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## COURSE OUTLINE

### ADVANCED TOPICS IN GEOGRAPHICAL INFORMATION SCIENCES

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**Office Hours:** Monday 1:00-2:00 pm and by appointment  
**Office:** DTB B130  
**Contact:** [nboulangerlapointe@uvic.ca](mailto:nboulangerlapointe@uvic.ca)

**Teaching Assistant:** Emerald Arthurs  
**Drop-in Sessions:** Wednesday 10:00-11:00, DTB B206  
**Contact:** emeraldarthurs@uvic.ca

**Class Meetings:** Monday 2:30 to 4:20 pm  
**Classroom:** Fine Arts Building 103

**Lab sessions:** B01 Wednesday 2:30 pm - 5:20 pm DTB A251  
B02 Friday 12:30 pm - 3:20 pm DTB A251

*We acknowledge and respect the lək̓ʷəŋən peoples on whose traditional territory the university stands and the Songhees, Esquimalt and W̱SÁNEĆ peoples whose historical relationships with the land continue to this day.*

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## COURSE DESCRIPTION

This course prepares students to work with wildlife and land use data for conservation and environmental resource management. Students will learn how to select and collect publicly available spatial data, process these data, conduct various types of advanced analyses, and report their findings in a professional manner. The reporting of findings will focus on summarizing complex information in a synthetic and accessible format to provide the best science-based information for decision makers and the public. This course includes a mix of lectures and computer labs during which students will be asked to progressively gain independence to source data, codes as well as contextual information.

## REQUIRED TEXTS AND SOFTWARE

The required readings for this class will consist of scientific articles that will be provided on Brightspace as well as sections from the book *Spatial Ecology and Conservation Modeling*

(Fletcher and Fortin 2018) available online from the library. The emphasis will be on using the open-source R statistical software.

## LEARNING OUTCOMES

- Critically examine spatial datasets to identify errors and uncertainties
- Select and integrate spatial information from various sources
- Implement and develop advanced R code for spatial data analysis
- Critically examine the results of spatial analyses to derive management decisions
- Communicate scientific ideas using concise and accessible language

## EVALUATION

R scripts: 10% x 2 (20%)

Assignment (Newspaper article): 20%

Term project: Project outline (5%), draft script (5%), Promo material (10%), Oral presentation (10%), final script (10%), report (20%)

## LECTURES AND ASSIGNMENTS SCHEDULE

Week	Dates	Lecture	Lab	Due dates
<b>Introduction</b>				
1	Jan. 9 – Jan. 13	Spatial ecology and scales	Lab 0. Get to know your way around R	
<b>Section 1: Species distribution</b>				
2	Jan. 16 – Jan. 20	Climate data (guest lecture), final project presentation	Lab 1. Occurrence data	
3	Jan. 23 – Jan. 27	Species distribution	Lab 2. Environmental data	
4	Jan. 30 – Feb. 3	Species distribution and audience specific presentation (part 1)	Lab 3. Species distribution models	Lab 1 and 2 script due Jan 30 (10%)
5	Feb. 6– Feb. 10	Final project discussion (one-on-one meetings)	Lab 4. Preparation of movement data and associated environmental layers	Newspaper article due on Feb. 6 (20%)

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**Section 2. Movement and connectivity**

6	Feb. 13– Feb. 17	Home range and resource selection function	Lab 5. Resource selection function	Final project outline due on Feb. 13 (5%)
7	Feb. 20– Feb. 24	<b>READING BREAK</b>		
8	Feb. 27– March 3	Habitat fragmentation and connectivity	Drop-in final project	Lab 4 and 5 scripts due March 6 (10%)

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**Section 3. Complexity in response**

9	March 6– March 10	Predation/competition and species overlap	Drop-in final project	
10	March 13– March 17	Audience specific presentation (part 2): guest lecture	Drop-in final project	Final project draft script due March 17 (5%)
11	March 20– March 24	Scheduled time for group discussion on final project	Drop-in final project	
12	March 27– March 31	Scheduled time for group discussion on final project	Drop-in final project	Final project promo material March 27 <sup>th</sup> (10%)
13	Apr. 3 – Apr. 7	Course wrap-up	Project presentations (%10)	
Exam period				Project report (20%) and final script (10%) due on April 18 <sup>th</sup>

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\*Note that the lecture schedule may be adjusted as needed

## **GEOGRAPHY DEPARTMENT INFORMATION**

Geography Department website: <http://geog.uvic.ca>  
Undergraduate Advising: [geogadvising@uvic.ca](mailto:geogadvising@uvic.ca)  
Department Chair: Dr. David Atkinson [geogchair@uvic.ca](mailto:geogchair@uvic.ca)

## **BRIGHTSPACE**

Brightspace learning management systems (LMS) will serve as the main avenue of communication (<https://www.uvic.ca/systems/services/learningteaching/brightspace/index.php>). Please monitor the page on a regular basis for course announcements. If you are having difficulty logging in or password problems, contact the Computer Help Desk Email: [helpdesk@uvic.ca](mailto:helpdesk@uvic.ca), Tel: 250-721-7687.

## **IMPORTANT COURSE POLICIES**

Attendance is expected for lectures and lab time. Recordings of lecture material or laboratory introductions will not be provided unless the University reinstates online learning.

High level of student cooperation and participation, involving asking and answering questions is expected. Students are also expected to be punctual for course meetings. Cell phones must be turned off or silenced during lectures.

*There is a five-day grace period to submit all assignments except the final project (no grades will be lost during that time). Assignments submitted after the grace period will be graded as 0. Failure to complete an evaluation component without permission from the instructor, will result in an 'N' grade, which equals a Grade Point Value of 0 for the entire course. Neither the teaching assistant nor the course instructor will answer questions after the due date. Extensions passed the 5-day grace period may only be granted for major medical or compassionate reasons discussed with the course instructor prior to the due date.*

As an Instructor, I can refuse a student admission to a lecture, laboratory, learning activity or exam because of lateness, misconduct, inattention, or failure to meet the responsibilities of the course. Students who neglect their academic work may be assigned a final grade of 'N' (which equals a Grade Point Value of 0) or debarred from final examinations. Please refer to the UVic academic calendar in the section on student academic conduct for further information.

Conflicts with work, holidays or travel plans are not considered an acceptable reason to apply for a deferred assignment or project extension.

Unless otherwise stated students are expected to complete assignments independently.

## GRADING SYSTEM

As per the academic calendar:

Grade	Grade Point Value	Percentage	Description
A+	9	90 - 100	An A+, A, or A- is earned by work, which is technically superior, shows mastery of the subject matter, and in the case of an A+ offers original insight and/or goes beyond course expectations.
A	8	85 - 89	Normally achieved by a minority of students.
A-	7	80 - 84	
B+	6	77 - 79	A B+, B, or B- is earned by work that indicates a good comprehension of the course material, a good command of the skills needed to work with the course material, and the student's full engagement with the course requirements and activities.
B	5	73 - 76	A B+ represents a more complex understanding and/or application of the course material.
B-	4	70 - 72	
C+	3	65 - 69	A C+ or C is earned by work that indicates an adequate comprehension of the course material and the skills needed to work with the course material and that indicates the student has met the basic requirements for completing assigned work and/or participating in class activities.
C	2	60 - 64	
D	1	50 - 59	A D is earned by work that indicates minimal command of the course materials and/or minimal participation in class activities that is worthy of course credit toward the degree.
F	0	0 - 49	F is earned by work, which after the completion of course requirements, is inadequate and unworthy of course credit towards the degree.
N	0	0 - 49	Did not write examination or complete course requirements by the end of term or session; no supplemental.

## PLAGIARISM

It is every student's responsibility to be aware of the university's policies on academic integrity, including policies on cheating, plagiarism, unauthorized use of an editor, multiple submission, and aiding others to cheat. Policy on Academic Integrity:

[web.uvic.ca/calendar/undergrad/info/regulations/academic-integrity.html](http://web.uvic.ca/calendar/undergrad/info/regulations/academic-integrity.html)

Academic dishonesty (plagiarism, cheating) is a very serious matter in any academic institution and is dealt with severely at the University of Victoria. Instructors and academic units have the

responsibility to ensure that standards of academic honesty are met. By doing so, the institution recognizes students for their hard work and assures them that other students do not have an unfair advantage through cheating on essays, exams, and projects. Plagiarism sometimes occurs due to a misunderstanding regarding the rules of academic integrity, but it is the responsibility of the student to know them. If you are unsure about the standards for citations, for referencing your sources, or unauthorized use of an editor, please familiarize yourself with the University policy on academic integrity found in the Undergraduate Calendar at the following website - <https://www.uvic.ca/students/academics/academicintegrity/index.php#ipn-policies-consequences>.

*Please contact me if you have any questions.*

Infractions will be dealt with in accordance with University policy. Commonly, the penalty for any form of cheating/plagiarism is a grade of F on the tests or laboratory assignments, or a final grade of F in the course. However, depending on the severity of the case other penalties may include a record on the student's transcript or expulsion.

## **ACCESSIBILITY**

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a documented disability/health consideration that may require accommodations, please feel free to approach me and/or the Centre for Accessible Learning (CAL) as soon as possible. The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations <http://www.uvic.ca/services/cal/>. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

## **POSITIVITY AND SAFETY**

The University of Victoria is committed to promoting, providing and protecting a positive and safe learning and working environments for all its members. To ensure that all class members feel welcomed and equally able to contribute to class discussions, we will all endeavor to be respectful in our language, our examples, and the way we conduct our discussions and group work. If you have any concerns or suggestions to improve inclusivity and safety in the classroom, please contact me.

## **COURSE EXPERIENCE SURVEY (CES)**

We value your feedback on this course. Towards the end of the course, as in all other courses at UVic, you will have the opportunity to complete an anonymous survey regarding your learning experience (CES). The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. The survey is accessed via MyPage and can be done on your laptop, tablet, or mobile device. I will remind you and provide you with more detailed information nearer the time but please be thinking about this important activity during the course.

## **SEXUALIZED VIOLENCE PREVENTION AND RESPONSE AT UVIC**

UVic takes sexualized violence seriously and has raised the bar for what is considered acceptable behaviour. We encourage students to learn more about how the university defines sexualized violence and its overall approach by visiting [uvic.ca/svp](http://uvic.ca/svp). If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please contact the sexualized violence resource office in Equity and Human Rights (EQHR). Whether or not you have been directly impacted, if you want to take part in the important prevention work taking place on campus, you can also reach out:

Where: Sexualized violence resource office in EQHR; Sedgewick C119

Phone: 250.721.8021

Email: [svpcoordinator@uvic.ca](mailto:svpcoordinator@uvic.ca)

Web: [uvic.ca/svp](http://uvic.ca/svp)

## **DISCLAIMER**

The presented schedules, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances.