

## GEOG 3224 B Spatial Ecology & GIS

### Winter 2022-23 B

#### 1. Course Information

	Delivery	Date/Time	Room
<b>Lecture</b>	In Person	Wednesday, 12:30-14:30	UC1110
<b>Lab</b>	In Person	Thursday, 13:30-15:30	SSC1059

Course Instructor	Contact Information	Office Hours (SSC2405)
Jed Long	jed.long@uwo.ca	TBD

Teaching Assistant(s)	Contact Information	Office Hours
Natalia Hrynko	nhrynko@uwo.ca	TBD

#### 2. Calendar Description

GIS methods for analyzing environmental and ecological data are presented. Emphasis is placed on quantifying and interpreting spatial patterns in data collected on plants and wildlife. The course will explore issues associated with scale, networks, disturbance, and feedback. Topics covered include habitat fragmentation, wildlife tracking, home ranges, and species distributions.

2 lecture hours, 2 lab hours, 0.5 course

**Antirequisite(s):** None

**Prerequisite(s):** GEOG2210 OR equivalent (e.g., BIOL2244 OR STAT2244); AND GEOG2220 OR GEOG2230.

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. Textbook

(Optional)

Gergel, SE and Turner, MG eds. (2017) Learning Landscape Ecology: A practical guide to concepts and techniques. 2<sup>nd</sup> Edition. Springer-Verlag, New York, NY.

Plus selected readings.

## 4. Course Objectives and Format

### Course Objectives:

- I. Learn core concepts associated with spatial ecology, such as scale, networks, and disturbance
- II. Develop skills for implementing different spatial analyses in GIS
- III. Apply techniques using real-world data examples
- IV. Interpret spatial patterns observable in maps

This course will rely heavily on the development of technical skills and will use GIS software (e.g., ArcGIS) and statistical software, thus students should have some experience working with geographical data in GIS or related software environments.

### Course Format:

Lectures: Lecture material will be provided weekly according to the course timetable. All lecture material will be posted to OWL.

Labs: Labs will be conducted according to the class schedule in the computer lab.

Readings: Readings will be posted regularly on zoom, each student will be required to participate in leading the reading discussion in class as part of a small group.

It is the student's responsibility to cover any material missed by failure to attend lectures, please also see all material on the course website.

## 5. Learning Outcomes

- Understand key concepts in spatial ecology and GIS
- Assess datasets for quality and efficacy for different analyses
- Map and model species occurrence data
- Visualize and quantify animal movement and home range
- Quantify and interpret landscape patterns
- Evaluate habitat connectivity
- Perform spatial analysis in GIS software

## 6. Course Timetable

### Lecture Timetable

<b>Week Of</b>	<b>WEEK</b>	<b>Topic</b>
Jan 09	1	Course Introduction and GIS review
Jan 16	2	Species Mapping
Jan 23	3	Habitat mapping
Jan 30	4	Species Distribution Models
Feb 06	5	Landscape Patterns
Feb 12	6	Connectivity
<b>Feb 20</b>	<b>7</b>	<b>SPRING BREAK NO LECTURE</b>
Feb 27	8	Citizen Science in Ecology (VIRTUAL LECTURE)
Mar 06	9	Wildlife Tracking
Mar 13	10	Wildlife Camera Traps
Mar 20	11	Class Project Session
Mar 27	12	SE Research @ Western
Apr 04	13	Class Project Session

### **Lab Timetable**

<b>Week Of</b>	<b>WEEK</b>	<b>Topic</b>
Jan 09	1	No Lab
Jan 16	2	Lab 1 – Species Range Maps
Jan 23	3	Lab 2 – Habitat Maps
Jan 30	4	A1 – Help Session
Feb 06	5	Lab 3 – Landscape Pattern Indices
Feb 12	6	Lab 4 – Connectivity
<b>Feb 20</b>	<b>7</b>	<b>SPRING BREAK NO CLASS</b>
Feb 27	8	A2 – Help Session
Mar 06	9	Lab 5 – Animal Tracking Data
Mar 13	10	Lab 6 – Home Ranges
Mar 20	11	A3 – Help Session
Mar 27	12	Term Project Help Session
Apr 04	13	Term Project Help Session

## 7. Evaluation

Evaluation Components	Weight (%)	Assessment Due Date
1. Assignment 1	20%	Friday February 3
2. Assignment 2	20%	Friday March 3
3. Assignment 3	20%	Friday March 24
4. Final Term Project	30%	Friday April 7
4. Class Project Participation	5%	TBD
5. Reading Discussion	5%	VARIOUS

All assignments will be submitted electronically (via OWL).

Students are responsible for material covered in the lectures as well as the assigned readings.

Late assignments will face deductions at the rate of 10% per day late.

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

## 8. 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) 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) Students with special accommodation should get in contact with the instructor and the student services desk for Social Science. Please see Additional Statements below

## 9. 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.

## 10. Accommodation Policy

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**

The University recognizes that a student's ability to meet their academic responsibilities may, on occasion, be impaired by medical illness. Illness may be acute (short term), or it may be chronic (long term), or chronic with acute episodes. The University further recognizes that medical situations are deeply personal and respects the need for privacy and confidentiality in these matters. However, in order to ensure fairness and consistency for all students, academic accommodation for work representing 10% or more of the student's overall grade in the course shall be granted only in those cases where there is documentation indicating that the student was seriously affected by illness and could not reasonably be expected to meet their academic responsibilities.

[Policy on Academic Consideration for Medical Illness - Undergraduate Students](#)

Student Medical Certificate (SMC)

### **Dr Long's Extension Policy:**

Every student will be allowed to submit an assignment late one time. You will have up to 2 days to get your assignment in late. No need to email the instructor, the TA will identify this the first time you submit late. No questions will be asked. Any additional extensions or longer extensions will require formal academic consideration, otherwise late penalty will apply.

### **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](#).

## 11. Use of Electronic Devices

This course relies heavily on the use of computer software and systems.

## 12. Statements concerning Online Etiquette

Some components of this course will involve online interactions. To ensure the best experience for both you and your classmates, please honour the following rules of etiquette:

- Please "arrive" to class on time

- Please use your computer and/or laptop if possible (as opposed to a cell phone or tablet)
- Ensure that you are in a private location to protect the confidentiality of discussions in the event that a class discussion deals with sensitive or personal material
- To minimize background noise, kindly mute your microphone for the entire class until you are invited to speak, unless directed otherwise

The course instructor will act as moderator for the class and will deal with any questions from participants. To participate please consider the following:

- If you wish to speak, use the “raise hand” function and wait for the instructor to acknowledge you before beginning your comment or question
- Remember to unmute your microphone and turn on your video camera before speaking
- Self-identify when speaking
- Remember to mute your mic and turn off your video camera after speaking (unless directed otherwise)

General considerations of “netiquette”:

- Keep in mind the different cultural and linguistic backgrounds of the students in the course.
- Be courteous toward the instructor, your colleagues, and authors whose work you are discussing.
- Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment. “Flaming” is never appropriate.
- Be professional and scholarly in all online postings. Cite the ideas of others appropriately.

Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

### **13. 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.

## 14. How to Be Successful in this Class:

Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.

1. Invest in a planner or application to keep track of your courses. Populate all your deadlines at the start of the term and schedule time at the start of each week to get organized and manage your time.
2. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help you succeed in this class.
3. Take notes as you go through the lesson material. Keeping handwritten notes or even notes on a regular Word document will help you learn more effectively.
4. Connect with others. Try forming a study group and try meeting on a weekly basis for study and peer support.
5. Do not be afraid to ask questions. If you are struggling with a topic, check the online discussion boards or contact your instructor(s) and or teaching assistant(s).
6. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.

## 15. 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.

## 16. Support Services

[Western's Support Services](#)  
[Student Development Centre](#)

## 17. Important Dates

See Western's [Academic Calendar](#).