

EEBL 602- Population Ecology

Fall 2016

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E-mail will be the primary means of communication for the course. Check your email often and keep your mailbox below quota.

Course prerequisites: Graduate classification.

Course description: This second component of the Core Sequence in Ecology & Evolutionary Biology examines the fundamental concepts in population dynamics. The main focus of the course will be birth, death, immigration, and emigration processes, how these processes are affected by internal and external factors, and the ways they affect population abundance.

Course requirements:

- Attend all lectures. Absences for previously scheduled activities will only be excused if they are communicated well in advance. If you have not discussed an absence with instructor ahead of time, it will be considered unexcused unless proper documentation is provided. See <http://student-rules.tamu.edu/rule07>.
- Read all required material.
- Participate actively in discussions.
- Complete the final take-home exam. Late exams will be downgraded a letter grade for each day late.

Course goals: The goal of this course is to provide the understanding of the fundamental concepts in population biology. By the end of this course, students are expected to be able to identify general causes of changes in birth, death, immigration, and death processes and to gain clear understanding of how these changes can affect the population abundance over time and space. Students are also expected to become familiar with the foundation papers in population ecology.

Grading: Letter grades will be assigned based as follows: active participation: 50%; short, take-home essay exam: 50%.

Grade scale: 90-100 A; 80-89 B; 70-79 C; 60-69 D; < 60 F

REQUIRED TEXTBOOK

No textbook is required. Papers are assigned for reading. Students are expected to read the assigned papers prior to lectures.

LECTURES

1. Population Growth: demography, life tables, age-specific functions, Leslie Matrix, exponential growth, logistic equation, density dependence, population regulation, stock-recruitment
2. Environmental Fluctuation and Demographic Stochasticity: environmental stochasticity, density independence, seasonality and pulsing, Moran effect
3. Metapopulations and Trait-based Approaches: spatially structured models, dispersal, individual-based models, bienergetics
4. Life History Variation: reproductive tactics, senescence, r/k selection, bet hedging, habitat templates, adaptive surfaces
5. Niche, Species Interactions: niche concepts, Lotka-Volterra competition model
6. Species Interactions: predation, parasitism, applications of population ecology for natural resource management

Americans with Disabilities Act (ADA) Policy Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Cain Hall or call 845-1637.

Academic Integrity Statements

AGGIE HONOR CODE

“An Aggie does not lie, cheat, or steal or tolerate those who do.”

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System.

For additional information please visit: <http://www.tamu.edu/aggiehonor/>