Faculty of Science Course Syllabus
Environmental Science Program
BIOL / ENVS / ERTH / SCIE 4850

*Geographic Information Science Research Project (Winter 2017)*

**Instructor(s):** Christopher Greene, PhD  
csgreene@dal.ca

**Lectures:** Thursday 5:35-6:45 (approx.)

**Office:** Life Sciences Centre 805  
Monday 2-4 (Tentative)

**Laboratories:** Thursday 6:45-8:25 (approx.)

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**Course Description**

Students learn how to design, manage, and complete a research project in Geographic Information Science (GIS). Projects must include a substantive analytical component where GIS is central to methods employed. Evaluation includes a written report, oral presentation, and digital data. Required for completion of the Certificate in GIS.

**Course Prerequisites/Restrictions**

**COREQUISITES:** ERTH 5420.03 / GEOG 4520.03 / ERTH 4520.03

**PREREQUISITES:** ENVS 3500.03 / ERTH 3500.03 / GEOG 3500.03 and permission of instructor

**CROSS-LISTING:** BIOL 4850.03, SCIE 4850.03, ERTH 4850.03, GEOG 4850.03

**EXCLUSIONS:** Restricted to 3rd and 4th year students.

**Course Objectives/Learning Outcomes**

Geography studies spatial patterns in the human and physical environment, and seeks to understand the processes that generate those patterns. Geography is a pivot for interdisciplinary study and geographic information science provides methods for addressing complex problems that cross disciplinary boundaries. This course follows a project based approach to teaching advanced GIS while integrate topics of project planning and management into training. In this course, students will touch on elements of:

- Effectively planning and managing a GIS Project
- Writing a proposal that considers topical context, project contributions, scoping
- Search for and identify GIS data and evaluate the usefulness of the data
- The role of Error, Uncertainty, and Bias in geospatial data
- Surveying tools that contribute additional value to a GIS project
- How to disseminate data to a wider audience through maps and online interactive map media.
- Gain confidence in how to independently approach complex geospatial problems
Course Materials
There is no required textbook for this class. Occasional related readings and resources will be posted to the learning management system or be available on reserve at the Killam Library. Readings are intended to add depth and clarification to the material covered.

With the impending changes to the university network, it is also a good idea to bring a removable drive with good storage capacity (I recommend 8 GB as a minimum) to save or backup coursework and avoid potential network errors that interrupt geoprocessing tools during execution.

Course Assessment

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percent of Final Grade</th>
<th>Due Date**</th>
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</thead>
<tbody>
<tr>
<td>Workshop Assessments</td>
<td>25%</td>
<td>Throughout Term</td>
</tr>
<tr>
<td>App Challenge (P/F)</td>
<td>10%</td>
<td>TBD (Near Week 11)</td>
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<tr>
<td>Project</td>
<td></td>
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<tr>
<td>Proposal</td>
<td>10%</td>
<td>February 6th, 2017 (5:30 pm)</td>
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<tr>
<td>Mid Project Update</td>
<td>10%</td>
<td>March 9th, 2017</td>
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<tr>
<td>Web Map</td>
<td>5%</td>
<td>March 30th, 2017</td>
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<tr>
<td>Presentation</td>
<td>10%</td>
<td>March 30th, 2017</td>
</tr>
<tr>
<td>Final Report</td>
<td>30%</td>
<td>April 7th, 2017</td>
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</tbody>
</table>

**Because digital submissions are required for most assessments, the due date for several assessments do not correspond with the scheduled Thursday class and are not errors in scheduling**

Other course requirements

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

1. A+ (90-100)   B+ (77-79)   C+ (65-69)   D (50-54)
2. A (85-89)     B (73-76)    C (60-64)    F (<50)
3. A- (80-84)    B- (70-72)   C- (55-59)
Course Policies

Course Variations
The course will be taught as close to the listed schedule as possible, however some deviation from this schedule may be required as the term progresses.

Submission of Work
As this is an environmental program, all work will be submitted and graded electronically in the Brightspace LMS to reduce paper use. All written work will be evaluated using plagiarism detection software (see below for further information regarding the faculty’s academic integrity policy).

All students are responsible for ensuring the product they submit to the LMS is the one they intended to submit. There has been an increasing frequency of “I submitted the wrong draft” as a justification for high similarity in originality detection or in an effort buying time to avoid late penalties from submitting after the due date. If a resubmission is granted, that submission will be subject to a grade penalty unless there is timely notification from the student to the instructor that the wrong draft was submitted.

Late Assignments and Extensions
Plan ahead. Assignments submitted late without an approved extension or unaccompanied by a doctor’s note will be deducted 10% per calendar day. Extensions are liberally considered, but must be requested at least one week prior to the assignment’s original due date.

Electronics in the Classroom
Laptop computers, tablet devices are permitted for the purpose of taking notes during lectures and interacting with classroom exercises (e.g., Poll Everywhere or Socrative). In order to minimize distraction to other students, use for non-classroom related activities such as social media is not acceptable during the class section.

Mobile devices such as cellphones are to be set to ‘silent mode’ during the lecture period. Receiving calls, text conversations, etc. are distracting to other students and the instructor and are not acceptable during class time. Please step outside if you need to receive or make an important call, text, etc.

Email
Due to the volume of emails received during the semester, I am unable to guarantee immediate responses to email enquiries. On average expect a one business day turnaround for responses to emailed questions.

Learning Management System (LMS)
Important information is posted to the LMS on a weekly basis. It is your responsibility to check the LMS and their email on a regular basis to ensure you are not missing any important materials, updates, announcements, etc.

Course Readings
An updated list will be maintained regularly on the LMS Course Shell. Readings are intended to add depth and clarification to the material covered.
Course Content

<table>
<thead>
<tr>
<th>Week</th>
<th>Scheduled Topics</th>
<th>Scheduled Workshops</th>
<th>Assessment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 12-Jan-17</td>
<td>Class Overview, Policies, Intro, Knowledge Quiz</td>
<td>N/A</td>
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<tr>
<td>2. 19-Jan-17</td>
<td>Theoretical Framework, Project Management</td>
<td>Workshop 1</td>
<td></td>
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<tr>
<td>3. 26-Jan-17</td>
<td>Project Data: Types, Sources, Error, Uncertainty</td>
<td>Workshop 2</td>
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<tr>
<td>4. 2-Feb-17</td>
<td>Project Analysis: Analytical Tools</td>
<td>Workshop 3</td>
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<tr>
<td>5. 9-Feb-17</td>
<td>Project Analysis: Use of Statistics</td>
<td>Workshop 4</td>
<td>Proposal Due</td>
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<td>6. 16-Feb-17</td>
<td>Project Output: Cartography</td>
<td>Workshop 5</td>
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<td>7. 23-Feb-17</td>
<td><strong>Winter Reading Week</strong></td>
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<td>8. 2-Mar-17</td>
<td><strong>Buffer Week – Carryover or in Case of Storm Closure</strong></td>
<td>If no closures, Workshop 6</td>
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<tr>
<td>9. 9-Mar-17</td>
<td>Project Output: Disseminating Data to Non-Specialists</td>
<td>If no closures, Workshop 7</td>
<td>Mid Project Update</td>
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<tr>
<td>10. 16-Mar-17</td>
<td>APP Challenge Prep</td>
<td>Project</td>
<td></td>
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<tr>
<td>11. 23-Mar-17</td>
<td>APP Challenge</td>
<td>Project</td>
<td></td>
</tr>
<tr>
<td>12. 30-Mar-17</td>
<td>Presentations</td>
<td>N/A</td>
<td>Web Map, Slides</td>
</tr>
<tr>
<td>13. 6-Apr-17</td>
<td>No Scheduled Class</td>
<td>N/A</td>
<td>Final Report</td>
</tr>
</tbody>
</table>

**Class still scheduled but used as a flexible time slot to catch up if lectures run long or winter storm closure occurs.**

**ACCOMMODATION POLICY FOR STUDENTS**

Students may request accommodation as a result of barriers related to disability, religious obligation, or any characteristic protected under Canadian Human Rights legislation. The full text of Dalhousie’s Student Accommodation Policy can be accessed here: [http://www.dal.ca/dept/university_secretariat/policies/academic/student-accommodation-policy-wef-sep--1--2014.html](http://www.dal.ca/dept/university_secretariat/policies/academic/student-accommodation-policy-wef-sep--1--2014.html)

Students who require accommodation for classroom participation or the writing of tests and exams should make their request to the Advising and Access Services Centre (AASC) prior to or at the outset of the regular academic year. More information and the Request for Accommodation form are available at [www.dal.ca/access](http://www.dal.ca/access).
ACADEMIC INTEGRITY

Academic integrity, with its embodied values, is seen as a foundation of Dalhousie University. It is the responsibility of all students to be familiar with behaviours and practices associated with academic integrity. Instructors are required to forward any suspected cases of plagiarism or other forms of academic cheating to the Academic Integrity Officer for their Faculty.

The Academic Integrity website (http://academicintegrity.dal.ca) provides students and faculty with information on plagiarism and other forms of academic dishonesty, and has resources to help students succeed honestly. The full text of Dalhousie’s Policy on Intellectual Honesty and Faculty Discipline Procedures is available here:
http://www.dal.ca/dept/university_secretariat/academic-integrity/academic-policies.html

Please note that Dalhousie subscribes to plagiarism detection software that checks for originality in submitted papers. Any paper submitted by a student at Dalhousie University may be checked for originality to confirm that the student has not plagiarized from other sources. Plagiarism is considered a very serious academic offence that may lead to loss of credit, suspension or expulsion from the University, or even the revocation of a degree. It is essential that there be correct attribution of authorities from which facts and opinions have been derived. At Dalhousie, there are University Regulations which deal with plagiarism and, prior to submitting any paper in a course; students should read the Policy on Intellectual Dishonesty contained in the Calendar.

Furthermore, the University’s Senate has affirmed the right of any instructor to require that student assignments be submitted in both written and computer readable format, e.g.: a text file or as an email attachment, and to submit any paper to a check such as that performed by the plagiarism detection software. As a student in this class, you are to keep an electronic copy of any paper you submit, and the course instructor may require you to submit that electronic copy on demand. Use of third-party originality checking software does not preclude instructor use of alternate means to identify lapses in originality and attribution. The result of such assessment may be used as evidence in any disciplinary action taken by the Senate.

STUDENT CODE OF CONDUCT

Dalhousie University has a student code of conduct, and it is expected that students will adhere to the code during their participation in lectures and other activities associated with this course. In general:

“The University treats students as adults free to organize their own personal lives, behaviour and associations subject only to the law, and to University regulations that are necessary to protect

- the integrity and proper functioning of the academic and non – academic programs and activities of the University or its faculties, schools or departments;
- the peaceful and safe enjoyment of University facilities by other members of the University and the public;
- the freedom of members of the University to participate reasonably in the programs of the University and in activities on the University’s premises;
- the property of the University or its members.”

The full text of the code can be found here:
SERVICES AVAILABLE TO STUDENTS

The following campus services are available to help students develop skills in library research, scientific writing, and effective study habits. The services are available to all Dalhousie students and, unless noted otherwise, are free.

<table>
<thead>
<tr>
<th>Service</th>
<th>Support Provided</th>
<th>Location</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Academic Advising</td>
<td>Help with - understanding degree requirements and academic regulations - choosing your major - achieving your educational or career goals - dealing with academic or other difficulties</td>
<td>Killam Library Ground floor Rm G28 Bissett Centre for Academic Success</td>
<td>In person: Killam Library Rm G28 By appointment: - e-mail: <a href="mailto:advising@dal.ca">advising@dal.ca</a> - Phone: (902) 494-3077 - Book online through MyDal</td>
</tr>
<tr>
<td>Dalhousie Libraries</td>
<td>Help to find books and articles for assignments Help with citing sources in the text of your paper and preparation of bibliography</td>
<td>Killam Library Ground floor Librarian offices</td>
<td>In person: Service Point (Ground floor) By appointment: Identify your subject librarian (URL below) and contact by email or phone to arrange a time: <a href="http://dal.beta.libguides.com/sb.php?subject_id=34328">http://dal.beta.libguides.com/sb.php?subject_id=34328</a></td>
</tr>
<tr>
<td>Studying for Success (SFS)</td>
<td>Help to develop essential study skills through small group workshops or one-on-one coaching sessions Match to a tutor for help in course-specific content (for a reasonable fee)</td>
<td>Killam Library 3rd floor Coordinator Rm 3104 Study Coaches Rm 3103</td>
<td>To make an appointment: - Visit main office (Killam Library main floor, Rm G28) - Call (902) 494-3077 - email Coordinator at: <a href="mailto:sfs@dal.ca">sfs@dal.ca</a> or - Simply drop in to see us during posted office hours All information can be found on our website: <a href="http://www.dal.ca/sfs">www.dal.ca/sfs</a></td>
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<tr>
<td>Writing Centre</td>
<td>Meet with coach/tutor to discuss writing assignments (e.g., lab report, research paper, thesis, poster) - Learn to integrate source material into your own work appropriately - Learn about disciplinary writing from a peer or staff member in your field</td>
<td>Killam Library Ground floor Learning Commons &amp; Rm G25</td>
<td>To make an appointment: - Visit the Centre (Rm G25) and book an appointment - Call (902) 494-1963 - email <a href="mailto:writingcentre@dal.ca">writingcentre@dal.ca</a> - Book online through MyDal We are open six days a week See our website: writingcentre.dal.ca</td>
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