BIOL 466: Population and Quantitative Genetics

This detailed course description provides information about course topics & content. It is not a course syllabus. Summer course syllabi are updated in the spring, and may not be available until summer classes begin.

Instructor Information

Instructor	Email	Course Format	Number of Credits
Tracy Smith	tsmith6@umbc.edu	Lecture, Discussion, Other	4

General Information

Course Format Other

Approximately half of the class will be spent in lecture, the other half will be divided between discussion and computer-based simulations.

Delivery Format

In-Person

Prerequisite /Co-requisite:

STAT 350, BIOL 142, BIOL 302

Course Materials

Currently Used Materials

An Introduction to Population Genetics: Theory and Applications, Rasmus Nielsen, Montgomery Slatkin

ISBN-10: 1605351539, **ISBN-13:** 978-1605351537

Course Objectives/Learning Outcomes:

By the end of this course, students will be able to:

- Understand the major principles applied in population genetics, evolutionary genetics, and quantitative genetics.
- Use several of the major software packages to analyze population genetic data.
- Describe how natural selection, genetic drift, mutation, and migration influence the genetic structure of populations.

Potential Topics Covered:

This course will focus on the various factors that affect gene flow and frequency within a population. We will discuss the primary forces and processes involved in shaping genetic variation in natural populations (mutation, drift, selection, migration, recombination, mating patterns, inbreeding, isolation, population size and population subdivision), methods of measuring genetic variation in nature, along with statistical tests and experimental methods for detecting these processes. Students will be introduced to major software programs to analyze population genetic data and to simulate forces shaping population genetic structure.

Instructions for Visiting Students:

Visiting students should speak with instructor before registering.