

## FW 663 – Sampling and Analysis of Vertebrate Populations Course Overview

INSTRUCTOR:	Dr. Larissa Bailey	Dr. Bill Kendall	
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OFFICE HOURS:	W 3:00-4:45pm and by appt	M 1:30-3:30pm and by appt	

CLASS: M, W, F – 8:00-12:00 in Natural Resource Building 254

WEB PAGE: Canvas Site, <https://colostate.instructure.com/>

PREREQUISITES: FW 260; STAT 301 (calculus and statistics will be used), familiarity with PC computers and ability to use a web browser.

TEXT & READINGS: **Required text: Program MARK – ‘A Gentle Introduction’** (Evan Cooch and Gary White – co-editors) available at:  
<http://www.phidot.org/software/mark/docs/book/>

Reference text (also available in Coop Unit Offices):  
Williams et al. 2002. *Analysis and Management of Animal Populations*  
MacKenzie et al. 2017. *Occupancy Estimation and Modeling*  
*Additional assigned readings via the syllabus.*

### COURSE OBJECTIVES:

FW663 is designed to include a balance of science philosophy, statistical theory and biological application. While the overall theme of the course deals with model-based sampling and analysis theory for biological populations, the course is broad, providing the advanced student with the following:

- 1) Some philosophy of inductive inference (e.g., estimation of parameters and measures of precision).
- 2) A critical attitude concerning "results" and "findings" and an appreciation of the importance of underlying assumptions.
- 3) State-of-the-science information on model-based sampling, analysis, and inference theory for populations in terrestrial and aquatic environments.
- 4) Practical experience in sample design, analysis and inference in several experimental situations.
- 5) Familiarity with computer software for the sophisticated exploration of complex biological problems.

## STUDENT EVALUATION & GRADES:

Grades will be assigned based on the following weights:

- 20% Quizzes and Reading discussions (average; lowest 2 quiz scores discarded)
- 25% Exam 1
- 20% Exam 2
- 30% Final Exam
- 5% Presentation

Lab exercises will not be graded, but are designed to see how well you understood the questions and the objective of the lab. Lab performance is measured through the midterms and the final exam. You are encouraged to work together in the laboratory. Get used to working together to solve problems and gain understanding. Not understanding a laboratory exercise means you have probably missed an important concept. You will be asked to perform analyses in a take-home exams similar to a laboratory exercises.

Use ONLY your student ID (not your name) on all material to be turned in (e.g., on quizzes, mid-term and final examinations). Using only your ID aids in objective grading of the material.

A (90% or higher), B (80 -89%), C (73- 79%), D (60 - 72%), F (59% or lower)

You must take all exams. We seldom give make-up or early exams. The only rare exceptions are for catastrophes, truly beyond your control--hospitalization, imprisonment, family death--and then we must be notified before the exam, unless that is truly impossible. An "I" is given only for such exceptional circumstances. A makeup exam will not be easier than a missed exam. [We may choose to use a restricted average of other scores, instead of a makeup.]

## SOME DETAILS:

FW663 is intensive, partially because it is offered on an accelerated basis. Each 4 hour period is roughly 1.5 hrs. lecture, 0.5 hrs. recitation and 2 hrs. laboratory. Students would be unwise to take more than one other course concurrent with FW663. A graduate seminar or ST512 are good choices. FW663 will consume many hours for most graduate students; do not get over-committed during Spring Semester.

"Homework" is usually estimated as # credits times 2 hrs./week. FW663 is taught at 1.5 pace, thus  $5 \times 2 \times 1.5 = 15$  hours per week should be scheduled for "homework and study" for this class. With 12 hours of class time and at least 15 hours of "homework" FW663 will occupy a solid 30 hours per week of a student's time. Expect an almost daily quiz; this keeps everyone learning and allows the instructors to gauge understanding and reinforce certain points where understanding is low. The daily quiz is an important learning tool. In addition, quizzes force everyone to "keep up." Generally on Fridays, quizzes will be replaced with discussions of assigned readings. By Friday each student will submit 2 discussion points/questions to the class web site. These questions will form the basis of our discussion. Questions submission and participation will be used to generate a quiz grade for that day.

**Academic Misconduct:**

This course will follow the Academic Integrity Policy which can be found in the General Catalog (<http://www.ssw.chhs.colostate.edu/field/files/Field%20Manuals/Policies/CSU%20Policy%20on%20Academic%20Dishonesty.pdf>) and the Student Conduct Code (<https://resolutioncenter.colostate.edu/conduct-code/>). A student(s) found responsible for having engaged in academic dishonesty will be subject to academic penalty (e.g., Failure of FW 663) and/or University disciplinary action. Instances of academic dishonesty may be referred to the Office of Judicial Affairs which can result in University disciplinary action.

The Student Conduct Code states that: Colorado State University expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws, and University regulations; and to respect the rights, privileges, and property of other people ...The University recognizes the right of all students to engage in discussion, to exchange thought and opinion, and to speak, write, or print freely on any subject in accordance with the guarantees of Federal or State constitutions.

Behavior in the classroom behavior should be respectful and civil. Students have both the right to learn and the responsibility to participate in the learning process. Classroom disruption by students is not expected and may require students to leave the classroom pending discussion and resolution of the concerns. Students may be referred to the Office of Judicial Affairs for possible university disciplinary action including suspension, dismissal or expulsion and/or the campus police summoned in serious cases. (CSU General Catalog and the Students Rights and Responsibilities handbook)