2014

240-01 Evolution

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Introduction: Evolution is the unifying idea in the life sciences. The population geneticist Theodosius Dobzhansky famously titled a 1973 article in the journal *The American Science Teacher*, "Nothing in Biology Makes Sense Except in the Light of Evolution". The goal of this course is to give you a foundation in evolutionary thinking so that you can begin to make some sense out of the pile of facts that is the biological sciences. Much of the course will be the traditional lectures and exams that you are all likely accustomed to by now. We will also have group problem solving sessions and class discussions. Throughout the course your participation is absolutely vital. Showing up to class is extremely important. Although I will not be counting points against you *per se* if you absent, in my experience I have found that regular absence from class is a recipe for disaster on the exams. I will do my best to make the course enjoyable while at the same time providing you with a solid foundation in the field of evolutionary biology.

Instructor: Herman L. Mays Jr. PhD. I currently serve in a full time position as the Curator of Zoology at Cincinnati Museum Center but regularly teach at the undergraduate level at the University of Cincinnati, Thomas More College and Xavier University. I maintain an active collaborative research program using molecular genetic tools to uncover the evolutionary history of vertebrate animals with an emphasis on the birds of East Asia. Many Xavier undergraduates have participated in independent research in my laboratory at the Cincinnati Museum Center. Please talk to me if you are interested in exploring these opportunities.

Office hours: Because I am an adjunct professor at Xavier and maintain a separate full time job at the Cincinnati Museum Center I am seldom on the Xavier campus outside of class time. However, I do have an office in the biology department (312C) and as needed may arrange office hours for those issues we can’t handle over email. Alternatively, you are welcome to arrange to meet me at my office/lab at the Cincinnati Museum Center's Geier Collections and Research Building at 760 West Fifth Street.

Honesty and Integrity: I expect all students in the course to respect the values of the university and adhere by the honesty and integrity guidelines in the Xavier Student Handbook. In short, be respectful of your instructor, your fellow students and don’t cheat. [http://www.xavier.edu/student-integrity/documents/studenthandbook.pdf](http://www.xavier.edu/student-integrity/documents/studenthandbook.pdf)

Disabilities: For students with learning or other disabilities Xavier provides reasonable accommodations and support services for you achieve your academic potential. Please talk to me if you have concerns in this area. If this applies to you I will first refer you to the Student Disability Services and the Xavier Learning Assistance Center for advice on how to proceed. [http://www.xavier.edu/lac/](http://www.xavier.edu/lac/)

Additional readings: Additional papers and other supplementary readings will be made available on Blackboard. An assigned book review will require you identifying and acquiring an additional book of your choice on a topic within evolutionary biology (see below).

Grading: Group review questions: 50 points each (X2)
Quizzes: 25 points each (X2)
Book review: 100 points
Exams: 100 points each (X2)
Final exam (cumulative): 100 points
A 90-100%, 495-550 points
B 80-90%, 440-494 points
C 70-80%, 385-439 points
D 60-70%, 330-384 points
F <60%, <330 points

Class Schedule: Below is a rough outline of the schedule for the course as it pertains to the textbook readings, however, given how things progress exact dates are subject to change if needed. Also supplementary readings will be assigned as needed.

January 13-17 Chapters 1-2, Introduction, history of evolutionary thinking
January 20 NO CLASS, MLK Day
January 22-24 Chapters 3-5, Evidence for evolution
January 27 NO CLASS, outside class assignment
January 29-31 Chapters 6-7, Evidence for evolution
February 3-7 Chapters 8-9, Population genetics
February 10-21 Chapters 10-13, Causes of evolution (mutation, selection and drift)
February 24-26 Cleanup day and first review session
February 28 EXAM I
March 3-7 NO CLASS spring break
March 10-21 Chapters 14-16, Causes of evolution (evolution of life histories, sexual selection, conflict and cooperation)
March 24-31, April 2-4, Chapters 17-19, Speciation
April 7-11, Chapters 20-21, Genome evolution and evolution and development (evo-devo)
April 14-16, Chapter 22, Macroevolution
April 18 NO CLASS Easter
April 21-25, Chapter 23, Evolution and Society and book review discussions
April 28-30, Cleanup day and second review session
May 2 Exam II
May 5 Study day
May 7 Final Exam (May 7, 2:00-3:50PM)

Extra credit tour: I also will arrange an opportunity for students to participate in a tour of the zoology and possibly also paleontology collections at Cincinnati Museum Center and receive 10 extra credit points. Date and time is to be determined.