section of the calendar.

Courses at Other Universities (Letter of Permission)
Students may request to take a course(s) at other universities for credit towards a UW degree by Letter of Permission. A Letter of Permission is granted only to students who have successfully completed a minimum of four University of Waterloo courses and who are in satisfactory standing; that is, they have satisfied the minimum cumulative average requirements for their current plan. A maximum total of 10 courses may be taken on a Letter of Permission or by Cross Registration with Wilfrid Laurier University or by enrolling in a Wilfrid Laurier University course which appears on the University of Waterloo Schedule of Classes.

Courses taken on a Letter of Permission at other institutions (except Wilfrid Laurier University) will appear on UW records as transfer credits (marks of CR) if a minimum grade of 60% or equivalent is attained with the exception of Planning, which requires a grade of 65% or better. Courses taken at Wilfrid Laurier University will appear on UW records as graded courses and the grades attained will be included in average and unit calculations.

A Letter of Permission must be approved by the student’s advisor prior to enrolling at the host institution and is subject to departmental regulations. The student may obtain the Letter of Permission Form available at www.registrar.uwaterloo.ca/forms/LetterOfPermission.pdf. More information about the Letter of Permission Policy and Procedures is given on the reverse side of the form.

English Language Proficiency Program
The Faculty of Environmental Studies expects that students should be able to demonstrate competence in writing. Accordingly, all students newly admitted to the Faculty are required to write the English Language Proficiency Examination (ELPE) during their first term of enrolment (normally scheduled during the first week in December). In the Faculty of Environmental Studies all students are required to write the English Language Proficiency Exam; exemptions will not be permitted. Students may demonstrate their competence in writing by achieving a passing grade on this examination. If students are not initially successful in achieving a passing grade on this examination, they will be allowed two additional opportunities, in their first year only, to re-write the exam. If students do not achieve a passing grade on this examination, they must successfully complete the assignments of the University of Waterloo Writing Centre. The requirement in all plans in the Faculty of Environmental Studies for ELPE is the achievement of 65 out of 90. All students must achieve this requirement by the end of Year Two or they will not be allowed to continue in their studies.

Note
Students who arrange a special sitting of the ELPE outside the scheduled dates will be assessed an administrative fee.

WHMIS (Workplace Hazardous Materials Information System)
Students registered in Faculty of Environmental Studies courses in which equipment will be used or procedures employed that could present hazards, must show proof that they have attended a UW-WHMIS session.

Examinations and Standings
The following regulations govern the practice of the Faculty of Environmental Studies in regard to final examinations, standing, and make-up examinations. These regulations also apply to part-time students and special plans. Further details concerning University Examination Regulations can be found in the “Examination Regulations and Related Matters” document available at www.registrar.uwaterloo.ca/exams/ExamRegs.pdf.

A maximum of 6.5 first-year units will be counted towards a BES. For other requirements, see the section for the Department/School. Normally a lecture course has a unit weight of 0.5. Students who have passed fewer than five units will be considered Year One; those who have passed at least five but fewer than ten will be considered Year Two; those with at least ten but fewer than 15, Year Three; and those with 15 or more, Year Four.
Final Examinations
1. In all courses each student is required to submit (in such form and at such time as may be determined by the instructor) evidence of satisfactory participation. The marks obtained from work during the term are used in part in determining standing. At the discretion of the Chair of the Department or the Director of the School and of the Dean, a student may be barred from the final examination if the course requirements are not completed to the satisfaction of the instructor.

2. Failure to write an examination is ordinarily considered a failure to pass (32). A student who defaults a final examination, except for a properly certified reason, shall have no make-up examination privileges and may be required to repeat the work in class. If a student fails to write for medical reasons, a Doctor's certificate covering the precise period of absence must be filed in the Registrar's Office within one week of the set examination date.

3. A student will be eligible for make-up examinations only when failure to pass is attributable to extraordinary circumstances. In addition, students must have attended a reasonable number of lectures in the course in which they propose to write, and must have satisfied all course work requirements;
   - must have attended a reasonable number of lectures in the course in which they propose to write, and must have satisfied all course work requirements;
   - must have secured the permission of the professor concerned.

Petitions, Re-assessments and Appeals
A petition involves instances where a student seeks relief from normal Faculty or University rules and regulations because of special circumstances normally beyond his or her control such as illness or bereavement. Petition forms are available at www.registrar.uwaterloo.ca/forms/Petition.pdf. Appropriate supporting documentation must accompany all petitions.

A request for re-assessment (www.registrar.uwaterloo.ca/forms/FormalInquiry.pdf) or a re-read may be initiated by a student who is convinced that the grade received in an examination, essay, or other piece of academic work is unreasonable. The first step in this process is for the student to approach the course instructor and attempt to work the matter out informally. This initial step must take place within four months of the receipt of the grade. If the problem cannot be resolved in this way, the student may submit a Request for a Formal Inquiry or for a Reassessment form (www.registrar.uwaterloo.ca/forms/FormalInquirypdf) to the Faculty's Associate Dean for Undergraduate Studies. A student who believes that an error in academic judgment or procedure has occurred may initiate an appeal. Whenever possible, an informal approach to the person whose judgment is being questioned should precede a formal appeal. Failure to reach a mutually satisfactory solution at the informal level may result in the student submitting a Request for a Formal Inquiry or for a Reassessment form (www.registrar.uwaterloo.ca/forms/FormalInquirypdf) to the Associate Dean for Undergraduate Studies. A formal appeal must be submitted within six months following the action being appealed.

At the informal and formal level students are encouraged to seek advice and assistance from the Undergraduate Associate Dean, Assistant Registrar, University Secretariat and/or the Ombudsperson.

See the Student Grievance Policy (UW Policy #70) for more information.

Submission of Course Material
In situations where a student wishes to submit a body of material to satisfy the requirement of more than one course, and where the courses are concurrent, the student must notify the instructors of both courses of her/his intention so that they may each decide what is appropriate for their own course.

When one of the courses has been taken in a previous term, the current course instructor must be informed by the student of her/his intention of submitting the same course material. The current instructor has the final decision on the extent to which the material is allowed.

Failure of a student to comply with the above regulation constitutes an academic offence.

Standing
1. Standing in an individual subject is determined by combining the marks assigned for course work with those obtained in the final examination. For the purpose of grading, the University Grading System described in Chapter 1 will be used. The number grade system is used in the calculation of averages in the Faculty of Environmental Studies. The unit weighting of courses is also taken into consideration in average calculations.

2. All courses taken from May 1984 to the present whether passed or failed are included in the cumulative overall and major averages. Students should note that their major average is determined by the cumulative average of grades assigned for all courses taken in the student's major plan including those with the Environmental Studies (ENVS) designation.

3. When a course is repeated, both marks will appear on the student record and will be included in the calculation of the cumulative overall average. If the course is part of the major requirement, both marks will be calculated in the major cumulative average.

4. Students receiving an incomplete (INC) standing in any course will be allowed four months from the completion date of the course to clear such standings. Any such standings not cleared within this period will automatically be converted to FTC which calculates in the average as 32. In the School of Planning, this grade cannot be changed without a student appeal to the School. The mark of "IP" or "In Progress" may be assigned temporarily to the first half of what is essentially
5. Some courses which are listed under separate labels or numbers have overlapping content. Only one of these courses may be taken for credit. These are designated with notes after the courses which would indicate one of the following:
   - the courses are cross-listed;
   - the courses are listed as antireq;
   - credit will be granted only for one of a pair of courses;
   - a course was formerly designated with a different number and/or label; or
   - students should consult their Undergraduate Officer.

6. To be considered in good standing in Honours plans, a student must maintain a cumulative overall average of at least 65% and a cumulative major average of at least 70%. If an Honours candidate’s average falls below the prescribed minimum, the individual can be given conditional standing for two consecutive academic terms, if in the opinion of the School or Departmental Promotions Committee, the person can attain Honours standing before graduation. If not, the geography student, upon request, may be considered as a candidate for a degree in the General Geography plan and the regulations in #8 below will apply.

7. To be considered in good standing in Honours Co-operative plans (in addition to maintaining the required minimum cumulative averages), students must complete and submit a satisfactory Co-op work report at the completion of each of their first four Co-op work terms. A minimum of four satisfactory work reports are required for the Honours Co-operative degree. Co-op work reports are usually due seven days after the first official day of lectures of the academic term in which the report is required. Students who fail to meet this requirement will not be permitted to continue in co-op.

8. To be considered in good standing in the General Geography plan, a student must maintain a cumulative overall average of at least 60% as well as an average of at least 65% in Geography. If at any time a student’s cumulative overall average falls below 60% or the average in the major subjects below 65%, the individual may be granted conditional status for two consecutive academic terms during which period he/she must obtain good standing or he/she will be required to withdraw.

9. Full-time students may be enrolled for additional or fewer courses than the normal load as required in each plan only after obtaining the approval of the appropriate Undergraduate Officer.

10. Even while otherwise in good standing, a student who fails more than two units or the equivalent over the academic year or who, in the opinion of the School or Departmental Promotions Committee, is deemed not to be profiting from university studies may be required to withdraw regardless of her/his cumulative average.

11. If a student receives a “Required to Withdraw” decision, he or she is eligible to apply for re-admission after an absence of two consecutive academic terms. If the reasons for withdrawal include disciplinary problems, a statement will be placed in the student’s file. If a student is granted re-admission:
   - the student’s cumulative overall and plan averages will be cleared, that is, grades achieved in all previous course work will not count in cumulative averages;
   - all previous UW course attempts and grades will remain on the student’s record and transcripts;
   - courses cleared but with grades over 60% (65% for Planning) will contribute to the total credits required; and
   - cumulative overall and plan averages for a degree will be based on courses taken following readmission and clearing of grades.

12. Generally, students wishing to graduate with a University of Waterloo Bachelor of Environmental Studies (BES) undergraduate degree must spend a minimum of two years or their final year in residence (full-time on campus). This does not preclude special studies approved in advance.

**Term Dean’s Honours List**

In order to officially recognize students who have attained a consistently high degree of academic excellence during their studies in the Faculty of Environmental Studies, the Faculty awards the distinction of “Dean’s Honours List.” This distinction is awarded to selected students at the completion of each academic term and appears on the Student Examination Report and on the Official Transcript as part of the academic decision. Students who graduate with Dean’s Honours List distinction will have it noted on their diploma.

To be eligible for this distinction, students must:

1. have completed a minimum of three UW courses in the term under consideration for the DHL which count in the cumulative overall average for that term.
2. have a cumulative overall average of 80% or higher.
3. have no marks of INC or NMR or failing grades in the term under consideration for the DHL.

**Graduating Dean’s Honours List**

Students graduating with a cumulative overall average of 80% or higher, and do not have any INC, NMR, or failing grades on his/her record ever, will have the designation “Graduating Dean’s Honours List” appear on his/her graduation diploma.
Academic Plans

Students who have not determined the field or subject in which they wish to concentrate should read the academic plan descriptions in this Calendar or visit www.fes.uwaterloo.ca/admissions/. After examining the suggested plan, the student should read the descriptions of individual courses in order to have a more comprehensive idea of the content of any plan. For additional clarification and information, students should consult their High School Guidance Counsellor or Undergraduate Officer of any University Department, or the Registrar, by letter, email or in person.

The Calendar is designed to enable students to make a wise choice of the current plans and courses while at the University of Waterloo. Students are encouraged to consult the Undergraduate Officer of the appropriate School or Department. The Assistant Registrar for Environmental Studies will also respond to inquiries.

Degree Requirements Common to all BES Academic Plans

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Honours BES, 4-year</th>
<th>General BES, 3-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum non work-term units</td>
<td>20.0 – 22.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Minimum work-term units</td>
<td>0.0 – 2.0</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Minimum Cumulative Average</td>
<td>65%</td>
<td>60%</td>
</tr>
<tr>
<td>Minimum Major Average</td>
<td>70% – 75%</td>
<td>65%</td>
</tr>
<tr>
<td>English Writing Skills</td>
<td>All Bachelor of Environmental Studies candidates must satisfy the English Language Proficiency Exam (ELPE) requirement before the end of Year 2.</td>
<td></td>
</tr>
</tbody>
</table>

The actual number of units required for the awarding of a degree varies with enrichment and emphasis, and depends on the academic plan(s) and system of study selected by the student. See the detailed description under the individual plans for plan specific requirements.

Access to Plans and Courses

Practical circumstances, such as significant budget shortfalls or the unavailability of qualified personnel, may result in restrictions in the choices available to students as compared with those listed herein or in other University publications. The University reserves the right to limit access to courses or plans, and, at its discretion, to withdraw particular plans, sub plans, options, minors, or courses altogether. In the event that existing resources make it necessary to limit admission to a plan, sub plan, option or minor, the admission process will be based on competition for the spaces available.

Course and Plan Changes

1. Students may add courses before and during the first two weeks of classes in the term in which the courses begin.
2. Students may drop courses before and during the first three weeks of classes in the term in which the courses begin.
3. The Drop Penalty 1 period commences at the beginning of week four and ends at the end of week eight. Penalty 1 is the automatic assignment of the grade, WD (Withdrawn after the drop deadline). No numerical grade is associated with a WD.
4. The Drop Penalty 2 period commences at the beginning of week nine and continues to the end of the term. Penalty 2 is the automatic assignment of the grade WF (Withdrawn/Failure). The grade of WF is equivalent to a 32% and will be calculated into term and cumulative averages.
5. Students may petition, because of special circumstances, for relief from the consequences of a late drop or withdrawal.
6. The mark of “IP” or “In Progress” may be assigned to the first half of what is essentially a year course which is listed as two courses (i.e., GEOG 490A and 490B). The mark indicates that the course is “In Progress” and that when completed, a final grade will be assigned to both the A and B halves of the course (usually the same grade). When the second or B half of such a course is dropped as the result of a change or withdrawal, the first half must also be dropped.
7. Students in the Faculty of Environmental Studies may not register for courses on an audit basis.
8. Students are encouraged not to enrol for more courses than their plans require unless exceptional circumstances can be demonstrated.

Incompatibility of Full-Time Study with Full-Time Employment

Students who by choice or necessity work on non-academic activities more than ten hours per week should, where possible, structure their course/work load so that they can attend fully to their academic obligations.

Minors

Within Honours Plans in the Faculty of Environmental Studies, students may concentrate study in an associated field to the extent that it becomes a Minor (typically five units; consult the Minor requirements for the applicable plan). A Minor can be in any area such as Anthropology, Chemistry, Human Resources Management, Management Studies, Psychology, etc.

Options

Students can elect to take a recognized University Option. Consult Arts for more information (www.ucalendar.uwaterloo.ca/ARTS/artsprog.html#Arts Interdisciplinary Options). In addition, students may elect to take the Arts Humanities Option (www.ucalendar.uwaterloo.ca/ARTS/arts_humanities.html) or a

See the Glossary of Terms on page 9 for definitions of terms used in this section.
Concurrent BA Degree (www.ucalendar.uwaterloo.ca/ARTS/artsprog.html).

Environmental Studies Minor
The Environmental Studies Minor consists of ten courses, as follows:

ENVS 195
Two of: ARCH 100, ENVS 200, 201, 220
Four of: ENVS 334/REC 334, ENVS 401, ENVS 433/REC 433, ENVS 434/GEOG 367/PLAN 340/REC 434, ENVS 469

In addition to the above, three other courses offered within the Faculty of Environmental Studies are required.

The Environmental Studies Minor is not available to students enrolled in Environment and Business, Environment and Resource Studies, Geography, and Planning. Architecture students may not count ARCH 100 towards the minor. An overall average of 70 in the ten courses will be required. The Associate Dean, Undergraduate Studies may substitute courses if any of the above are not available.

Note
There will be no triple counting of any course for any academic credit in the Faculty of Environmental Studies. Double counting of courses applies as follows: once for the plan, and once more for an option, minor, diploma, or specialization. There is no limit on the number of courses that may be double counted.

Students who intend to have an Option or Minor recognized on their transcripts must communicate that intention to the Director of the Option or Minor prior to the start of Year 3 by completing a Plan Modification/Application for Internal Transfer Form available at www.registrar.uwaterloo.ca/forms/PlanModification.pdf.

UW/WLU Business Option
A Business Option, offered jointly with Wilfrid Laurier University, is available to undergraduates in the Departments of Environment and Resource Studies, Geography, and in the School of Planning. It may not be combined with the Human Resources Management Minor or the Management Studies Minor due to similar coursework.

1. The requirements for the Option are nine courses (six core and three elective):
   A. Six courses selected from the five course groups below:
      o AFM 101
      o BUS 121W and one of AFM 131, or BUS 111W
      o BUS 352W or ECON 344
      o BUS 288W or PSYCH 338 or MSCI 211
      o BUS 354W or HRM 200
   B. Three Additional Electives selected from the courses below:
      o ECON 101,
      o Any other Economics course (one only)
      o AFM 102

2. It is recommended that students take an introductory Economics course in the first or second year.

3. All WLU Business courses require BUS 121W and one of AFM 131 or BUS 111W as prerequisites.

Note
There will be no triple counting of any course for any academic credit in the Faculty of Environmental Studies. Double counting of courses applies as follows: once for the plan, and once more for an option, minor, diploma, or specialization. There is no limit on the number of courses that may be double counted.

Students who intend to have an Option or Minor recognized on their transcripts must communicate that intention to the Director of the Option or Minor prior to the start of Year 3 by completing a Plan Modification/Application for Internal Transfer Form available at www.registrar.uwaterloo.ca/forms/PlanModification.pdf.

Geomatics Option
The Geomatics Option is available for students in the Department of Environment and Resource Studies, Department of Geography, and the School of Planning in the Faculty of Environmental Studies.

Required Courses
Four courses: GEOG 276, 304, 376, 471

Elective Courses
At least three of the following courses: GEOG 255/PLAN 255, GEOG 355/PLAN 355, GEOG 455/PLAN 455, GEOG 457/PLAN 457, GEOG 555/PLAN 555

Note
There will be no triple counting of any course for any academic credit in the Faculty of Environmental Studies. Double counting of courses applies as follows: once for the plan, and once more for an option, minor, diploma, or specialization. There is no limit on the number of courses that may be double counted.

Students who intend to have an Option or Minor recognized on their transcripts must communicate that intention to the Director of the Option or Minor prior to the start of Year 3 by completing a Plan Modification/Application for Internal Transfer Form available at www.registrar.uwaterloo.ca/forms/PlanModification.pdf.
Parks Option
The Parks Option is available for all students in the Faculty of Environmental Studies.

**Required Courses**
Four courses: ENVS 200 or BIOL 250, REC 230, ENVS 334/REC 334, ENVS 433/REC 433*, or ENVS 434/GOEG 367/PLAN 340/REC 434

**Elective Courses**
Four of the following courses: ENVS 201, ENVS 433/REC 433*, ENVS 434/GOEG 367/PLAN 340/REC 434, ERS 241, GOEG 102 or SCI 250, GOEG 305, 356, 405/BIOL 453, GOEG 368/PLAN 341, REC 280, REC 416, REC 425/PLAN 414

* If students take ENVS 433/REC 433 as a core course, they are strongly encouraged to take ENVS 434/GOEG 367/PLAN 340/REC 434 as an elective, and vice versa.

**Note**
There will be no triple counting of any course for any academic credit in the Faculty of Environmental Studies. Double counting of courses applies as follows: once for the plan, and once more for an option, minor, diploma, or specialization. There is no limit on the number of courses that may be double counted.

Students who intend to have an Option or Minor recognized on their transcripts must communicate that intention to the Director of the Option or Minor prior to the start of Year 3 by completing a Plan Modification/Application for Internal Transfer Form available at www.registrar.uwaterloo.ca/forms/PlanModification.pdf.

Sustainable Local Economic Development Option
The Sustainable Local Economic Development Option is available for all students in the Faculty of Environmental Studies. A 65% cumulative average is required in the option courses.

**Required Courses**
Three courses (1.5 units): ERS 218, One of GOEG 203 or 250, PLAN 233

**Elective Courses**
At least five courses (2.5 units), representing all three units from Environmental Studies, must be chosen from the following list: ARCH 226, ECON 220, 335, ENVS 220, ERS 253, 316, 370, 409, GOEG 323/REC 383, 340, 349/PLAN 349, 355, 411, 459, PLAN 340/GOEG 367/ENVS 434/REC 434, PLAN 362, 50C 286

**Note**
There will be no triple counting of any course for any academic credit in the Faculty of Environmental Studies. Double counting of courses applies as follows: once for the plan, and once more for an option, minor, diploma, or specialization. There is no limit on the number of courses that may be double counted.

Students who intend to have an Option or Minor recognized on their transcripts must communicate that intention to the Director of the Option or Minor prior to the start of Year 3 by completing a Plan Modification/Application for Internal Transfer Form available at www.registrar.uwaterloo.ca/forms/PlanModification.pdf.

Tourism Option
The Tourism Option is available to any University of Waterloo student who meets the required prerequisites. The option is designed for students specializing in tourism impacts, tourism planning, tourism marketing, heritage and outdoor recreation.

**Required Courses**
Four courses: GOEG 233, 423, REC 280, REC 383/GOEG 323

**Elective Courses**
Four of the following: ECON 220, ENGL 208M, ENVS 433/REC 433, GOEG 202, GOEG 319/PLAN 320, GOEG 333/REC 333, GOEG 426, REC 215, 380, 425/PLAN 414, REC 480

**Note**
There will be no triple counting of any course for any academic credit in the Faculty of Environmental Studies. Double counting of courses applies as follows: once for the plan, and once more for an option, minor, diploma, or specialization. There is no limit on the number of courses that may be double counted.

Students who intend to have an Option or Minor recognized on their transcripts must communicate that intention to the Director of the Option or Minor prior to the start of Year 3 by completing a Plan Modification/Application for Internal Transfer Form available at www.registrar.uwaterloo.ca/forms/PlanModification.pdf.

Distance Education Courses
Distance education courses may be taken at any time by on-campus students.

Exchange Agreements
Student exchange agreements between Waterloo and several Australian institutions have been approved; these include the School of Australian Environmental Studies at Griffith University, Brisbane, Queensland, and the environmental studies program at Deakin College, Clayton (near Melbourne), Victoria. An exchange agreement exists with the University of Leeds, UK. Under these arrangements, a small number of students from the University of Waterloo could take courses which would be credited towards their degrees at Waterloo, and vice versa. For additional information and criteria for eligibility, contact the Associate Dean, Undergraduate Studies or the Assistant Registrar. Application deadline for Australian Exchange Programs is March 1 of the year prior to the expected year of travel.

Diploma of Excellence in Ecological Restoration and Rehabilitation
The Diploma of Excellence in Ecological Restoration and Rehabilitation is available to all students in the Faculty of Environmental Studies. Students must complete the courses listed below and obtain 80% overall in the 6 required courses as well

See the Glossary of Terms on page 9 for definitions of terms used in this section.
as document five days of practical restoration experience to be completed in ENVS 469.

ENVS 178 or STAT 202, ENVS 195, ENVS 200 or BIOL 250, ERS 381/BIOL 381, ENVS 469 and either one of ENVS 434/GEOG 367/PLAN 340/REC 434 or GEOG 368/PLAN 341

Note
There will be no triple counting of any course for any academic credit in the Faculty of Environmental Studies. Double counting of courses applies as follows: once for the plan, and once more for an option, minor, diploma, or specialization. There is no limit on the number of courses that may be double counted.

Diploma in Environmental Assessment
The Faculty offers a diploma for the successful completion of a series of assessment courses. For further information consult the Undergraduate Advisor of the Department of Environment and Resource Studies.

Diploma of Excellence in Geographic Information Systems
The Diploma of Excellence in Geographic Information Systems is available to any student who completes the courses below and satisfies the minimum grade requirement. Students must attain a minimum average of 80% across the five courses required for the Diploma.

Required Courses:
GEOG/PLAN 255 GEOG/PLAN 355 GEOG/PLAN 455 GEOG/PLAN 457 GEOG/PLAN 555

Note
There will be no triple counting of any course for any academic credit in the Faculty of Environmental Studies. Double counting of courses applies as follows: once for the plan, and once more for an option, minor, diploma, or specialization. There is no limit on the number of courses that may be double counted.

Further information can be obtained from the Undergraduate Advisors, Undergraduate Officers at www.fes.uwaterloo.ca/ faculty/handbook/who.html or the Associate Dean, Undergraduate Studies.

Environment and Business

Honours Co-operative Environment and Business
Environmental issues are increasingly a part of business operations. Similarly, business approaches are becoming integral to the management of many environmental challenges. As the links between environment and business grow, there is a demand for individuals with a strong foundation in interdisciplinary environmental studies complemented by expertise in core business subjects. Decision-makers, not only in business, but in government and non-governmental organizations as well, often need to understand key environmental relationships as well as the economic ramifications of alternative courses of action.

Environment and Business is a distinctive interdisciplinary plan designed to equip its graduates with a unique blend of knowledge in environmental studies and business areas, as well as a set of flexible problem solving and decision making skills. Graduates will be prepared to make valuable contributions to the understanding of environmental and business issues and to act on these challenges. The potential to develop a rewarding career is great. Graduates from Environment and Business might develop business plans for alternative energy suppliers. They might analyze the environmental record of a set of Fortune 500 companies. They might help businesses plan and reduce their ecological impact using environmental management systems.

This plan develops students’ expertise in three key areas:

1. Integration of Environment and Business: These courses serve as the core of the Environment and Business degree experience. Each course examines an aspect of the explicit intersection between environment and business; for example: voluntary initiatives, environmental management systems and industrial ecology. Students will also have the opportunity to investigate case studies of specific environment and business experiences.

2. Environment: These courses provide the necessary expertise in environmental issues, allowing specialization in particular sub-areas, for example field ecology, environmental research methods, and environmental law.

3. Business: These courses provide the necessary expertise in business issues, providing basic competencies in the sub-areas of finance, project management, accounting, economics, marketing, and law.

The strength of the plan is enhanced not only by its own multidisciplinary core faculty, but also by the wider expertise available to it at the University of Waterloo. Ten different academic units contribute to the Environment and Business program. Insights gained from across the campus will allow students to develop their own interdisciplinary set of skills. The formal admission requirements are listed in the “Admissions” section of this Calendar.

The Honours Co-op plan provides for alternate terms of practical work experience and academic study. The first work term is in

See the Glossary of Terms on page 9 for definitions of terms used in this section.
the Winter of the second year. Co-op Environment and Business students must normally follow the work and study-term sequence outlined in the “Co-op Course Scheduling Recommendation.” Students complete five work terms. A work-term report is required upon completion of each work term and the minimum number of “satisfactory” work reports required to fulfill Co-op degree requirements is normally four. Inquiries for additional information regarding Co-operative studies should be directed to the Director of Environment and Business.

The Faculty of Environmental Studies expects that students should be able to demonstrate competence in writing. Accordingly, all students newly admitted to the Faculty are required to write the English Language Proficiency Examination during their first term of enrolment (normally scheduled during the first week of December). The requirement in all plans in the Faculty of Environmental Studies for ELPE is the achievement of 65 out of 90. This must be met by students by the end of Year Two or the decision “May Not Proceed” will be assigned.

Additional information on this plan may be obtained from the Director of Environment and Business.

### BACHELOR OF ENVIRONMENTAL STUDIES

#### Honours Co-operative Environment and Business Requirements

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<tr>
<th>Year One</th>
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<tbody>
<tr>
<td>AFM 123</td>
<td>Accounting Information for Managers</td>
<td>AFM 131</td>
<td>Management</td>
</tr>
<tr>
<td>ECON 101</td>
<td>Introduction to Microeconomics</td>
<td>ECON 102</td>
<td>Introduction to Macroeconomics</td>
</tr>
<tr>
<td>ENVS 102</td>
<td>Introduction to Environment and Business</td>
<td>ENVS 130</td>
<td>Professional Communication in Environmental Studies</td>
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<tr>
<td>ENVS 178</td>
<td>Introduction to Environmental Research Methods</td>
<td>ENVS 195</td>
<td>Introduction to Environmental Studies</td>
</tr>
<tr>
<td>GEOG 101</td>
<td>Geography and Human Habitat</td>
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<td>plus electives for a total of five units</td>
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<th>Year Two</th>
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<tbody>
<tr>
<td>AFM 231</td>
<td>Business Law or MTHEL 100 Business Law for Math Students</td>
<td>ENVS 200</td>
<td>Field Ecology</td>
</tr>
<tr>
<td>ENVS 202</td>
<td>Environmental Management Systems</td>
<td>ENVS 278</td>
<td>Advanced Environmental Research Methods</td>
</tr>
<tr>
<td>ERS 218</td>
<td>Introduction to Sustainable Resource Systems</td>
<td>GEOG 202</td>
<td>Location of Economic Activity</td>
</tr>
<tr>
<td>GEOG 203</td>
<td>Development and the Environment</td>
<td>PHIL 215</td>
<td>Professional and Business Ethics</td>
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<td>plus electives for a total of five units</td>
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<th>Year Three</th>
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<tr>
<td>ECON 220</td>
<td>Principles of Entrepreneurship</td>
<td>ECON 344</td>
<td>Marketing: Principles of Marketing and Consumer Economics</td>
</tr>
<tr>
<td>ECON 371</td>
<td>Business Finance 1</td>
<td>ENVS 201</td>
<td>Introduction to Environmental and Planning Law</td>
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### ENVIRONMENTAL STUDIES

#### Environment and Business

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<tr>
<th>Year Four</th>
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<tbody>
<tr>
<td>ENVS 402A/B</td>
<td>Environment and Business Project</td>
<td>HRM 200</td>
<td>Basic Human Resources Management</td>
</tr>
<tr>
<td>PLAN 403</td>
<td>Professional Practice, Public and Private Administration</td>
<td></td>
<td>plus electives for a total of five units</td>
</tr>
</tbody>
</table>

#### Note

The sequence of courses is subject to change based on course offerings, consultation with program advisor is recommended.

#### Suggested Elective Courses:

- ARCH 100 An Introduction to Architecture
- ARCH 125 Principles of Environmental Design
- ARCH 327 The Architecture of the Urban Environment
- ECON 333 Urban and Regional Economics
- ECON 334 Institutions of International Trade and Finance
- ECON 335 Economic Development
- ECON 355 Economics of Energy and Natural Resources
- ECON 372 Business Finance 2
- ENS 401 Environmental Law
- ERS 241 Introduction to Environmental Assessment
- ERS 250 Greening the Campus and Community
- GEOG 212 Japan and the Pacific Rim
- GEOG 221 The United States
- GEOG 319 Economic Analyses for Regional Planning OR PLAN 320 Economic Analyses for Regional Planning
- GEOG 323 Perspective on International Tourism
- GEOG 353 Retail Location
- GEOG 411 Dimensions of Industrial Restructuring
- PHIL 145 Critical Thinking
- PHIL 243 Creative Thinking, Problem Solving and Decision Making
- PSCI 231 Government and Business in Canada
- REC 215 Marketing Recreation and Leisure Services
- SOC 238 Marketplace Activity: An Interactionist Analysis
- SOC 242 Industrial Sociology
- SPCOM 223 Public Speaking
- STV 100 Society, Technology and Values: Introduction

#### Notes

1. Minimum Required Courses

Total: 20 units. Environment and Business: 15.5 units.

Environment and Business students may not take ERS 370 for credit towards the Environment and Business degree.

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See the Glossary of Terms on page 9 for definitions of terms used in this section.
2. Course Load

No more than five courses may be taken in a term without the approval of the Director. Normally, approval for a sixth course will be considered only if the cumulative Environment and Business average is 78% or higher.

3. Average Requirements

Students must maintain an overall cumulative average of 65% and a cumulative average in the core courses of 70%. All required courses must be passed.

4. Honours Co-operative Plan

Honours Environment and Business Co-op is a five work-term plan in which four work-term reports have to be written. The first work-term occurs in the Winter term of the second year and a work report is required at the end of this placement.

5. Transfer Students

Transfer applicants with post-secondary background may be considered for admission to the BES (Environment and Business) program. In order to meet the appropriate degree requirements for this program, specifically the proper sequence of courses and co-op terms, transfer applicants will be required to begin Environment and Business studies at the first year (1A) level. Applicants should be aware that transfer credit may not be granted for courses completed in other UW programs or at other universities/colleges. Transfer students will only be admitted in the fall term.

6. Restriction on Number of First-Year Courses

A student must have at least 13.5 units above the 100 level.

Department of Environment and Resource Studies

The Department of Environment and Resource Studies offers both an Honours Regular Academic Plan and an Honours Co-operative Academic Plan. These two Honours degree Academic Plans are oriented towards study of the many dimensions of human inter-relationships with various environments, including natural and managed landscapes, buildings and cities, small groups, communities, and whole societies. Through problem- and issue-oriented inquiry into such complex relationships, along with related study in contributing academic disciplines, ample scope is provided for acquiring a broad-based education as well as technical knowledge and skills.

The current emphases in research and scholarship among the faculty fall into four major thematic areas:

1. Sustainable Environmental and Resource Systems
2. Environmental and Social Impact Assessment
3. Natural Area Management
4. Sustainable Communities

Many of the positions held by graduates of the Department can be described by one of these headings.

An even more important goal of the Academic Plan offered by the Department is the development of abilities to think and to analyse which are not artificially constrained by conventional boundaries of academic disciplines. The importance of the ability to analyse environmental situations from a broad perspective derives from the recognition that the complex interrelated problems of the contemporary world and of the future will be resolved only through this type of approach. These problems require attention from people who not only have specialized technical abilities, but also have increased perspective, awareness and understanding. They must also have the ability to work effectively in cooperation with others and to take responsibility for the human, social, and environmental implications of the results.

The Environment and Resource Studies Academic Plans are flexible and do not concentrate on one technical or pre-professional field to meet specifications for particular jobs. Rather, by presenting a wide range of subjects and problems inherent in the theme of human-environment relationships, the Academic Plan allows students to see for themselves what the needs of society are. Through selection of topics for study within required courses, through selection of electives, and through summer work experiences in the Regular Academic Plan and work-term experiences in the Co-operative Academic Plan, students can equip themselves for careers which will meet those societal needs.

Some graduates of the Department of Environment and Resource Studies further enhance their qualifications through graduate study. Graduates holding the BES degree in Environment and Resource Studies have found employment in a range of government agencies in fields such as natural resources management, pollution control, social services planning, and urban affairs as well as with private corporate and consulting firms in the communications industry and environmental design; with other universities as full-time teaching or research personnel; and with community agencies in various social programs. Many also dedicate themselves to considerable voluntary work with environmental and community-based organizations. Others who have graduated from Environment and Resource Studies have gone on to postgraduate work in programs such as urban and metropolitan studies, natural resources administration, regional planning, environmental engineering, law, systems design, teacher training, adult education, and communications studies.

The Department is fortunate in having a multidisciplinary faculty whose formal education and experience range over a number of disciplines in the natural sciences, social sciences and the humanities. They bring to the Academic Plan qualifications in such fields as agriculture, ecology systems, environmental planning, communications, economics, geography, law, mathematics, physics, political science, and sociology, as well as a variety of experiences in such diverse areas as ecological research, economic studies, urban affairs, technology assessment, and work with international organizations.

See the Glossary of Terms on page 9 for definitions of terms used in this section.
For the approach used in Environment and Resource Studies, considerable academic innovation has been desirable. Besides lectures and labs, the Academic Plan emphasizes open-door, personal contact among students and faculty members; student-selected projects and community work; field trips to environments other than lecture halls; team teaching; a regular flow of visitors from outside the University; and workshop instruction to help develop techniques and skills relevant to environmental studies. Students in both the Regular and Co-operative Environment and Resource Studies Academic Plans are encouraged to relate aspects of their Academic Plan to summer or work-term employment, involvement with community organizations or other self-generated activity. Students often incorporate this experiential learning into the university-based educational process. For many students a “theme”-oriented Academic Plan of this kind offers a more satisfying undergraduate education than traditional alternatives.

More information may be obtained from the Undergraduate Officer, Department of Environment and Resource Studies.

**BACHELOR OF ENVIRONMENTAL STUDIES**

**Honours Environment and Resource Studies**

The formal admission requirements are listed in the “Admissions” section of this Calendar.

The Faculty of Environmental Studies expects that students enrolled in any of its Academic Plans should be able to demonstrate competence in writing. Accordingly, all students newly admitted to the Faculty are required to write the English Language Proficiency Examination (see the English Language Proficiency Program section for the Faculty of Environment and Resource Studies for more information on this requirement). Because of the necessity of communicating research and project results during studies and in careers after graduation, writing skills are particularly important in Environment and Resource Studies.

Applicants who have been out of school for a number of years are considered on the basis of their work experiences, their involvement in environmental activities or interests in environmental studies, as well as their past academic record.

There are 7.0 core units in the Academic Plan. In addition, 2.5 units must be selected from ERS and/or ENVS courses. The first-year introductory courses examine major environmental themes from the viewpoints of the natural and social sciences. In the second year, further work in natural ecology and the social sciences, including techniques for investigating environmental questions and experience in conducting a systematic enquiry through the device of small group projects, helps to introduce other perspectives and themes running through environment and resource studies. Additional course work on research design, methodology, and information or data handling is also required in the second year.

The core requirements for the third and fourth years include an in-depth examination of the development of environmental thought and an independent project course in each year, in which the student, working with an advisor, develops a project proposal and undertakes research. Arrangements to receive extra credit for project work have been provided for those who learn most effectively through undertaking self-directed work under the guidance of faculty and other advisors.

The emphasis given to project-oriented learning within the Academic Plan reflects the importance attached to having students develop increasingly sophisticated abilities for coping with situations that are inherently complex, value-laden, ambiguous and uncertain. Project-oriented learning provides the occasion to practise skills in problem definition, information and data gathering, analysis and synthesis of material, and presentation of results in a suitable format using the most appropriate communications media. Skills of this nature can be refined, adapted and applied in whatever context or situations students choose during and after their university years. An increasing number of students incorporate work with governmental agencies, community organizations and other groups into projects they select for their third- and fourth-year project assignments and, in a few cases, well-conceived and executed projects have led to employment in a variety of organizations.

Elective courses can be chosen from anywhere in the University and options start from the first year in the Academic Plan. Faculty will advise on this, but essentially there are five possibilities, as follows:

1. **The Honours Regular and Co-operative Academic Plans**

   Students take the required core courses and whatever sets of elective courses they wish to round out their individual interests and skills. Students may be admitted to the Co-op Academic Plan in the first or second year.

2. **A Joint Honours Degree**

   Students can elect to take a Joint Honours degree with another department, which will require fulfilling the requirements of a second department as well as Environment and Resource Studies. Students from other plans choosing a joint honours plan with ERS as the second major must complete 7.0 ERS core units plus 2 additional ERS and/or ENVS courses for a total 8.0 units. Students in all plans may substitute their home department’s equivalent senior honours essay or thesis or senior seminar for ERS 490A/B.

3. **A Minor**

   Students can elect to take a Minor with another department, which requires completion of ten courses in another department, as designated by that department.

4. **An Option**

   Students can elect to take one of the recognized Options outside of the Department involving choices among sets of courses all bearing on some theme or field of interest. See, for example, Society, Technology and Values (STV), Canadian Studies, Legal Studies and Criminology, Management Studies, Peace and Conflict Studies, and other Interdisciplinary Academic Plans.

See the Glossary of Terms on page 9 for definitions of terms used in this section.
In each case students should give careful consideration to their choices in terms of the educational goals and possible careers they may wish to pursue after obtaining a BES degree. They would also do well to seek information and advice on the kind of undergraduate courses favoured by graduate programs in which they may be interested.

The recommended course load is five courses per term. Each student must have completed 20 units or the equivalent to graduate. Of these, 7.0 units are specific required courses. An additional 2.5 units must be selected from ERS and/or ENVS courses, with 10.5 units as free electives. A cumulative overall average of 65% and a cumulative average of 70% in ERS/ENVS courses must be maintained. There are several evaluation techniques used to determine grades.

### Honours Regular Environment and Resource Studies Requirements

#### Year One
- ENVS 195 Introduction to Environmental Studies
- ERS 100 Issue Analysis and Problem Solving for Environmental Studies 1
- ERS 101 Issue Analysis and Problem Solving for Environmental Studies 2
- ENVS 178 Introduction to Environmental Research Methods
  
  **plus electives for a total of five units**

#### Year Two
- ENVS 200 Field Ecology
- ERS 218 Introduction to Sustainable Environmental and Resource Systems
- ERS 250 Greening the Campus and Community
  
  **plus electives for a total of five units**

#### Year Three
- ERS 319 Approaches to Environmental Decision-Making
- ERS 390 Environmental Research Project
  
  **plus electives for a total of five units**

#### Year Four
- ERS 490A Senior Honours Project
- ERS 490B Senior Honours Project
- ERS 496 Development of Environmental Thought 2
  
  **plus electives for a total of five units**

**Note**

Students wishing to transfer to Environment and Resource Studies may receive credit for courses previously completed. Students should meet with the Undergraduate Officer to determine transferable courses and course selections for first year. The requirement of 27 courses above 100-level may not be applicable to transfer students.

### Honours Co-operative Environment and Resource Studies Requirements

Terms 1A, 1B, 4A and 4B are the same as Years One and Four respectively of the Regular Academic Plan. In the Fall term (2A) Co-op students will be interviewed for jobs. The first work term will be in the Winter following 2A. A total of four approved work term reports is required for the Honours Co-op degree. The Co-op schedule is as follows:

#### Term 1A and 1B
Same as Regular Academic Plan

#### Term 2A
- ENVS 200 Field Ecology
- ERS 218 Introduction to Sustainable Environmental and Resource Systems
- ERS 250 Greening the Campus and Community
  
  **plus electives for a total of 2.5 units**

#### Term 2B
Electives for a total of 2.5 units

#### Term 3A
- ERS 319 Approaches to Environmental Decision-Making
- ERS 390 Environmental Research Project
  
  **plus electives for a total of 2.5 units**

#### Term 3B
- ERS 395 Development of Environmental Thought 1
  
  **plus electives for a total of 2.5 units**

#### Terms 4A and 4B
Same as Regular Academic Plan

Deviation from this schedule may cause difficulty in satisfying all requirements.

**Notes**

1. The arrangement of academic and work terms, and further information on Co-operative study generally, are given in Chapter 5 of the Calendar. Students transferring to ERS with 5.0 units of advanced standing and considering the Co-op Academic Plan should consult the ERS Admissions Officer or Undergraduate Officer. Only a small number of transfer students (two or three) will be admitted to the ERS Co-op Academic Plan each year. These students will be selected from Co-op applicants on the basis of applicants’ marks in the first semester of their enrolment in ERS.

2. Students will be permitted to transfer from Co-op to a Regular Honours Academic Plan if all requirements of the Co-op Academic Plan have been met up to the time of transfer.

### Joint Honours Academic Plans

Students may combine Environment and Resource Studies with another academic discipline to earn a Joint Honours degree. Arrangements to do this have been approved with Anthropology.

Certificate with Niagara College
The Department offers a joint certificate in Environmental Management and Assessment, and Ecosystem Restoration with Niagara College Centre for Environmental Training. For further information, consult the Undergraduate Advisor.

Options and Diplomas
A number of other options and diplomas are available including:
- Geomatics Option
- Parks Option
- Sustainable Local Economic Development Option
- Tourism Option
- UW/WLU Business Option
- Environmental Assessment Diploma
- Diploma of Excellence in Geographic Information Systems
- Diploma of Excellence in Ecological Restoration and Rehabilitation

The requirements of these options and diplomas are outlined under “Academic Plans” in the Faculty Section.

Department of Geography

Geography is concerned with both the natural and human environment, studying how it has been shaped according to human need, how patterns of human activities are structured over space, and how these are influenced by environmental factors.

At the University of Waterloo, we stress the study of environmental change at a variety of scales from local to global. Our courses are highly integrated to encourage the study of the environment from many perspectives. These include the practical application of geographical studies, the role of field work, and the use of computer techniques such as model building, geographical information systems, and digital remote sensing.

Geography is considered both a natural and social science and flourishes in an academic organization where the multi-disciplinary approach is emphasized. The Bachelor of Environmental Studies (BES) Academic Plans in Geography (Honours and General) provide students with considerable freedom to choose supporting electives from any department in the University. Students can develop plans to suit their particular interests. Joint Honours Plans with a number of other departments are listed in “Joint Honours Academic Plans.”

The Regular Honours Geography Plan provides a sound foundation in the discipline, and prepares the student for specialization at the graduate level in almost any aspect of Geography. The mandatory content of the courses include a series of integrated courses in both physical and human geography. Although the Honours Plan is broad in scope, students may concentrate their courses in one area of specialization offered in the Department: Biophysical Systems; Geomatics; and Society, Environment and Economy. The fourth year includes the option of completing a research project, the Senior Honours Thesis.

The Honours Co-op Plan provides for alternate terms of practical work experience and academic study. Students may be admitted to the Co-op Plan in the first or second year. The first work term is in the Winter of the second year. Co-op Geography students must normally follow the work and study-term sequence outlined in “Co-op Course Scheduling Recommendation.” Students must complete five work terms. A work-term report is required upon completion of each work term and four of these must be approved for the Co-op degree. Inquiries for additional information regarding Co-operative studies should be directed to the Co-op Undergraduate Officer.

The three-year General Geography Plan provides a liberal education in environmental studies, with less specialization in Geography than in the Honours Plan. In addition to the BES (Bachelor of Environmental Studies) Academic Plan in Geography, a BA (Bachelor of Arts) Plan is also available in Geography (see the Faculty of Arts).

In all academic plans there is emphasis on the development of both theory and methodology and on the practical application of geographical concepts to the environmental, economic, social and political problems of Canada and other parts of the world. The “applied geography” aspects of the plan are enhanced by the availability in the Faculty of elective courses in Environment and Resource Studies and Planning. Graduating students acquire a variety of jobs in education, government, industry, and planning agencies.

The Department of Geography offers both Master’s (MA and MES) and Doctoral (PhD) graduate programs as part of the joint Waterloo-Wilfrid Laurier Graduate Program in Geography. At the graduate level course work and research are concentrated on a specific subfield of Geography. Areas of research specialization include: Physical Geography; Spatial Data Handling; Urban and Economic Geography; Resources Management; Tourism and Regional Geography.

The formal admission requirements are listed in the “Admissions” section of this calendar. The Faculty of Environmental Studies expects that students enrolled in any of its academic plans should be able to demonstrate competence in writing. Accordingly, all students newly admitted to the Faculty are required to write the English Language Proficiency Examination during their first term of enrolment (normally scheduled during the first week in December).
BACHELOR OF ENVIRONMENTAL STUDIES

Geography Three-Year Requirements

Year One
GEOG 100 On Becoming a Geographer
GEOG 101 Geography and Human Habitat
GEOG 102 Geography and Our Planetary Environment
GEOG 165 Introduction to Cartography and Remote Sensing
Electives (see notes below)

Year Two
Students must take at least one course from each of the three following themes. The student may take more than one course in any theme.

1. Biophysical Systems
   One of: GEOG 201, 208, 303, 309

2. Geomatics
   One of: GEOG 255, 276, 376, ENVS 278

3. Society, Environment and Economy
   One of: GEOG 202, 203, 221, 222, 233, 306, 323, 349, 351

and additional courses so that by the end of the second year a student should have completed 10 units. One of these 0.5 units should be ENGL 109, 129R, 140R, taken in Year One or ENGL 209, 210E, 210F taken in Year Two. A student who receives greater than 80% in OAC 1 English or ENGL 109, 129R, 140R is exempt from the English requirement.

Year Three
Additional courses so that a student should have completed at least 15 units.

Notes on Three-Year Academic Plan

1. Minimum Required Units
   Total: 15 units. Geography: 6 units. Outside of Faculty of Environmental Studies: 3 units. All Environmental Studies courses are included in the cumulative Geography average but only 2 units can be counted in the minimum required courses in the Geography Academic Plan.

2. Course Load
   No more than 2.5 units may be taken in a term without the approval of the Associate Chair (Undergraduate Studies). Normally, approval for a sixth 0.5 unit will be considered only if the cumulative Geography average is 78% or higher.

3. Average Requirements
   Students must maintain an overall cumulative average of 60% and a Major cumulative average of 65%. All required courses must be passed.

4. Restriction on number of First-Year Courses
   For a three-year General degree, a student must have at least 8.5 units above the 100-level.

5. Transfer students enrolled after September 1, 1999 will be required to complete a minimum of 50% of their course work and half their geography course work at the University of Waterloo.

6. Other Comments
   See notes 4, 5 and 6 on four-year academic plans.

Geography Four-Year Honours Requirements (Regular and Co-op)

Year One
GEOG 100 On Becoming a Geographer
GEOG 101 Geography and Human Habitat
GEOG 102 Geography and Our Planetary Environment
GEOG 165 Introduction to Cartography and Remote Sensing
ENVS 178 Introduction to Environmental Research Methods

Electives including a course in English, either one of ENGLISH 109, 129R, 140R, taken in Year One or ENGL 209, 210E, 210F taken in Year Two. A student who receives greater than 80% in OAC 1 English or ENGL 109, 129R, 140R is exempt from the English requirement.

Year Two
Students must take at least one course from each of the three following themes. The student may take more than one course in any theme.

1. Biophysical Systems
   One of: GEOG 201, 208, 303, 309

2. Geomatics
   One of: GEOG 255, 276, 376, ENVS 278

3. Society, Environment and Economy
   One of: GEOG 202, 203, 221, 222, 233, 306, 323, 349, 351

If desired, two of the required courses above may be taken in Year Three.

Electives (see notes below)

Year Three
GEOG 391 Field Research (not required for Co-op)
GEOG 393 Professional and Scholarly Practice in Geography
Electives (see notes below)

Year Four
GEOG 490A/B Senior Honours Thesis or three Fourth Year Geography courses (1.5 units)
Electives to fulfill degree requirements. (see notes below)
(Co-op students, see note 7)

Notes on Four-Year Academic Plans

1. Minimum Required Units
   Total: 20 units. Geography: 10 units. All courses for which 1 unit is awarded will count as the equivalent of two courses. Outside of the Faculty of Environmental Studies: 4 units. Only two units designated Environmental Studies may be counted as Geography units but all units designated Environmental Studies are included in the cumulative major average.

See the Glossary of Terms on page 9 for definitions of terms used in this section.
2. Course Load
No more than 2.5 units may be taken in a term without the approval of the Associate Chair (Undergraduate Studies). Normally, approval for a sixth 0.5 unit will be considered only if the cumulative Geography average is 78% or higher.

3. Average Requirements
Students in the Honours Academic Plans must maintain an overall cumulative average of 65% and a Major cumulative average of 70%. All required courses must be passed.

4. Secondary School Teaching
Students intending to teach in Secondary Schools should take at least four courses of Regional Geography and at least four courses in another teachable school subject.

5. Materials and Costs
For some courses, extra fees may be required to cover field expenses/travel costs, e.g., GEOG 391 (Field Research). Statements on extra costs, where required, will be found with the course descriptions.

6. Independent Study
Up to 3 independent study courses (GEOG 475A, B, C) may be taken.

7. Honours Co-operative Academic Plan
Honours Geography Co-op is a five work-term Academic Plan in which four work-term reports have to be written. The first work-term occurs in the Winter term of the second year and a work report is required at the end of this placement.

Enrolment in Honours Geography Co-op is limited. Students are admitted to the Co-op Academic Plan in first year based on secondary school grades. Interested students enrolled in first year Regular Geography at the University of Waterloo may be considered for admission to any remaining Co-op positions at the end of first year based on university academic performance, an interview and work experience related to Geography.

The Honours Geography Co-op Plan has the same academic requirements as the Honours Regular Plan with the exception that GEOG 391 need not be taken by Co-op students.

8. Transfer Courses
Transfer students enrolled after September 1, 1999 will be required to complete a minimum of 50% of their course work and half their geography units at the University of Waterloo.

9. Restriction on number of First-Year Courses
For a four-year Honours degree a student must have at least 13.5 units above the 100-level.

10. All fourth year Geography courses will be restricted to third and fourth year Honours students.

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Co-op Scheduling Recommendations

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<tr>
<th>Year Two</th>
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</table>
| **Fall Term 2A**
Students must take at least one course from each of the three following themes in Terms 2A and 2B. The student may take more than one course in any theme.

1. **Biophysical Systems**
   - One of: GEOG 201, 208, 303, 309

2. **Geomatics**
   - One of: GEOG 255, 276, 376, ENVS 278

3. **Society, Environment and Economy**

Electives, one of which must be ENGL 109, 129R, 140R, taken in Year One or ENGL 209, 210E, 210F preferably taken in Spring term 2B

**Winter Work Term 1**

<table>
<thead>
<tr>
<th>Spring Term 2B</th>
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</table>
| Students must take at least one course from each of the three following themes in Terms 2A and 2B. The student may take more than one course in any theme.

1. **Biophysical Systems**
   - One of: GEOG 201, 208, 303, 309

2. **Geomatics**
   - One of: GEOG 255, 276, 376, ENVS 278

3. **Society, Environment and Economy**

Electives

**Fall Work Term 2**

<table>
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<tr>
<th>Year Three</th>
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</thead>
</table>
| **Winter Term 3A**
Electives

**Spring Work Term 3**

<table>
<thead>
<tr>
<th>Fall Term 3B</th>
</tr>
</thead>
</table>
| GEOG 393
Electives

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See the Glossary of Terms on page 9 for definitions of terms used in this section.
Year Four
Winter Work Term 4
GEOG 490A or one Fourth Year Geography course
Electives
Spring Term 4A
Fall Work Term 5
Winter Term 4B
GEOG 490B or two Fourth Year Geography courses

GEOGRAPHY SPECIALIZATIONS

Students majoring in Honours Geography may choose to graduate with one specialization. At least 3.5 units must be completed within the specialization. A minimum of 1.0 units must be completed at level 4. Upon completion of the requirements of both the Honours Academic Plan and the specialization, students must indicate their area of specialization on their Intent to Graduate form.

Courses Offered by Specialization:
1. **Biophysical Systems**
   - GEOG 201 Geomorphology and Soils
   - GEOG 208 Applied Climatology
   - GEOG 300 Geomorphology & the Southern Ontario Environment
   - GEOG 303 Physical Hydrology
   - GEOG 304 Field & Lab Techniques in Geomorphology
   - GEOG 305 Patterns & Processes of Biogeography
   - GEOG 309 Physical Climatology
   - GEOG 368 Conservation/Resource Management of the Built Environment
   - GEOG 402 Coastal Geomorphology
   - GEOG 405 Wetlands
   - GEOG 407 Environmental Hydrology
   - GEOG 409 Energy Balance Climatology
   - GEOG 490A Honours Thesis Preparation
   - GEOG 490B Honours Thesis Completion
   - ENVS 200 Field Ecology

2. **Geomatics**
   - GEOG 255 Data Management & Analysis Using Geographic Information Systems
   - GEOG 276 Air Photo Interpretation
   - GEOG 316 Multivariate Statistics
   - GEOG 318 Spatial Analysis
   - GEOG 355 Spatial Data & Spatial Data Bases
   - GEOG 376 Environmental Remote Sensing
   - GEOG 455 Applications of Geographic Information Systems
   - GEOG 457 Geographic Information Systems Project
   - GEOG 471 Remote Sensing Project
   - GEOG 490A Honours Thesis Preparation
   - GEOG 490B Honours Thesis Completion
   - GEOG 555 Geographic Information Systems Research Seminar

ENVS 178 Introduction to Environmental Research Methods
ENVS 256 Introduction to Imaging
ENVS 278 Advanced Environmental Research Methods

3. **Society, Environment and Economy**
   - GEOG 202 Location of Economic Activity
   - GEOG 203 Development and the Environment
   - GEOG 212 Japan and the Pacific Rim
   - GEOG 221 The United States
   - GEOG 222 Geographical Study of Canada
   - GEOG 223 The Geography of Indonesia
   - GEOG 229 Political Geography
   - GEOG 233 Geography of Tourism
   - GEOG 250 Urban & Economic Systems: Inter-City & Global Connections
   - GEOG 306 Gender and Environments
   - GEOG 319 Economic & Social Techniques for Regional Planning
   - GEOG 323 Perspectives on International Tourism
   - GEOG 333 Recreation Geography
   - GEOG 340 Settlements of Rural Canada
   - GEOG 341 Historical Geography of European Imperialism
   - GEOG 349 Urban Form & Internal Spatial Structure
   - GEOG 351 Geography of Transportation
   - GEOG 353 Retail Location
   - GEOG 356 Resources Management
   - GEOG 367 Conservation in Wildland and Resource Management
   - GEOG 368 Conservation/Resource Management of the Built Environment
   - GEOG 430 Field Research in Regional Geography
   - GEOG 450 Changing Form & Structure of Metropolitan Canada
   - GEOG 452 Resource Management Project
   - GEOG 459 Energy and Sustainability
   - GEOG 490A Honours Thesis Preparation
   - GEOG 490B Honours Thesis Completion
   - ENVS 195 Introduction to Environmental Studies
   - ENVS 200 Field Ecology
   - ENVS 220 Environmental Economics

**Note**
GEOG 490A and 490B count as 1.5 Geography units.

GEOGRAPHY MINOR FOR HONOURS STUDENTS IN OTHER DEPARTMENTS

A total of five units in Geography which may include up to two units designated Environmental Studies, and a cumulative Geography average of at least 65%.

JOINT HONOURS ACADEMIC PLANS

Joint Honours Academic Plans have been arranged between Geography and other disciplines in the University. Detailed plans have been worked out with Anthropology, Biology, Classical Studies, Earth Sciences, Economics, English, Environment and...

The Department of Geography is prepared to arrange other Academic Plans not listed for Honours students. Students in the Joint Honours Plan must complete seven units in Geography/Environmental Studies, including the following required courses:

**Year One**
- GEOG 100  On Becoming a Geographer
- GEOG 101  Geography and Human Habitat
- GEOG 102  Geography and Our Planetary Environment
- GEOG 165  Introduction to Cartography and Remote Sensing

**Year Two**
Students must take at least one course from each of the three following themes. The student may take more than one course in any theme.

1. **Biophysical Systems**
   - One of: GEOG 201, 208, 303, 309

2. **Geomatics**
   - One of: GEOG 255, 276, 376, ENVS 278

3. **Society, Environment and Economy**

**Year Three**
- GEOG 393

**Year Four**
- GEOG 490A and GEOG 490B or three fourth year geography courses.

Three additional 0.5 units for a total of 7 units in Geography/Environmental Studies. Courses in the home department equivalent to ENVS 178 and GEOG 393 and 490A, 490B are accepted. If scheduling difficulties arise in meeting required courses, contact the Associate Chair (Undergraduate Studies) in Geography for possible substitute courses.

**Notes on Joint Honours Academic Plans**
1. Admission to Joint Honours Academic Plans
   - Admission to a Joint Honours Plan will occur no earlier than Year Two.

2. Minimum Required Courses
   - Only two units designated Environmental Studies may be counted in the Joint Honours Academic Plan. If both majors are taken in the Faculty of Environmental Studies, and the student’s first declared major is Geography, a minimum of four units must be taken outside of the Faculty of Environmental Studies. The total number of units required is 20.

3. Average Requirements
   - Geography students taking Joint Honours with another department must achieve Honours standing as required by the Geography Department (65% overall, 70% in Geography courses). The average required in the second major is the minimum Honours standing set by that department. Students in other departments taking Joint Honours with Geography must achieve a cumulative average of 70% in Geography and Environmental Studies courses. Environmental Studies courses are included with Geography courses in the calculation of the Geography Major average.

**OPTIONS AND DIPLOMAS**
A number of other options and diplomas are available including:
- Diploma of Excellence in Geographic Information Systems
- Diploma of Excellence in Ecological Restoration and Rehabilitation
- Geomatics Option
- Parks Option
- Sustainable Local Economic Development Option
- Tourism Option
- UW/WLU Business Option

The requirements of these options and diplomas are outlined under “Academic Plans” in the Faculty Section.

**School of Planning**
The main goal of the School of Planning at Waterloo is to produce a complete planner who has the knowledge, skills, and attitudes necessary for professional practice in a wide variety of private and public sector areas or for further post graduate study in planning or several related areas. These skills include the life-long ability to acquire and sustain new knowledge and techniques that will continue to emerge long after graduation.

The emphasis of the curriculum is on planning as a process, conceived in broad terms to include policy-making, research and decision-making. The subject focus is both regional and local; that is, the integrated planning of regions, large and small. It includes urban-centred or core regions and rural components. The policy emphasis includes environmental, economic and social issues typical of the Canadian scene, where development and problems of human adjustment are in the forefront.

To implement this approach, the School of Planning has gathered a team of faculty with diverse academic and practical planning experience.

The broad aim of the School is to prepare the student for active participation in the planning process and membership in the profession. This approach gives equal emphasis to the “why” and “how” of planning and requires that a style be adopted that strives for a continuum between classroom and field experience.

See the Glossary of Terms on page 9 for definitions of terms used in this section.
between planning studies and related disciplines, and between academic studies and future professional practice. Realizing this concept requires integration of selected elements from geography, social sciences and pure and applied sciences. For this purpose, the School of Planning has been located in a Faculty with an interdisciplinary approach to a wide range of contemporary issues.

The Academic Plan gives a well-rounded preparation for a wide variety of professional or graduate work in urban planning, regional planning, and resource development. Courses on the theory, methods, and philosophy of planning provide an integrating framework. The student is also given an opportunity to pursue a special interest in economic, social, and ecological issues in planning, or in planning methodology and urban design. This is done through the selection of elective courses and the pursuit of options, specializations or minors. Students are also encouraged to select Senior Honours Essay topics from these special fields of interest.

The Faculty of Environmental Studies expects that students are able to demonstrate effective communication and proficiency in written English. Accordingly, all incoming students are required to write the English Language Proficiency Examination (ELPE) during their first term of enrollment (normally scheduled during the first week in December). Students must satisfy the ELPE requirement before the end of their 2B term or the decision “May Not Proceed” will be assigned.

The Co-operative stream provides for alternative terms of work/study for a total of 4 work terms. The Regular stream encourages students to actively seek work experience during the summer months of their second and third years.

Additional Information
The Planning Academic Plan is recognized by the Canadian Institute of Planners and an increasing number of employers as a satisfactory preparation for a wide range of careers.

Notes
1. Academic Standing
Students must obtain a minimum cumulative overall average of 65%, and 70% (75% for co-op students) in their major average in Planning (PLAN) and Environmental Studies (ENVS) courses throughout the four years of their Academic Plan. In order to proceed to subsequent years, students must also obtain minimum courses/units as follows: Year One: 10 courses (5 units); Year Two: 20 courses (10 units); Year Three: 30 courses (15 units); Year Four: 40 courses (20 units).

   Students may be granted conditional standing at the discretion of the School, which permits a student to proceed to a subsequent year on a conditional basis. Should the student be permitted to continue on the basis of “conditional” due to average and/or course standing, and if, subsequently, the required averages are not met this second time (term) or course deficiencies not cleared, withdrawal from Planning will be required.

   Students who are admitted to the co-op stream in Year One must achieve and maintain a cumulative major average of 75% (PLAN and ENVS courses) in order to remain in co-op. Students not admitted to co-op in Year One may be eligible to apply in November in the fall term of second year, provided they have a minimum cumulative major average of 75% or higher. Selection will be based on space available and highest grades.

2. Course Loads and Sequencing
Year One students must select courses from the first- or second-year level. Students are expected to carry a minimum load of 10 courses (5 units) in each of the four years of the Academic Plan. Students interested in taking a higher load require approval from the Undergraduate Advisor.

3. First-Year Courses
No more than 10 courses (5 units) at the first-year level will be allowed toward the 40 courses (20 units) required to graduate.

4. Progression to Year Two
A student must obtain a minimum cumulative overall average of 65%, and 70% (75% for co-op students) in their PLAN and ENVS courses and have 10 courses (5 units) in order to proceed to Year Two. In subsequent years, a student must maintain a cumulative overall average of 65%, and 70% (75% for co-op students) in their major average (PLAN and ENVS courses), as well as obtain 10 courses (5 units) each year of the Academic Plan.

5. Transfer Students
It is possible for non-Planning students to apply for admission to Year Two. Advanced standing may be obtained through the transfer of courses/units from other Academic Programs and Institutions. However, advanced standing will not be granted to transfer students beyond the Year-One level (10 courses/5 units). All transfer students are required to complete a minimum of three full academic years before being eligible for graduation. All students admitted to Planning with advanced standing must have their course selection for each year approved by the Undergraduate Advisor.

6. Co-op Work Term Sequence
Planning students will begin their work terms after 2B in the spring term of second year. Following that, there will be three additional alternating work/study terms for a total of 4 work terms.

See the Glossary of Terms on page 9 for definitions of terms used in this section.
7. Double Counting
A course can be used to satisfy requirements for a maximum of two credentials. Double counting of courses applies as follows: once for the plan and once more for any option, minor, diploma, or specialization. There is no limit on the number of courses that may be double counted.

8. Joint Honours and Minors
The School does not offer a Joint Honours plan to other departments. However, planning students are encouraged to participate in Joint Honours, Minors or Options offered by other departments. Students choosing Minors should refer to the regulations of those Departments. See other faculty and department sections in this Calendar regarding Minors available.

9. Diplomas and Options
A number of Diplomas and Options are available to Planning students including:

- Diploma of Excellence in Ecological Restoration and Rehabilitation
- Diploma of Excellence in GIS
- Environmental Assessment Diploma
- Geomatics Option
- Parks Option
- Sustainable Local Economic Development Option
- Tourism Option
- UW/WLU Business Option

For more information, please refer to the Faculty of Environmental Studies Handbook at www.fes.uwaterloo.ca/faculty/handbook/contents/html.

10. Oxford Brookes University Elective Course
This elective course is offered to third year Planning students and is conducted at Oxford Brookes University, Oxford, England. Because much planning theory and practice in Canada has drawn on U.K. roots, PLAN 480 has been developed to give students a first-hand experience of planning in the U.K. Large scale urban design in the 18th Century, the growth of the New Towns movement from its beginning in the late 19th Century to the present day and central area redevelopment following large scale bomb damage during World War II are given special attention through seminars and field trips. Waterloo students also work on specific projects with British students. During free time, the students have the opportunity for travel in U.K. and Europe and there is an opportunity to remain in U.K. following the Oxford course for further travel.

11. Planning Specializations
Planning students may choose to graduate with one or two Specializations in the areas of “Decision Support and GIS,” “Environmental Planning and Management,” “Land Development Planning,” or “Urban Design.” In addition to the core courses required for the student’s plan, 2.5 units within each area of specialized study must be completed. Students are required to have an 80% overall average in the specialization courses at time of graduation.

**Decision Support and GIS**
Geographic information systems (GIS) are used commonly by planners to manage, analyze, and visualize data related to urban planning and resource management. Students completing this specialization will have a sound grasp of the principles of GIS and the means to apply this technology effectively in research capacities and in planning practice.

Required Courses:
- PLAN 255 Introduction to Geographic Information Systems (GIS)
- ENVS 278 Advanced Environmental Research Methods

2.5 units of Elective Courses:
- PLAN 355 Spatial Data Bases
- PLAN 455 Spatial Analysis Using Geographic Information Systems
- PLAN 457* Geographic Information Systems Project
- PLAN 490* Senior Honours Essay
- PLAN 555 Management Issues in Geographic Information Systems
  *course is worth 1.0 unit

**Environmental Planning and Management**
Environmental Planning and Management is for students intending to integrate ecology and environmental management into their career plans. It is intended for those with an urban focus as well as for students with rural, resource hinterland or park planning interests.

Required Courses:
- ENVS 200 Field Ecology
- PLAN 340 Conservation in Wildland and Resource Management
- PLAN 341 Conservation/Resource Management of the Built Environment

2.0 units of Elective Courses:
- PLAN 432 Health, Environment, and Planning
- PLAN 440 Waste Planning
- PLAN 452 Policy Analysis for Planners
- PLAN 453 Urban Stormwater Management
- PLAN 490* Senior Honours Essay
- ENVS 401 Environmental Law
- ENVS 469* Landscape Ecology, Restoration & Rehabilitation
  *course is worth 1.0 unit

**Land Development Planning**
This specialization trains planning students to develop or redevelop land in communities. Land development planners practice in complex, high-profile and often contentious decision-making environments. To be effective practitioners in this planning context, students acquire a good working knowledge of land use planning regulations, planning law, policy and land development issues. Graduates with this specialization would be ready to work in the land development industry, municipal planning, or private planning practice.
Required Courses:
PLAN 103 Planning, Administration, and Finance
ENVS 201 Introduction to Environmental and Planning Law
PLAN 233 People and Plans
PLAN 261 Urban and Metropolitan Planning and Development
PLAN 401* Planners and Planning Tribunals
PLAN 483 Land Development Planning

2.0 units of Elective Courses:
PLAN 320 Economic Analyses for Regional Planning
PLAN 349 Urban Form and Internal Spatial Structure
PLAN 362 Regional Planning and Economic Development
PLAN 450* Changing Form and Structure of Metropolitan Canada
PLAN 471 Planning Law
PLAN 490* Senior Honours Essay
*course is worth 1.0 unit

Urban Design
This specialty will acknowledge the student's competence in design and prepare them for work in public and private practice. Urban design focuses on the look and feel of our communities. As an urban designer, you might create public squares or urban parks. It will also provide a sound foundation for graduate studies in Urban Design.

Required Courses:
PLAN 110 Visual Approaches to Design and Communication
PLAN 210 Planning Design and the Environment
PLAN 409* Urban Design Studio

1.5 units of Elective Courses:
PLAN 309 Site Planning and Design Studio
PLAN 313* Community Design in Landscape
PLAN 408 Seminar on Urban Design
PLAN 414 Heritage Planning Workshop
PLAN 431 Issues in Housing
PLAN 490* Senior Honours Essay
*course is worth 1.0 unit

Year One Elective Courses (2 units)
Students must complete 4 elective courses (2 units) at the first- or second-year level in the University.

Note
Required and elective courses together will total 10 courses (5 units) — all courses must be at the first- or second-year level. Before making a final selection in these courses, students must check that prerequisites have been met for courses that they might take in Years Two, Three, and Four.

Year Two

Required Planning Courses (3 units)
PLAN 210 Planning Design and the Environment
PLAN 233 People and Plans
PLAN 255 Introduction to Geographic Information Systems (GIS)
PLAN 261 Urban and Metropolitan Planning and Development
ENVS 200 Field Ecology
ENVS 278 Advanced Environmental Research Methods

Year Two Elective Courses (2 units)
Students must complete 4 elective courses (2 units) at the second-year level in the university.

Year Three

Required Planning Courses (2 units)
PLAN 300 Planning Theory
PLAN 350 Research Methods for Planners
ENVS 201 Introduction to Environmental and Planning Law
and one of:
PLAN 340 Conservation in Wildland and Resource Management
OR PLAN 341 Conservation/Resource Management of the Built Environment
OR PLAN 453 Urban Stormwater Management

Year Three Elective Courses (3 units)
Students must complete 6 elective courses (3 units) at the third- or fourth-year level in the University.
Year Four

**Required Planning Courses (2 units)**
PLAN 401  Planners and Planning Tribunals
PLAN 403  Professional Practice, Public and Private Administration

**Year Four Elective Courses (3 units)**
Students must complete 6 elective courses (3 units) at the third- or fourth-year level in the University.

See the Glossary of Terms on page 9 for definitions of terms used in this section.