

## **EVOLUTIONARY MEDICINE**

Bio 448

TuTh 2:00-3:20

LSC 105

Prerequisites: Bio 121/123

### **INSTRUCTORS:**

Dr. Kari Segraves

LSC 438

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LSC 429

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## **COURSE OBJECTIVES AND LEARNING OUTCOMES**

Once students have successfully completed this course, they will be better able to: (1) apply evolutionary principles to modern health problems, (2) describe modern methods used to study epidemiology and track the evolutionary history of diseases, (3) explain human evolutionary history and disease, (4) critically evaluate scientific literature, and (5) discuss the scientific process.

## **COURSE POLICIES**

*Attendance, lateness*— Students are strongly encouraged to attend all class meeting times and to be present promptly at the beginning of class. Active participation in discussions and classroom exercises is an important component of the course grade.

*Religious observances*— SU's religious observances policy, found at [http://supolicies.syr.edu/emp\\_ben/religious\\_observance.htm](http://supolicies.syr.edu/emp_ben/religious_observance.htm), recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice/Student Services/Enrollment/My Religious Observances from the first day of class until the end of the second week of class. Students should contact Dr. Segraves in advance to arrange for any missed coursework due to a religious observance.

*Academic Integrity*— The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort.

In *Evolutionary Medicine*, student work and performance on exams and assignments are expected to represent individual effort unless group work is sanctioned during class. Cheating is defined as obtaining or giving unauthorized help on assignments, exams, and papers. Unauthorized help on exams includes but is not limited to using notes or electronic equipment (cell phones, iPods, etc.) to obtain information during an exam. Obtaining copies of exam questions prior to the exam, tampering with a graded exam/assignment, or falsely claiming class attendance or participation (or doing so for someone else) are also defined as cheating.

Plagiarism is defined as representing someone else's work or ideas as your own. Using more than four consecutive words from a printed source (e.g., book, journal article, or internet resource) without quotation marks and a reference to the source is plagiarism. Similarly, copying from another student's paper or from a website is also considered plagiarism. Copying ideas of others without reference to the

source or person is plagiarism. Students caught plagiarizing or cheating will minimally receive zero credit for the assignment or exam and may receive a failing grade for the course. All cases of academic dishonesty will be reported to the Academic Integrity office. For detailed information about SU's academic integrity policy, visit the following website: <http://academicintegrity.syr.edu>

Disability Statement— Students who may need academic accommodations due to a disability are encouraged to discuss their needs with Dr. Seagraves at the beginning of the semester. Please make an appointment. In order to obtain authorized accommodations, students should be registered with the Office of Disability Services (ODS), 804 University Avenue, Room 309, 315-443-4498, [odssched@syr.edu](mailto:odssched@syr.edu) and must have an updated accommodation letter for the instructors. Accommodations and related support services such as exam administration are not provided retroactively and must be requested in advance. For more information about disability services and policy, see the Office of Disability Services website (<http://disabilityservices.syr.edu/>).

Letters of Recommendation— My policy is that I write letters of recommendation on the third Friday of each month; therefore, students wishing to obtain a letter must give themselves sufficient lead time to fit into this schedule. To write a letter, I must have an electronic copy of your resumé (CV), information on where/how to send the letter, to whom the letter should be addressed, the purpose of the application (e.g., graduate school for dentistry), and relevant information about the application institution (e.g., graduate program, required information in the letter, etc.).

Please keep in mind that what I write in your letter is limited to how well I know you. The more information I have, the better your letter will be. This also means that if I have little information, your letter becomes generic and uninformative (this is bad!). Consequently, my policy is to only write letters for students who I have had repeated interactions with both during and outside of class.

## **BLACKBOARD**

Grades and handouts will be available on Blackboard (<http://blackboard.syr.edu>).

## **GRADING**

The following is the percentage breakdown for guaranteed final grades:

A	93-100%	C+	77-79%
A-	90-92%	C	73-76%
B+	87-89%	C-	70-72%
B	83-86%	D	60-69%
B-	80-82%	F	less than 60%

Class participation— Participation in classroom exercises and discussions will be worth 10% of the final grade. Full participation points will only be awarded to students who attend class punctually, demonstrate that they have thoughtfully considered the readings, and who have actively participated. Active participation is defined as repeatedly asking pertinent questions about the reading material, critiquing ideas, tying together ideas from lecture and the readings, and completing any associated assignment. Simply stating "I agree" or nodding is not considered active participation.

Exams— Exams will cover material presented in lectures, discussions, and readings and will be worth 90% of the final grade. All exams are semi-cumulative; that is, key concepts discussed during previous sections will be covered in subsequent exams (e.g., what is evolution?). 'Key concepts' refers to the generalized ideas that we discuss in class, not the details of examples.

There are four scheduled exams, and the lowest exam score will be dropped from the final grade. The remaining three exams will be equally weighted. Exams are to be taken at the scheduled time during class. Students who miss exams and have appropriate written documentation (e.g., note from student health, coach, etc.) of a valid excuse may be given a make up exam or the missed exam may count as the exam drop. This choice is at the instructor's discretion. If possible, students who need to miss the scheduled exam time must provide notification well in advance of the date.

Grading complaints— Obvious mistakes in grading should be brought to our attention as soon as possible. For other re-grades, the entire exam or assignment will be re-graded. In this latter case, students risk a global change in grade on other parts of the exam/assignment which may result in a lower grade.

Grade Overview—

Participation	10%
Exams (3 @ 30% each)	90%

**LECTURE SCHEDULE\***

Aug 30	Introduction
Sept 1	Evolutionary Processes
Sept 6	Evolutionary Processes
Sept 8	Evolutionary Processes
Sept 13	Antibiotic Resistance
Sept 15	Antibiotic Resistance
<b>Sept 20</b>	<b>Exam I</b>
Sept 22	Antibiotic Resistance
Sept 27	Evolution of Complex Phenotypes
Sept 29	Epidemiology
Oct 4	Epidemiology & Population Genetics
Oct 6	Epidemiology & Population Genetics
Oct 11	Transmission Pathways
<b>Oct 13</b>	<b>Exam II</b>
Oct 18	Evolution of Virulence
Oct 20	Evolution of Virulence
Oct 25	Introduction to Molecular Tools
Oct 27	Ancient DNA
Nov 1	Ancient DNA
Nov 3	Tracking Disease with Phylogenetics
<b>Nov 8</b>	<b>Exam III</b>
Nov 10	Tracking Disease with Phylogenetics
Nov 15	Quantitative Genetics and Disease
Nov 17	Human Evolution
Nov 22 & 24	<i>No Classes (Thanksgiving Break)</i>
Nov 29	Human Evolution
Dec 1	Aging
Dec 6	Aging; Course Evaluations
<b>Dec 8</b>	<b>Exam IV</b>

\*I reserve the right to announce minor alterations to the course schedule.