GEOG/PLAN 481

GEOGRAPHIC INFORMATION SYSTEMS PROJECT

Course Outline – Winter 2018

OVERVIEW

In this course, students will learn how to design, manage, and complete a research project that emphasizes the use of a geographic information system (GIS). By working in small groups, students will learn how to work in a team environment and develop negotiating and project management skills. Groups will agree with the instructor on a suitable project topic or research problem and solve it by acquiring, organizing, and analyzing data using a GIS. Projects must include a substantive research component, where GIS is the main method used.

COURSE DESCRIPTION

This course focuses on developing geographic information systems (GIS) project skills. Students will gain experience in the definition, planning, execution, and completion of a GIS project.

Although real issues in geographical analysis are addressed, the focus of the course evaluation is on (a) the project's methodological and organizational design, (b) application of appropriate GIS techniques, and (c) presentation of the final results in both oral and written form. Extensive independent lab work is required. It is assumed that students have already acquired a foundation of concepts and functions required for GIS analysis or are capable of learning them, and are proficient in the use of at least one GIS package.

This course is meant to simulate a team-oriented workplace environment. Students must be highly motivated, able to make progress without constant supervision, and meet strict deadlines, as though they have been hired for a geomatics-related job position.

Each group has the freedom to select their own project topic. The instructor may suggest some project ideas. If you have an idea for a group project, you are encouraged to discuss it with the instructor as soon as possible, to assess its feasibility, and to start acquiring data sources, which can be a time consuming process. Project ideas may originate from a variety of sources, such as a current or previous employer, work completed as a volunteer, or a previous course or field trip. Keep in mind that the project topic should appeal to other members of your group. If you intend to work with an outside organization, you are encouraged to contact them as early as possible, especially when requesting for secondary data.

Some workshops and lectures will be scheduled during the term, but many classes will be used for informal progress reports from each group, class discussion, and questions. Students are expected to participate in discussions and contribute equally to the group project.

INSTRUCTOR

Dr. Su-Yin Tan
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Phone : 519-888-4567 Ext. 38772
E-mail: su-yin.tan@uwaterloo.ca
Office hours: Thursday, 12:30 p.m. - 2:00 p.m. (subject to change). By appointment if necessary.

SUPPORT STAFF

- Teaching Assistant (TA):
  Kristen de Kroon
  Office: EV2-1001 (General Use Lab)
  E-mail: ke2dekro@uwaterloo.ca (use LEARN mail system)
  Office hours: TBA (will be posted on LEARN). By appointment if necessary.

- Informatics Instructional Coordinator:
  James D. McCarthy
  Office: Ask at MAD Helpdesk
  Phone : 519-888-4567 Ext. 38529
  E-mail: jmccarth@uwaterloo.ca (use LEARN mail system)
  Office hours: TBA. By appointment if necessary.

PREREQUISITE

Geog/Plan 381 and 387 or consent of the instructor.

Students taking this course should have experience in performing basic and advanced spatial analysis using GIS. It is expected that students will have either basic programming/scripting experience (e.g. Python, VB, etc.) or will devote sufficient time to developing such skills independently or with assistance of suggested tutorials. It is not an objective of the course to teach students programming. Knowledge of basic statistics is highly recommended.

Students are expected to complete a group project. Due to the workload in this course, students are not allowed to complete a project on their own or individually.

CLASSES

Location: Environment 2, Room 2002
Time: Friday, 11:30 a.m. - 2:20 p.m.

LABS

There are no scheduled lab sessions in this course. Students will have access to MAD GIS computing labs and are expected to work in the labs as their projects require.

TEXT AND READINGS

There are no required textbooks. You are expected to identify relevant material for your particular group project. Students are encouraged to read widely and to refer to peer-reviewed journals.

REQUIREMENTS

The primary deliverable of the course is a final group project presented in both oral and written format near the end of term. Other components in the course are meant to serve as 'building blocks' and to contribute towards completion of the final group project. These deliverables include a project proposal (oral and written form), literature review paper, and weekly progress reports. Some components will be individually assessed, while others will be marked as a group evaluation.

Several classes over the term will be devoted to project updates from each group. Meetings with either the TA or instructor may be scheduled from time to time. A different group member will be assigned to provide a written progress report briefly summarizing the group's weekly progress (e.g. completed tasks, challenges, project management, work plan). Each student must be responsible for *at least one* progress report during the term, which will be marked by the TA or instructor. Progress reports and meetings provide an opportunity to describe challenges you and your group may be facing and to obtain feedback/guidance from the instructor and/or TA. Completion of peer evaluation forms for group work will be optional near the end of term and account for 2% bonus marks added to the final course grade (in accordance with guidelines set by the instructor).

Oral presentations will be delivered on dates specified in the course schedule. Each student is required to contribute to both proposal and final presentations, and will be evaluated individually based on presentation skills and content. Groups are expected to use the digital projector in conjunction with presentation software. The audience for the final presentations may include people from outside the course. Final reports will be submitted shortly after final oral presentations (deadline specified by the instructor) to allow for an opportunity to incorporate feedback and comments.

EVALUATION (Total = 100 %)

- *Individual evaluation:* (Sub-total = 40 %)

Personal biography	2 %
Literature review	15 %
Proposal oral presentation	5 %
Final oral presentation	8 %
Progress report(s)	5 %
Attendance / Participation	5 %
Peer evaluation for group work (optional)	+ 2 % bonus

- *Group evaluation:* (Sub-total = 60 %)

Project title & mission statement	3 %
Written proposal	20 %
Final written report	37 %

Note: The instructor reserves the right to adjust final marks up or down, based on the performance, contribution, and participation of each student to their group.

UW POLICIES:

Unclaimed Assignments:

Unclaimed assignments will be retained until one month after term grades become official in Quest. After that time, they will be destroyed in compliance with UW's confidential shredding procedures.

Academic Integrity:

To create and promote a culture of academic integrity, the behavior of all members of the University of Waterloo is based on honesty, trust, fairness, respect and responsibility. http://www.uwaterloo.ca/academicintegrity/

Students who are unsure what constitutes an academic offence are requested to visit the on-line tutorial at http://www.lib.uwaterloo.ca/ait/

Research Ethics:

Please also note that the 'University of Waterloo requires all research conducted by its students, staff, and faculty, which involves humans as participants to undergo prior ethics review and clearance through the Director, Office of Human Research and Animal Care (Office). The ethics review and clearance processes are intended to ensure that projects comply with the Office's Guidelines for Research with Human Participants (Guidelines), as well as those of provincial and federal agencies, and that the safety, rights and welfare of participants are adequately protected. The Guidelines inform researchers about ethical issues and procedures, which are of concern when conducting research with humans (e.g. confidentiality, risks and benefits, informed consent process, etc.). If the development of your research proposal consists of research that involves humans as participants, then please contact the course instructor for guidance and see http://iris.uwaterloo.ca/ethics/

Note for Students with Disabilities:

The AccessAbility Office, located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AccessAbility Office at the beginning of each academic term.

Mental Health:

The University of Waterloo, the Faculty of Environment and our Departments consider students' well-being to be extremely important. We recognize that throughout the term students may face health challenges – physical and / or emotional. **Please note that help is available.** Mental health is a serious issue for everyone and can affect your ability to do your best work. Counselling Services (www.uwaterloo.ca/counselling-services) is an inclusive, non-judgmental, and confidential space for anyone to seek support. They offer confidential counseling for a variety of areas including anxiety, stress management, depression, grief, substance use, sexuality, relationship issues, and much more.

Religious Observances:

Student needs to inform the instructor at the beginning of term if special accommodation needs to be made for religious observances that are not otherwise accounted for in the scheduling of classes and assignments.

Grievance:

A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4, http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please contact your Undergraduate Advisor for details.

Discipline:

A student is expected to know what constitutes academic integrity, to avoid committing academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 - Student Discipline. For information on categories of offences and types of penalties, students should refer to Policy 71 - Student Discipline http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm.

Appeals:

A student may appeal the finding and/or penalty in a decision made under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 – Student Discipline if a ground for an appeal can be established. Read: Policy 72 - Student Appeals, http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm

LEARN:

Users can login to LEARN via: http://learn.uwaterloo.ca/ using your WatIAM/Quest username and password. Available documentation: http://av.uwaterloo.ca/uwace/training_documentation/index.html

COURSE SCHEDULE

Week	Date	Topics	Deadlines
1	Jan. 5	Course introduction, project topic selection, group formation	**List of group members**
2	Jan. 12	GIS project topic definition & research design **Workshop: Proposal Writing & Requirements**	**Personal biography, project title, mission statement**
3	Jan. 19	**Workshop: Geospatial Data Sources & Acquisition** (UW Geospatial Centre Orientation – Eva Dodsworth)	
4	Jan. 26	**Proposal Oral Presentations**	**Proposal oral presentation**
5	Feb. 2	**Workshop: Literature Review & Project Critique Writing**	**Proposal paper**
6	Feb. 9	**Workshop: Introduction to WebGIS & the GeoWeb** (James McCarthy & Scott MacFarlane – MAD Helpdesk)	
7*	Feb.16	**Workshop: GIS Project Management** Project meetings	**Literature review**
8	Feb. 23	**READING WEEK**	
9 *	Mar. 2	Project meetings	Progress reports
10 *	Mar. 9	**Workshop: Advanced Spatial Statistics** Project meetings	Progress reports
11 *	Mar. 16	**Workshop: Presentation Skills & Requirements** Project meetings	Progress reports
12 *	Mar. 23	Project meetings	Progress reports
13	Mar. 30	**Final report presentations** *(Note: Additional time slot may be scheduled)*	**Final presentation** **Final report**

Note:
- * Group progress meetings will potentially be scheduled during Weeks 7 and 9 to 12 with either the instructor or TA (scheduled during or outside class time). One student from each group will submit a written progress update/report, which will be evaluated by the instructor or TA. Each student must be responsible for a progress update/report at least once during the term.
- The instructor reserves the right to modify the schedule and topics during the term
- No provisions will be made for late submissions of assignments without medical documentation (i.e. late submissions will result in a mark of zero)