WILDLIFE 353/553
ANALYSIS OF WILDLIFE POPULATIONS
SPRING SEMESTER 2020, 4 CREDITS

Contact Info

Instructor: Dr. Benjamin S. Sedinger
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Office Hours: by appointment
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Classroom: Lecture-TNR 170, TR 12:30–1:45
Lab-TNR 356, T 2:00–3:50*
**we have lab scheduled until 4:50pm if you'd like extra time to work*

Communication

I communicate primarily through announcements in lecture which are usually subsequently posted to Canvas. If you are someone who does not come to lecture or check Canvas regularly you will miss important information that will likely affect your grade.

Learning Outcomes

Goal: This course will introduce students to the fundamental principles of population ecology, how such principles are described by basic mathematical models, how these models are related to management and conservation applications, and how to use modeling approaches to estimate parameters relevant to wildlife population dynamics.

Students satisfactorily completing this course should be able to:

1) Thoroughly understand the theoretical foundations of wildlife population dynamics.

2) Understand the basic principles of estimating animal abundance and vital rates.

3) Construct and interpret mathematical models of population growth.

4) Construct and interpret models of wildlife vital rates.

5) Understand and interpret the results of conservation planning tools such as population viability analysis.

Textbook:

1. L.S. Mills. 2013. Conservation of Wildlife Populations. 2nd edition. Blackwell. [Text Rental]

2. E.G. Cooch and White, G.C. Program MARK A Gentle Introduction. 19th edition. [Free download here: http://www.phidot.org/software/mark/docs/book/]

Other Course Materials: Copies of PowerPoints, lecture handouts, sample exam questions, practice problems, lab materials, and supplemental reading materials will be posted to Canvas.

Exams: We will have two exams during the semester, a mid-term on February 20 and a final exam on May 12 from 8:00am-10:00am. Each exam is worth 100 points, and the final exam is ***not*** comprehensive. Exams will be a combination of conceptual and applied content. I will provide all the equations you could possibly need. They are closed- book and closed-note, all you have access to is your glorious and wonderful mind. Illness or a family emergency may be cause for re-scheduling an exam, but only if you notify me at least 24 hours ***prior to*** the exam period.

Quizzes: In-class quizzes will be given throughout the semester. As with the exams, the in-class quizzes cannot be made up unless you notify me at least 24 hours prior to the class period in which the quiz was given (these are pop quizzes, meaning that I will not tell you ahead of time when a quiz will be given).

Discussions: We will have three in-class discussions during the semester. These will be based on selected reading from the peer-reviewed literature and will be led by graduate students. Come to class prepared for the discussion (e.g. having already read and thought about the papers).

Labs: Most weeks we will meet for lab to go over practical examples of the topics we discuss in lecture. In other words, we'll go over how we actually build some basic versions of the types of models we talk about in class. There will be four lab assignments throughout the semester, each one worth 25 points (denoted in schedule with ***). You'll typically have one week to complete each lab assignment. You are welcome to work on the labs with other people but you must turn in your own lab write-up. Your assignments will be docked five points for every day they are late. There will also be one take-home lab practical, worth 100 points. This will entail doing a set of analyses in program MARK on your own — you will have a week to complete this exam.

Attendance: University policy dictates that I take attendance during the first eight days of the semester (place your initials next to your name on the sign-in sheet at the front), after that I do not take attendance. However, performance on exams is enhanced by regular class attendance. There is a very direct correlation between attendance and final grades. Simply put, if you do not regularly attend lectures then you will do poorly in the class. Similarly, the quality of your educational experience in this course will be directly related to the amount of time you invest in classroom preparation and the extent to which you become involved in classroom discussions.

Grading: Final grades for the course will be awarded as follows: A = 93%; A- = 90%; B+ = 87%; B = 83%; B- = 80%; C+ = 77%; C = 73%; C- = 70%; D+ = 65%; D = 60%; F = <60%. The final class grade will be based on the percentage of total points earned, out of the total points possible.

Getting Help: Please do not be shy about asking for help! If you are having any trouble understanding something in class, then do not hesitate to schedule a time to meet outside of class or ask questions in class, as those problems will likely only get worse as the material becomes more complex and builds on itself.

In the following table is a tentative schedule for lectures and exams. This may be changed at any time at my discretion (Another reason to attend lectures!).

Tentative Lecture Schedule

DATE	LECTURE	LAB
Section 1 - Course Introduction and Statistics		
Jan 21	Course Introduction & history	Lab introduction
Jan 23	Case study and discussion	
Jan 28	Mathematical and Statistical Models	Excel & Regression***
Jan 30	Model Selection and Inference	
Section 2 – Population Growth		
Feb 4	Exponential Growth	Exponential Growth
Feb 6	Density Dependence	
Feb 11	Logistic Growth	Logistic Growth***
Feb 13	Lotka-Volterra Models	
Feb 18	Wrap up pop. growth and review	Insight maker modeling
Feb 20	Exam #1	
Feb 25	TBD	TBD
Feb 27	TBD	
Section 3 – Abundance Estimation		
Mar 3	Distance Sampling	Distance sampling
Mar 5	Population indices	
Mar 10	Occupancy Models	Occupancy models
Mar 12	Ratio estimators	
Mar 17	Spring Break	No Lab
Mar 19	Spring Break	
Mar 24	Intro to mark-recapture: Closed capture	Intro to program MARK
Mar 26	Maximum likelihood and AIC	
Section 4 – Vital Rates		
Mar 31	Known fate models	Known-fate***
Apr 2	Nest survival models	
Apr 7	Case study and discussion	Nest survival
Apr 9	CJS models	
Apr 14	Band recovery models	Band recoveries***
Apr 16	Case study and discussion	
Apr 21	Life Tables	CJS
Apr 23	Matrix Models I	
Apr 28	Matrix Models II	Lab practical
Apr 30	No class – work on your exam!	*take home exam*
May 5	Population Viability Models	Matrix Models
May 7	Semester review	
May 12	**Final Exam (8:00AM –10:00AM)**	

***** denotes lab assignment**

University Policies (my interpretations)

Academic Dishonesty: Don't cheat — aside from the fact that cheating is cause for dismissal from the university, you are just short-changing yourself when you stoop to that. You're better than that, and UWSP is better than that. If you wanted an "education" where your grades, rather than your learning, was the most important thing then you should have gone somewhere else.

Harassment: Be cool. Nobody likes a bully or a jerk. If I see any form of harassment, whether in my classroom or anywhere else on campus, I'll report it to the Dean of Students, I've got no patience for that kind of behavior. Everybody is different, and we all deserve to be treated with respect.