

GEOG 3223A – Decision-making with GIS

Course Outline: Section 001 Fall 2021

This course is taught in-person
Syllabus subject to modification

1. Course Information

	Delivery Mode	Day/Time	Location
Lecture	In-person	Thursday 12:30 pm	SSC-1059
Lab	In-person	Thursday 2:30 pm	SSC-1059

Classes Start	Fall Reading Week	Classes End	Study day(s)	Exam Period
September 8	November 1-7	December 8	December 9	December 10-21



September 16, 2021: Last day to add a first-term half course

October 11, 2021: Thanksgiving Holiday

November 12, 2021: Last day to drop a first term half course without penalty



Course Instructor	Contact Information	Office Hours
Jacek Malczewski	jmalczew@uwo.ca	In-person or zoom meeting by appointment via email

Although I will usually reply the same day, please allow up to 48 hours.

Please email from your @uwo.ca account and use "Geog3223 – Email Topic" in the subject line.

Teaching Assistant	Contact Information	Office Hours
Vali Vakshoori	svakhsho@uwo.ca	Zoom meeting Monday 12:30-1:30pm

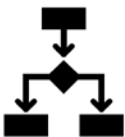
2. Calendar Description

"This course introduces you to the principles of integrating GIS and decision analysis. Selected GIS-based decision-making methods are applied in practical sessions. A range of applications from both public and private sector organizations are covered"

2 lecture hours, 2 laboratory hours, 0.5 course

Prerequisite: Geography 2220A/B

Prerequisite checking is the student's responsibility



Senate Regulations state, "unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites."

3. Readings

Textbook

Malczewski J. (1999) *GIS and Multicriteria Decision Analysis*, New York: Wiley.

You will require the textbook as lectures and labs are directly related to material/figures from the text. The lecture notes and labs will guide you into what sections (and what 'depth') you are required to understand.



Journal papers

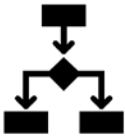
Malczewski (2000) [On the use of weighted linear combination method in GIS: common and best practice approaches](#). *Transactions in GIS*, 4(1), 5-22.

Malczewski J. (2006) [GIS-based multi-criteria decision analysis: a survey of the literature](#). *International Journal of Geographical Information Science*, 20(7), 703–726.

4. Course Objectives and Format

There are two main objectives of this course:

- to develop knowledge and critical understanding of the principles of integrating GIS and decision analysis, and
- to develop practical skill with GIS-based multi-criteria decision analysis methods including geo-spatial data acquisition, interpretation, quantitative processing and analysis.



All course material will be posted to OWL: <http://owl.uwo.ca>. Any changes will be indicated on the OWL site and discussed with the class.

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click [here](#).

If students need assistance, they can seek support on the [OWL Help page](#). Alternatively, they can contact the [Western Technology Services Helpdesk](#). They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Communication

Students should check the OWL site regularly

A weekly update will be provided on the OWL announcements



For any other communication, the centrally administered **e-mail account** provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).

Emails will be monitored daily; students will receive a response in 24 – 48 hours

6. Course Content and Schedule

Dates	Topic	Readings
Sept 9	Introduction	
Sept 16	GIS and multicriteria decision analysis	Malczewski 1999* Ch. 1, p. 3-14; Ch. 3, p. 81-100 <u>Malczewski 2006**</u>
Sept 23	Evaluation criteria	Malczewski 1999 Ch. 4, p.103-122
Sept 30	No class (conflicts with 3000Y Field Course)	
October 7	Decision alternatives Lab 1: Structuring decision problem	Malczewski 1999 Ch. 5, p. 137-160
October 14	Criteria weighting Lab 2: Decision alternatives and criteria weighting	Malczewski 1999 Ch. 6, p. 177-195
October 21	Additive weighting methods Lab 3: Decision rules: Part I	Malczewski 1999 Ch. 7, p. 197-223, p. 233-237 <u>Malczewski 2000***</u>
October 28	Mid-term test	
November 4	Reading Week	
November 11	Reference point methods Lab 4: Decision rules: Part II	Malczewski 1999 Ch. 7, p. 223-226
November 18	Sensitivity analysis Lab 5: Sensitivity analysis	Malczewski 1999 Ch. 8, p. 261-269
November 25	Synthesis	
December 2	Test/Quiz	
TBD	Final exam	



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8. Evaluation

Below is the evaluation breakdown for the course. Any deviations will be communicated.

Date	Labs / Tests	Weighting	Due Date
October 7	1. Structuring decision problem: Evaluation criteria	6	October 14
October 14	2. Decision alternatives and criteria weighting	6	October 21
October 21	3. Decision rules: Part I	6	October 28
November 11	4. Decision rules: Part II	6	November 18
November 18	5. Sensitivity analysis	6	December 2
October 28	Mid-term test (on-line, 1 hour)	20	
December 2	Test/Quiz (on-line, 30 minutes)	10	
TBD	Final exam (in-person, 2 hours)	40	

You are responsible for material covered in the lectures as well as the assigned chapters/sections in the textbook and journal articles.

Grades will not be adjusted on the basis of need. It is important to monitor your performance in the course. *You* are responsible for your grades in this course.

The lab component of the course consists of five assignments worth 30% of your final grade. Laboratory exercises submitted late without approved documentation or the submission of a self-reported absence will be subject to a penalty of 25% per day. Assignments more than 2 days late will not be accepted.



The mid-term test and Test/Quiz will be held on Thursday, October 28, 12:30 -1:30pm and Thursday, December 2, 12:30 -1:00pm, respectively. An online synchronous, open-book format applies.

A make-up mid-term test and test/quiz will not be offered. The weight of a missed test will be transferred to the final exam.

The final examination (2 hours) will be scheduled during the examination period at the end of the fall term. An open-book format applies.

The open-book tests and exam are designed to assess individual competence in course material. However, 'open book' here means you are free to use required readings and any material provided to you on your OWL course site. All work must be done independently. Not adhering to these conditions will be considered a **scholastic offence** (see statement in policies below)

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

9. Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The accommodation policy can be found here: [Academic Accommodation for Students with Disabilities](#).

Academic Consideration for Student Absence

Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the term, provided the following conditions are met: the absence is no more than 48 hours in duration, and the assessment for which consideration is being sought is worth 30% or less of the student's final grade. (**Note: The weight of a missed test and/or quiz will be transferred to the final exam; see Section 7 Evaluation**).

Students are expected to contact their instructors within 24 hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,
- assessments worth more than 30% of the student's final grade,
- if a student has already used the self-reporting portal twice during the academic year

If the conditions for a Self-Reported Absence are *not* met, students will need to provide a Student Medical Certificate if the absence is medical, or provide appropriate documentation if there are compassionate grounds for the absence in question. Students are encouraged to contact their Faculty academic counselling office to obtain more information about the relevant documentation.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For Western University policy on Consideration for Student Absence, see

[Policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs](#)

and for the Student Medical Certificate (SMC), see:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Religious Accommodation

Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic

Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the [Western Multicultural Calendar](#).

10. **Make-up Examinations**

A make-up mid-term test and test/quiz will not be offered. The weight of a missed test will be transferred to the final exam.

11. **Use of Electronic Devices**

Electronic devices will be allowed during tests and examinations.

12. **How to Be Successful in this Class**



The course is problem based, and applied - you must practice problems and do all exercises in order to fully understand the material and successfully complete the course. The course material is cumulative. You should review lectures and readings weekly - do not expect success if you only study and practice before exams.

13. **Continuity of Education Plan (in-person class pivoting to online learning)**

In the event of a COVID-19 resurgence during the course that necessitates the university to direct courses move away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

14. **Information on COVID-19**

Masking Guidelines

Students will be expected to wear triple layer, non-medical, paper masks at all times in the classroom as per University policy and public health directives. Students who are unable to wear a mask must seek formal accommodation through Western Accessible Education, and present medical documentation.

Students are not permitted to eat or drink while in class to ensure masks stay in place. Students will be able to eat and drink outside of the classroom during scheduled breaks.

Students unwilling to wear a mask as stipulated by Western policy and public health directives will be referred to the Dean, and such actions will be considered a violation of the student Code of Conduct.

Course Absences due to Daily COVID Screening Questionnaire

Missed assessments (e.g., assignments, quizzes, tests, midterms, etc.) require formal academic considerations (typically self-reported absences and/or academic counselling).

Students who demonstrate a pattern of routinely missing coursework due to self-reported COVID symptoms, and therefore do not demonstrate mastery of the learning outcomes of the course, will not receive credit for the course.

15. Academic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence.

[Include this paragraph on plagiarism-checking software only if relevant. If not relevant delete the paragraph below]

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

16. Western's Commitment to Accessibility

The Department of Geography and Environment strives at all times to provide accessibility to all faculty, staff, students and visitors in a way that respects the dignity and independence of people with disabilities.

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 519-661-2147 for any specific question regarding an accommodation. Information regarding accommodation of exams is available on the Registrar's website.

More information about "Accessibility at Western" is available.

17. Mental Health

If you or someone you know is experiencing distress, there are several resources here at Western to assist you. Please visit Western's Health and Wellness website for more information on mental health resources.

18. Support Services

Western's Support Services
Student Development Centre

19. Important Dates

September 8: Classes resume

September 16: Last day to add a first term half course

October 11: Thanksgiving Holiday – Department Office Closed

November 1 to November 7: Fall Reading Week (No classes; Department Office open)

November 12: Last day to drop a first term half course without penalty

November 30: Last day to drop a full course without penalty

December 8: Classes end

December 9: Study day

December 10-21: Examination Period