COURSE OUTLINE

Course Description

Unique opportunities for advanced spatial analysis have evolved alongside innovations in computer science and the ever increasing availability of detailed spatial information both in raster and vector formats. This course builds upon the topics discussed in GEOG 2GI3 and is focused on exploring connections between the acquisition, processing and analysis of spatial information as a means for more clearly understanding the properties and processes that characterize physical and human systems. The major theme in the course is that of modeling with the raster data model in a GIS environment. Real-world problem solving emphasizes site selection and environmental applications. Topics include

- Advanced raster processing
- Multi-Criteria Evaluation
- Terrain Creation Mapping and Visualization
- Surface Morphometry
- Watershed Delineation
- Viewshed Analysis

Lectures will be supplemented with practical exercises using ESRI’s ArcGIS 10.5 software suite.

Administration

Instructor

Patrick DeLuca  
Office Location: BSB 331/A  
Office Hours: Daily (schedule will be posted on the office door)  
Phone: (905) 525-9140 ext. 27786  
Email: delucaf@mcmaster.ca

Teaching Assistants

TBA

Email:

Email:

Email:

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1 The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.
**Lectures and Labs**

Please consult table below for lecture and lab locations and times. **Attendance in both is mandatory** and the TAs will take attendance each week in the lab.

<table>
<thead>
<tr>
<th>Category</th>
<th>Location</th>
<th>Day</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>MDCL 1110</td>
<td>Monday</td>
<td>11:30 – 12:20</td>
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<tr>
<td>Lecture</td>
<td>MDCL 1110</td>
<td>Wednesday</td>
<td>11:30 – 12:20</td>
</tr>
<tr>
<td>Lab (01)</td>
<td>BSB 331</td>
<td>Friday</td>
<td>09:30 – 11:20</td>
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<tr>
<td>Lab (02)</td>
<td>BSB 331</td>
<td>Tuesday</td>
<td>09:30 – 11:20</td>
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<tr>
<td>Lab (03)</td>
<td>BSB 331</td>
<td>Tuesday</td>
<td>14:30 – 16:20</td>
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<td>Lab (04)</td>
<td>BSB 331</td>
<td>Wednesday</td>
<td>08:30 – 10:20</td>
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<tr>
<td>Lab (05)</td>
<td>BSB 331</td>
<td>Friday</td>
<td>14:30 – 16:20</td>
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**Textbooks**

The optional texts for the course are:


This schedule of readings is included in the course schedule and pertain to this 8th Edition of the text. To make the most of your experience, you should read this material prior to coming to class.

A second textbook is highly recommended:


This text relates directly to material in the first module of the course, but will act as a resource for you for all of the assignments since all of them require the use of the ModelBuilder. Additionally, the sections not used in this course are used in 3GV3.

**Avenue to Learn**

A website has been developed for this course. All officially registered students are automatically enrolled in the website, which can be accessed at the following web address:

http://avenue.mcmaster.ca/

If at any time students do not appear to be officially registered in the course, they will be denied access to the course content as well as the GIS labs (BSB 331, BSB 332).

**Assessment**

Students will be evaluated for their understanding of both conceptual and practical material offered in the course. You will complete five assignments and write a midterm exam on February 28. The final exam is cumulative and will be written in the exam period in April. The mark allocations are as follows:

50% Laboratory Assignments (5 exercises weighted equally)
15% Mid-Term Exam (February 28, at 11:30AM)
35% Final Exam (to be scheduled by the Registrar’s Office)
Course Guidelines and Regulations

1. **Contacting the instructor** – I plan to adhere to regular office hours as indicated in this outline, and you are encouraged to use this time to review material, clarify points, or pursue issues. I will be making myself available for two hours each day of the week at different time periods. In the rare chance that you cannot make any of my office hours, please e-mail me for an appointment. With respect to email, I check it pretty regularly, however, if you are emailing outside of regular business hours (i.e., Monday to Friday 8:30 am – 4:30 pm), please do not expect a response until the next business day. Waiting for an email response does not constitute a valid reason for a late submission.

2. **Course preparation** – Be advised that in general you will be required to dedicate at least 2 hours of preparation/study per hour of class/lab time. More preparation will help you make the most out of the course, and will undoubtedly lead to a higher grade. If for any reason you are having trouble with the course, see me or your TA as soon as possible. Problems that are identified early can often be rectified.

3. **The role of TAs in this course** – The TAs in this course are there to assist you in your lab slot. If you choose to not attend your lab, you have forfeited your opportunity to get help from your TA until you come to your next scheduled lab session. Your TA will not be holding office hours in this course as he will give you 2 hours of scheduled time per week. Should the TA need to be contacted, email is the only way to do so. In the event that lab sessions are cancelled, your TA will be available via email for that week to assist you. The duration of the email assistance will be from the cancellation until the day before your next scheduled lab. For example, if a snow day was on a Wednesday, your TA will make every effort to assist you via email from the Thursday until the following Tuesday. When the following Wednesday comes, you are expected to be in the lab.

4. **Handing in assignments** – You need to complete five assignments, which are collectively worth 50% of your final grade. Assignments must be handed in to your TA at the beginning of your lab period as indicated in the Course Schedule. Assignments handed in at any other time beyond this are considered late. Late assignments can be handed in to the internal course drop box, which is on the 2nd floor of the General Sciences Building around the corner from the School of Geography and Earth Sciences Main Office (GSB 206). At 4:30 pm, the external doors to the School lock, and any assignments should be submitted to the external drop box outside the doors to the School on the west side of the 2nd floor of the General Sciences Building. Late assignments are penalized at the rate of 20% for the first day and 10% for each subsequent day they are overdue, including weekends. **Late assignments will only be graded if they are handed in no later than three days after the original submission deadline.** After this time, you will receive a grade of zero. If you are late in submitting an assignment, you must send a digital copy to me (your instructor) and your TA so that we will know when the assignment was completed. Please ensure that a paper copy is then submitted immediately to the drop box for grading. This copy cannot be different in any way to the digital submission. The paper copy will be graded with all late penalties applied up until the paper copy was submitted.

5. **Mark appeals** – The TAs and I will make every effort to provide you with a grade that best reflects the quality of your work, and re-marking will be conducted at discretion. If you wish to have your work (assignment or exam) re-marked, you will be asked to explain in writing, within at most five business days after the work is initially returned, the reasons why it should be reviewed and the mark changed by me or the TA. The first person to contact for clarification is the person who marked the work. A reply will be forthcoming in a period of at least 48 hours. Please note that re-marking may result in a higher or a lower grade.

6. **Missed work** – If you are seeking relief for missed academic work for absences lasting up to three days, you may report your absence, once per term, without documentation, using the McMaster Student Absence Form (http://www.mcmaster.ca/msaf/). When using the MSAF, report your absence to your instructor (delucapf@mcmaster.ca), NOT your TA. **Please note that the MSAF is simply a request for relief and that the nature of relief, if any, is left to the instructor’s discretion. This will be handled on a case-by-case basis.** Once the form is filled out, you must contact the instructor by email (delucapf@mcmaster.ca) immediately in order to make necessary arrangements for making up missed work. Absences lasting more than three days must be reported to your Faculty Office. **Please note that you must complete all assignments for this course and in no situation will assignment marks be reallocated to the final exam.**
7. **Missed midterm exam** – If you miss the midterm exam for any valid reason, your final exam will be reweighted to 50% so long as your Faculty Office approves your absence and notifies the instructor of its approval (for absences lasting more than three days or unrelated to a medical situation) or information has been entered into the MSAF (for a minor medical situation lasting up to three days). If using the MSAF, you must contact the instructor by email (delucapf@mcmaster.ca) immediately explaining your absence.

8. **Students with special needs** – If you have (or suspect you may have) a learning disability that may require accommodations, you are advised to contact Student Accessibility Services (McMaster University Student Center Basement, Room B107, Tel. 905-525-9140, ext. 28652). Accommodations are arranged exclusively through Student Accessibility Services (http://sas.mcmaster.ca/).

9. **Academic dishonesty** – All students are reminded of the seriousness of academic dishonesty. Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy (specifically Appendix 3, located at http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf). Plagiarism (e.g., the submission of work that is not one’s own or for which other credit has been obtained), improper collaboration in group work, and copying or using unauthorized aids, tests, and examinations are examples of academic dishonesty.

**Course Prerequisites:**

A minimum grade of C- in one of EARTH SC\ENVIR SC\GEOG 2GI3 is required.

**Lab and Software Ownership Policies:**

As part of this course, you will complete assignments using ArcGIS 10.5. McMaster University has obtained an Academic site license from ESRI Canada Limited, which means that the license limits the use of the software to academic purposes only (i.e., you cannot use it for commercial purposes). Students who wish to have a student version of ArcGIS 10.5 can obtain one for a $30 administrative fee. This version of the software has the same functionality as the version in the GIS Labs and it times out after one year.

In addition to the use of ArcGIS, you are advised that the data used in the course for the preparation of assignments may be subject to the proprietary rights of others. You must obtain appropriate permissions to use any such data for purposes other than the completion of assignments.

You are urged to discuss any concerns that you may have with your instructor. In no event will McMaster University be responsible for the use by a student of any data for which appropriate permission was not obtained. By taking part in this course, you agree to indemnify McMaster University from any loss that may be suffered on its part as a result of you not obtaining appropriate permission.

**Course Schedule (TBA)**