

Spring 2020

EEOB 563: Molecular Phylogenetics (3 credits)

Course Syllabus

Instructor:

Dr. Dennis Lavrov, Associate Professor

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Office hours: Tu/Th: 11:00-1:00 PM or by appointment

Course Information:

Class meets on Tu/Th: 9:00-10:50 AM, 203 Bessey Hall. Class schedule and other class materials are available online at <https://isu-molphyl.github.io/EEOB563/>.

Course Description:

This course is designed to introduce you to the theory and practice of phylogenetic analysis. The course emphasizes a hands-on approach to molecular phylogenetics and combines lecture presentations with computer exercises and discussion of original scientific literature.

Prerequisites:

Knowledge of basic genetics (e.g., BIOL 313) and basic evolutionary theory (e.g., BIOL 315) are required for understanding the material of this course. The following computer skills will come in very handy:

- Unix: many programs we'll use in the course require operational knowledge of unix.
- Git and GitHub: we will be using Git and github for version control and file sharing

Learning Objectives:

The four main learning objectives of the course are to learn

- how to read and interpret phylogenetic trees in published studies;
- how to choose appropriate methods and build phylogenetic trees based on molecular data;
- how to use various programs for phylogenetic analysis;
- when and how to use phylogenetic analysis to elucidate broader biological questions.

Textbook:

Elizabeth S. Allman, John A. Rhodes. *Lecture Notes: The Mathematics of Phylogenetics*. 2016 ([available online](#)). The book provides an alternative (more mathematical) perspective on many topics in the class. However, I will not follow this book directly and I will list readings to supplement particular topics. I will also provide occasional handouts as references.

Attendance policy:

Attendance of lectures is expected, but not required. However, sporadic attendance will result in fewer points for participation in discussion.

Lab attendance is required. Missed labs need to be completed and a summary report submitted to the instructor.

Computer use policy:

Computers are not allowed during lectures and discussions. Food is not allowed when working with class computers.

Grading:

Grades will be based on homework assignments, completion of laboratory exercises, a midterm exam, and the final paper/presentation.

- Homework assignments (7 assignments 5 points each): 35%;
- final paper and presentation: 25%;
- midterm exam: 25%;
- lab exercises: 10%
- article presentation/participation in discussions: 10%

[>93%=A; 87-93%=A-/B+; 83-87%=B; 77-83%=B-/C+; 73-77%=C, etc.]. Late work will be penalized by subtracting 1 pt/day unless an arrangement has been made prior to the due date.

Disability Accommodation:

Iowa State University complies with the Americans with Disabilities Act and Sect 504 of the Rehabilitation Act. If you have a disability and anticipate needing accommodations in this course, please contact me within the first two weeks of the semester or as soon as you become aware of your need. You will also need to obtain a SAAR form with recommendations for accommodations from the Disability Resources Office, located in Room 1076 on the main floor of the Student Services Building. Their telephone number is 515-294-7220 or email disabilityresources@iastate.edu. Retroactive requests for accommodations will not be honored.

Dead Week:

This class follows the Iowa State University Dead Week guidelines as outlined in <http://catalog.iastate.edu/academiclife/#deadweek>

Harassment and Discrimination:

Iowa State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon race, ethnicity, sex (including sexual assault), pregnancy, color, religion, national origin, physical or mental disability, age, marital status, sexual orientation, gender identity, genetic information, or status as a U.S. veteran. Any student who has concerns about such behavior should contact his/her instructor, Student Assistance at 515-294-1020 or email dso-sas@iastate.edu, or the Office of Equal Opportunity and Compliance at 515-294-7612.

Religious Accommodation:

If an academic or work requirement conflicts with your religious practices and/or observances, you may request reasonable accommodations. Your request must be in writing, and your instructor or supervisor will review the request. You or your instructor may also seek assistance from the Dean of Students Office or the Office of Equal Opportunity and Compliance.

Contact Information:

If you are experiencing, or have experienced, a problem with any of the above issues, email academicissues@iastate.edu.