Course Policies (Syllabus)

1. Meeting Times and Instructors

Lecture M/W/F varies

Lab W 2:30 – 4:20
Lab Th 12:30 - 2:20

Detailed Course Schedule

Contact Info and Office Hours

Instructors and Office Hours

Professor: Tim Essington (he / him) **TA**

1. Learning Goals

By the end of this course, you will be able to

- Develop, apply, and interpret ecological models to answer ecological questions
- Critically evaluate mathematical and statistical models
- Fit models to data using likelihood and Bayesian methods, and use models as hypothesis testing tools
- Acquire skills needed to implement models in R or spreadsheets

2. Prerequisites

To be prepared for this course, you should have prior coursework in calculus, statistics and ecology. If you are in the remote lab section you should be comfortable in either R or Excel. If you are not in the remote lab section and are not already comfortable in either R or Excel you should expect to spend additional time learning these skills in order to succeed in this class.

3. Contacting Instructors

There are two ways to send questions or comments:

1. If you have a question about any course content, use the Discussion Board link on the canvas site.

2. If you have a personal question that is not appropriate for sharing with the class, send a private message to the Professor or TA via Canvas.

In both cases, please only send queries that can be answered by a relatively short message. Questions that require more in-depth responses should be made in-person (or over Zoom) during office hours (see above for times). The discussion board and private messages will be checked daily, Monday through Friday. Generally, expect a response within 24 hours after it is checked. No guarantees are given regarding response times on the weekend.

4. Textbook

The required textbook is "Introduction to Quantitative Ecology". Savvy readers will notice that Tim is the author of this book. Those of you that read the book's preface will note that this book was written specifically for this course. Tim will receive no royalties from the sales of the textbook.

5. Teaching method and course structure

Many people have been told - either explicitly or implicitly - that they are "not good at math". One of my goals is to convince each of you that *anyone* can develop these skills. It is my job to create a learning environment that will present you with challenges, while providing you the resources and support to move past the struggle into insight.

Learning mathematical and statistical concepts can't be done passively. I need you to be fully engaged in the process. For that reason, this is a "flipped" classroom, which means much of the material is given to you outside of the scheduled meeting times (in the form of the textbook and other instructional materials). Your responsibility is to fully engage with those materials that will guide you through the material, introduce new concepts, and demonstrate how they are applied in ecological research. Most importantly you will ***use these materials to identify what you do not understand***. My responsibility in the classroom is to identify these trouble spots, and provide you with new material that will clarify your understanding.

The lab sections will give you hands on training and practice on applying specific computer skills, and on model interpretation skills.

The homework assignments give your further opportunity to learn-by-doing.

The projects allow you to demonstrate your holistic knowledge of the modeling process, synthesizing the skills and knowledge learned in lectures, labs, and assignments to guide you towards insight on a deep ecological question.

Lectures and Lecture Preparation

Lecture will give the necessary background material to conduct the weekly exercises. You'll learn the major concepts, some of the people who developed this field, and specific applications of varying modeling applications.

Typically, one lecture will serve as an introduction to a topic, followed by 1-2 lectures of more advanced material. Prior experience shows that the students who take these readings seriously learn the most in this class.

After you finished your assigned reading, you have two additional steps

1. Complete the associated preparation quiz. These are short (< 5 minutes) graded quizes that evaluate what you have learned already, and where the difficulties lie.
2. Post online in the specified discussion post a substantive question regarding the reading assignment for each group of lectures (see the Schedule for groupings). A substantive question should be specific. "Can you explain how derivatives are used to model state variables?" is specific. "Can you go over derivatives?" is too broad. A substantive question should also pertain to something that is clearly central to the course material. That might be asking for clarification, asking about extensions to a model or applications of a method, or asking about how topics from different weeks relate to each other.
   I will develop the lecture based on **your** questions. The discussion board is your way to tailor the lecture to the topics that you find most challenging.

Your grade for each lecture prep will be the highest of these two. So use the quiz as an assessment your learning and don't sweat the outcome.

Lab

The lab is where the magic happens. It is your chance to dig into these models and develop your skills, through practice, taking intellectual risks in a low-stakes environment, while also revealing areas where your understanding of the material is incomplete or incorrect. If you are in the AC section (the remote lab), please give yourself plenty of time to work on these and seek help in office hours. You will need access to a computer with Microsoft Excel or R (and Rstudio) installed to complete the exercises (students wishing to use R on their personal computers may download both R and RStudio following the instructions here). Lab work for all students is due by 11:59 pm on the day of your lab. Lab work will be done in teams of three, using common "Team programming" practices that are used in software design. Team programming instructions can be found here. Your lowest lab grade will be dropped.

Weekly homework

Weekly out of class homework builds on the lab exercises, giving you additional opportunities to apply the skills and concepts learned during the week, and advance your understanding of the material. Although work you turn in should be your own, you are also welcome to form homework study groups to help you. Homework is generally due at 5:00 pm on the Mondays following each lab. Your lowest homework grade will be dropped.

Projects

The projects are the main learning evaluation tool in the course. They are essentially take-home exams wherein you demonstrate your mastery of the course material. If you think of them as exams, you'll have a good idea what I'm looking for: the application of skills and concepts in mathematical and statistical modeling.

6. Grading Structure

Your final grade will be based on your lab, discussion posts, weekly homework and projects:

Lecture Prep: 20%; Lab: 20%; Weekly Homework 25%; Projects 35%

The following lists the minimum scores needed to achieve each grade tier. At the end of the course, this scale may be shifted at my discretion so as to raise your grade; it will never be shifted to lower your grade. Please do **not** contact me at the end of the quarter asking for your grade to be raised or rounded up, or asking for extra credit assignments with which to raise your grade.

Grading Scheme

Total %	**Grade**	**Total %**	**Grade**
95%	4	75%	2
90%	3.5	70%	1.5
85%	3	65%	1
80%	2.5	62%	0.7

Lab, homework, and projects submitted later than 3 days from the due date will not receive credit. **Holidays and weekend days are NOT excluded from the late penalty assignment**.

Sometimes life gets in the way. We understand. For this reason, **each of you has one freebie 3-day extension** that you can use on any assignment of your choosing. It's easy to use

- contact us via canvas
- state that you are using your three day freebie extension
- state when you will turn in the assignment

That's it. We don't need to hear why you need the freebie extension - it's free, it's yours to use as you wish.

We also have a flexible grading policy to deal with unexpected circumstances. Each week one of of your lowest lecture preparation scores will be dropped, and overall your lowest lecture preparation, lab and homework scores will be dropped. Because this policy is in place, we will not provide extra credit assignments or make additional accommodations for missed work.

7. Inclusivity and Conduct

This course is for students of all backgrounds, perspectives, and learning needs. We intend to design and present course materials that are respectful of diversity in all of its dimensions. We acknowledge that there may biases in the material due to the lens with which it was written, even though the material is primarily of a scientific nature. We value your suggestions about how to improve.

To help me create a welcoming environment for everyone:

- Use welcoming and inclusive language
- Respect different viewpoints and experiences
- Accept constructive criticism
- Show courtesy and respect towards others
- Respect and acknowledge different ways and different paces at which student learn

In the event that a participant is not following these guidelines, the instructors will have a conversation with that participant, discuss the potential impacts of their behavior, and suggest ways for improvement. Students are welcome to report any violation of the Student Code directly (see below). In the event that the instructors fail to follow these guidelines, we encourage you to bring it to our attention so we can correct our behavior. If you are uncomfortable doing so, please contact either the FISH (iamsam@uw.edu) or QSCI (owense@uw.edu) advisor who will help you resolve the issue.

The University of Washington Student Conduct Code (WAC 478-121) defines prohibited academic and behavioral conduct and describes how the University holds students accountable as they pursue their academic goals. Allegations of misconduct by students may be referred to the appropriate campus office for investigation and resolution. More information can be found online at https://www.washington.edu/studentconduct/ (Links to an external site.)
Please note: If you believe you have been a victim of an alleged violation of the Student Conduct Code (Links to an external site.) Student Conduct Code (Links to an external site.) or you are aware of an alleged violation of the , you have the right to report it to the University (Links to an external site.).

8. Academic Integrity

The University takes academic integrity very seriously. Behaving with integrity is part of our responsibility to our shared learning community. If you're uncertain about if something is academic misconduct, ask me. I am willing to discuss questions you might have.

Acts of academic misconduct may include but are not limited to:

- Cheating (working collaboratively on quizzes/exams and discussion submissions, sharing answers and previewing quizzes/exams).
- Plagiarism (representing the work of others as your own without giving appropriate credit to the original author(s). This includes submission of products from generative AI (e.g. ChatGPT, co-pilot, etc.).
- Self-Plagiarism (re-using your own work without acknowledging prior use)
- Unauthorized collaboration (working with each other on assignments when forbidden to do so)

Concerns about these or other behaviors prohibited by the Student Conduct Code will be referred for investigation and adjudication by the College of the Environment Academic Staff as per its Academic Misconduct Policy.

An aside on AI and Programming

Things have changed rapidly in this space. One can now easily type in a prompt and get R code that will do the tasks that you ask. Co-Pilot is free for students, and is easily activated within Rstudio.

Because this is not a coding class per se, both of these resources are permitted. However, any code that is submitted that is not your original code should be documented as such. For example, you might cite ChatGPT for a block of code "The following code was generated using XXX".

Also, generative AI tools are just that - tools. They are helpful if you have a programming bug and you are stuck. They are helpful learning tools to see a different way to construct code. However, if you don't understand the fundamentals of programming or the course material, they won't help all that much - in fact they might confuse you even more.

Students found to have engaged in academic misconduct may receive a zero on the assignment (or other possible outcome).

9. Disability Accommodations

It is crucial that all students in this class have access to the full range of learning experiences. At the University of Washington, it is the policy and practice to create inclusive and accessible learning environments consistent with federal and state law.

Full participation in this course requires the following types of engagement:

Lecture: the ability to attend tri-weekly lectures of 50 minutes; the ability to read assigned course pack sections for lectures and submit questions or comments in advance of lectures on Canvas.
Lab: The ability to attend weekly lab sections of 110 minutes.

A complete description of the disability policy of the College of the Environment can be found here. If you have, or think you have, a temporary or permanent disability that impacts your participation in any course, please also contact Disability Resources for Students (DRS) at: 206-543-8924 V / 206-543-8925 TDD / uwdrs@uw.edu e-mail / http://www.uw.edu/students/drs.

If you wish, you are encouraged to reach out to me directly as well. Certain accommodations, such as extended time, are required by the University to go through DRS, but I may be able to provide unofficial accommodations in the meantime.

Roles and responsibilities:
Student: inform the instructor as soon as possible of any accommodation(s) you will or may potentially require.

Instructor: maintain strict confidentiality of any student's disability and accommodation(s); help all students meet the learning objectives of this course.

10. Religious Accommodations

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at Religious Accommodations Policy (https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/). Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form (https://registrar.washington.edu/students/religious-accommodations-request/).