

GEOG 3222A – Geographic Information Science II

Course Outline: Section 001 Fall 2020

1. Course Information

Class Location and Time:

001	Lecture:	Asynchronous, Virtual/Online
002	Lab:	Synchronous, Virtual/Online
		Wednesday 12:30 – 14:30 via Zoom

Contact Information:

Instructor: Jed Long

Office: SSC 2405

Zoom Office Hours: Tuesday 15:00 – 16:00

Email: jed.long@uwo.ca

TA: Jack McIlraith

Office hours: TBA

Email: jmcilrai@uwo.ca

2. Calendar Description

Course Description

Methods and techniques in Geographic Information Science. Spatial data encoding from maps and geographic database implementation. Spatial interpolation and other modeling techniques. Integration of remote sensing, GIS, and Visualization. Hands-on experience using ESRI ArcGIS software.

Online lectures, 2 laboratory hours, 0.5 course

Antirequisite(s): N/A

Prerequisite(s): Geography 2210A/B or Biology 2244A/B or Statistical Sciences 2244A/B; and Geography 2220A/B. Adequate mathematical background is needed to be successful

Prerequisite checking is the student's responsibility

Senate Regulations

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. Textbook

“Required” Textbook (available in the bookstore):

Peter A. Burrough, Rachael A. McDonnell, and Christopher D. Lloyd, 2015, Principles of Geographical Information Systems (3rd Ed.). Oxford University Press. (ISBN: 9780198742845)

Other Comparable GIS Textbooks

Longley, P.A., M.F.Goodchild, D.J.Maguire, and D.W.Rhind, 2016. Geographic Information Systems and Science (4th Ed.). John Wiley & Sons, Inc., 469 p. (978-1-119-03130-7 or ISBN : 978-1-118-67695-0).

Bolstad, Paul, 2016. GIS Fundamentals: A First Text on Geographic Information Systems (5th Ed.). XanEdu Publishing Inc., 770 p. (ISBN 1506695876 or 978-1506695877).

Chang, K.T., 2019. Introduction to Geographic Information Systems (9th Ed.). McGraw Hill, 448 p. (ISBN10: 1259929647 | ISBN13 9781259929649)

4. Evaluation

Evaluation Components	Percentage of Course Grade	Assignment Due Date
Lab Assignments (5 labs)	50%	See Course Schedule
Term Project	25%	December 9, 2020
Final Exam	25%	TBD

5. Lab assignments

Lab #	Topic	Weight
Tutorial 1	Revisiting ArcGIS software	
Lab 1	Mini GIS Project	10%
Lab 2	Multi-Criteria Evaluation (MCE) with GIS	10%
Lab 3	3D Building Model Generation from LiDAR data	10%
Lab 4	ArcGIS Model Builder and Finding the Least-cost Path	10%
Lab 5	Network Analysis	10%

6. Course Schedule

Week #	Week Of (Monday)	Weekly Themes	Lab	Lab due (Friday)
Week 1	Sep 7	Course Introduction Geospatial Data	Tutorial 1	
Week 2	Sep 14	Coordinate Systems Vector Spatial Analysis	Lab 1	
Week 3	Sep 21	Raster Spatial Analysis Scale in GIS	Lab 1	Lab 1
Week 4	Sep 28	Digital Elevation Models Introduction to Term Project	Lab 2	
Week 5	Oct 5	Spatial Interpolation Spatial Pattern Analysis	Lab 2	Lab 2
Week 6	Oct 12	Introductory MCE History of Maps and GIS	Lab 3	
Week 7	Oct 19	Cartographic Principles Story Maps	Lab 3	Lab 3
Week 8	Oct 26	Cost Distance and LCP Network Analysis	Lab 4	
Week 9	Nov 2	Reading week (no lecture)	No Lab	
Week 10	Nov 9	GIS Work Flows GIS Programming	Lab 4	Lab 4
Week 11	Nov 16	GIScience Research @ Western	Lab 5	
Week 12	Nov 23	No Lesson	Lab 5 / Help Session	Lab 5
Week 13	Nov 30	Exam Review Term Project Help Session	Help Session	
Week 14	Dec 7	No Lesson	No Lab	

7. Course requirements

Attendance and participation: Students are expected to complete all lectures and labs. Additional material will be provided via OWL. Students are responsible for material covered in the lectures as well as the assigned chapters/sections in the text.

- a) Students will require access to a computer to complete the lab and assignment content using an online system for accessing the specialized software (ArcGIS). If you are having issues please speak to the instructor and/or the TA. Participating at the lab is crucial to success in this course.
- b) Assignments are due to be submitted online (via OWL) before 11:59 pm on the specified assignment due date. Plagiarism or copying is unacceptable and will be strictly enforced. Please follow the instructions for the GIS project. The penalty of a late assignment is 10% per day. Please write the course number, the instructor and TA name on your assignment.
- c) The final exam will be administered online and will be comprehensive of all material in the course. It will involve a variety of question types and small analytical tasks. More information on the content, structure, and format of the final exam will be provided in the lecture material.
- d) Students with special accommodation should get in contact with the instructor and the student services desk for Social Science. Please see Additional Statements below

8. 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. 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](#).

9. Use of Electronic Devices

Final exam will be of the take home variety.

10. 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](#).

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.

11. Western's Commitment to Accessibility

The Department of Geography 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.

12. 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.

13. Support Services

Student Support Services

Student Development Services

14. Technical Requirements

Recommended technical specifications are available at:

<https://registrar.uwo.ca/academics/timetables.html>

15. Important Dates

See Western's Academic Calendar.