Introduction to Evolution  
BIO 303 – Section 219  
(6-week) Summer I May 8-June 19th

Course Access/Class Time and Location: This is an online course. To access the course visit [http://elearning.uky.edu](http://elearning.uky.edu) and login to Blackboard with your LINK BLUE username and password. Additional course content will be available through my website: [http://darwin.uky.edu/~sargent/Bio303/](http://darwin.uky.edu/~sargent/Bio303/).

Instructor: Dr. Craig Sargent  
Office address: Rooms 115-116 MDR3  
Office phone: 859.257.8742  
UK e-mail address: My e-mail address is csargent@uky.edu. This is the best way to contact me. Please use the Send Email option in Blackboard. This tool automatically puts the course number in the subject line. This will help facilitate a quicker response from me.  
TAs: Jason Collette, jason.collett@uky.edu; Josh Titlow, joshtitlow@uky.edu

Virtual Office Hours: I will be online in a Blackboard chat room for 2 hours per day, available to discuss questions that arise from the course (readings, virtual labs). Students may chat with me and one another in real time (synchronously), or they may add their questions or comments anytime that night or day (asynchronously), and still get a response from me later on. The timing of these 2 hour slots will be announced shortly.

Course Developer: Dr. Craig Sargent

Course Description: This course covers topics in evolution, concentrating on the Darwinian theories of evolution including descent with modification, natural selection, and sexual selection. Topics will include: patterns of evolution, the genetic source of variation, measuring evolution, adaptation, speciation, human evolution, “evodevo”, and evolutionary medicine. Lecture: three hours; recitation, three hours.

Prerequisites: BIO 148, BIO 152 and BIO 155 or equivalent.

Student Learning Outcomes:  
1. Describe biological diversity  
2. Understand evolutionary mechanisms and phylogenetic inference  
3. Apply this understanding to solving problems  
4. Analyze competing hypotheses to determine which ones the data support

Course Goals/Objectives: Students who have completed this course can expect to gain an understanding of...  
- The creative potential for random mutation plus non-random natural selection  
- How the predictions of hypotheses about the past are tested in the present
• How DNA sequence similarity may be used to infer family histories and pedigrees, evolutionary histories among populations within species, and evolutionary histories among species
• How a common genetic toolkit can explain the enormous diversity of life on earth in terms of form and function
• How insights from evolution contribute to the fields of engineering and human health

Required Materials
Textbooks, lab materials, videos other materials the student needs to acquire should be listed here.

Textbook Required:
  o Kennedy Bookstore, 405 S. Limestone, (606) 252-0331 or 1-800-892-5165, or go to the website: http://www.kennedys.com
  o Wildcat Text Books, 563 S. Limestone, (606) 225-7771, or go to the website: http://www.wildcattext.com
  o UK Bookstore 106 Student Center Annex, phone (606) 257-6304 or 1-800-327-6141, or go to the website: http://www.ukbookstore.com
  o Various online vendors, such as Amazon
• Textbook Materials Online: Chapter Study Questions, Activities, End of Chapter Questions, Web Links

Virtual Laboratories Required:
• SimBio’s *EvoBeaker*: We will do several of these labs at a total cost of $29 per student. You will be provided a link to a page at SimBio that is assigned to this course, where you will sign up for the series of exercises we will be doing and be given an ID and password to access these labs. Here are SimBio’s instructions for signing up for these labs.

Please follow the instructions below to subscribe to SimUText for your *Introduction to Evolution SU12* class at University of Kentucky.
1. To subscribe to your SimUText please visit: https://simutext.com/student/pages/Welcome.jsp?accesskey=Dmm5-rJ8b-XTjT-KNJY-wz4f
2. You will need to supply your email address as a login name, your name and student id, and select a password.
3. Should you encounter a problem during registration, the access key for this course is Dmm5-rJ8b-XTjT-KNJY-wz4f.
4. Follow the remaining instructions to subscribe to your SimUText and download the software you will need.

If you experience any difficulties registering or downloading and installing the software, please visit the *SimUText Support FAQ pages*.
If your questions are not answered, use the link on those pages to email SimUText technical support.

- Jon C. Herron’s virtual labs: Your textbook coauthor, Jon C. Herron has written several exercises that are available free on his website, and on your textbook’s website, under "activities" within individual chapter web pages. These are free.
- We have also developed one of our own virtual labs on Conch Phylogenies, and you will be given a link to that lab shortly. It is also free.

**Videos Required:** You will be assigned a small number of videos to watch, and these are all collectively available on YouTube’s Evolution Documentary Channel. This is a fantastic collection of videos from PBS, NOVA, BBC, National Geographic and other channels. Most are available in a range of picture qualities, including 720p high definition, and the sound tracks are very well preserved.

Additional Materials, such as slides, videos, handouts, and links to other online readings will be provided in Bb and on the course website.
Description of Course Activities and Assignments
The “lecture” content for this course is contained in your textbook. You will be responsible for keeping up with reading and doing the graded questions at the end of each chapter (online at the publisher’s website here). The two exams will be based mostly on the lecture. The “recitation/lab” content for this course will consist of weekly virtual labs, 4 of which will be on SimBio’s EvoBeaker (at a cost of $5 each), and two will be accessible through the course website, and are free. The 4 EvoBeaker labs each have graded questions that are run by SimBio. The other two labs will have a graded question sheet that you turn in via Blackboard. There will be daily opportunity to discuss all course content with your instructor and each other in a chatroom on Blackboard.

Course Assignments and Grading:

Your grade for the course is 75% lecture, 25% recitation. The breakdown of points is...
- Lecture: 450 points
  - Exams 300 points:
    - 2 1-hour exams worth 150 points each, given weeks 3 and 6 of the term.
    - Each exam is open book
    - Each exam is 50 questions (multiple choice and true/false)
    - Each exam will be available to you for one hour within a 24 hour block.
  - Graded end of chapter questions and two interactive online book chapters: 150 points
- Recitation/Lab: 150 points
  - 6 written assignments @ 25 points each
- Participation in online discussions: 20 points (1 point per day)

Your letter grade will be based on the following scale. A: 90-100%; B: 80-89.9%; C: 70-79.9%; D: 60-69.9%; E: 0-59.9%.

Students can review their scores by going to MY GRADES in Blackboard.

Final Exam Information: June 18th, online in Blackboard

Course Policies
Submission of Assignments: Virtual labs and end of chapter questions, though paper assignments, should be submitted via Blackboard before the designated deadline. Exams will be taken online in Blackboard.

All assignments must be submitted online. Assignments sent via e-mail will not be accepted/graded. If you have problems submitting an assignment, it is your responsibility to let your instructor know. Written assignments MUST be submitted as Microsoft Word files unless otherwise noted. All filenames should use only alpha-numeric characters (a-z,
0-9) before the file extension (example .doc or .docx). Example: SamAdamsEssay2.doc.
Blackboard does not accept file names with characters like !@#$%.

Exam Information: Exams will be taken on Blackboard. Exams will be accessible to you for
one hour within a 24 hour block (to accommodate students in different time zones, or with
unusual work schedules). The exams are open book and open notes, however, they are
timed. Although you can use your book and notes, you MUST prepare ahead of time
because you will not have enough time to look up the answer to each question.

Attendance
All course materials are online and it is YOUR responsibility to access material in a timely
manner. To help keep you on track I have provided a Course Schedule that you should
follow. The schedule is at the end of this syllabus and also in the UNITS tab on Blackboard.

6-week courses: You are expected to spend a MINIMUM of 3-4 hours per day (5 days a
week) working with the course material (including reading, writing, interacting with other
students in the course, etc).

Excused Absence/ Make-up opportunities
Students need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2
defines the following as acceptable reasons for excused absences: (a) serious illness, (b)
ilness or death of family member, (c) University-related trips, (d) major religious holidays,
and (e) other circumstances found to fit “reasonable cause for nonattendance” by the
professor.

Students anticipating an absence for a major religious holiday are responsible for notifying
the instructor in writing of anticipated absences due to their observance of such holidays no
later than the last day in the semester to add a class. Information regarding dates of major
religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-
2754).

Students are expected to withdraw from the class if more than 20% of the classes
scheduled for the semester are missed (excused or unexcused) per university policy.

Problems associated with your computer, procrastination, or forgetfulness are not
acceptable excuses for late submission of assignments. It is YOUR responsibility to make
sure that you access and submit assignments on time.

Note: Once the deadline for submission has passed, these assignments will no longer be
accessible on Blackboard.

Make-up quizzes will only be given for DOCUMENTED excused absences (or inabilities) as
defined by the University (Senate Rule V.2.4.2) and are scheduled as needed. A missed
quiz will result in a score of zero for that exam/quiz, unless an acceptable written excuse is
presented within 36 hours of the missed quiz.
Verification of Absences

Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request “appropriate verification” when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Academic Integrity

Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: http://www.uky.edu/Ombud. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of Student Rights and Responsibilities (available online http://www.uky.edu/StudentAffairs/Code/part2.html) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else’s work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student’s assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing
in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

**Please note:** Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

**Accommodations due to a disability**
If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address: jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

**Online Behavior Policies**
Describe any policies you enforce in your class. Below is an example for online courses. Students are expected to maintain decorum that includes respect for other students and the instructor, to regularly log in to the course, and to display an attitude that seeks to take full advantage of the educational opportunity. All students are expected to be prepared to work and actively participate in class activities.

Virtual communication and discussion "in cyberspace" occur in a social environment where normal rules of social interaction apply. The remoteness of the recipients is no excuse to behave in an anti-social manner and post unacceptable messages.

Unacceptable messages include those that harass, intimidate, threaten, belittle, ridicule, expressed hatred for, or aggression toward others. Let us be mindful to avoid words that imply that some groups of people are less worthy than others (e.g., avoid racist, sexist, anti-Semitic, age-ist, and homophobic language). Discussion board and other electronic communication for this course should relate only to the course subject matter, generally respond to the instructor threads, and always seek to further the aims of that particular discussion forum or chat session (e.g., stay on topic).

Contributions to discussion boards and synchronous chat are the intellectual property of the authors. Students who quote another person in class projects, publications or even in remarks made on the discussion board should always acknowledge the source of that quote (e.g., do not plagiarize your classmates).

Personal comments about other users and their views should not be placed in any of our Blackboard course areas that are viewable by other users.

Do not copy private messages to another person without the author’s explicit permission. Consult the UK Student Rights and Responsibilities regarding the steps for addressing unresolved academic issues at [http://www.uky.edu/StudentAffairs/Code/part2.html](http://www.uky.edu/StudentAffairs/Code/part2.html)

**Other Policies (optional)**
You may wish to list College or major specific information here.

**Minimum Technology Requirements**
Complete the following steps to make sure your computer is correctly configured and the necessary software is installed. **Note:** You will **not** be able to access course material if you fail to complete these steps.

1. Go to this site to check the **minimum hardware, software and browser requirements**: [http://wiki.uky.edu/blackboard/Wiki%20Pages/Bb9%20Hardware%20and%20Software%20Requirements.aspx](http://wiki.uky.edu/blackboard/Wiki%20Pages/Bb9%20Hardware%20and%20Software%20Requirements.aspx)

2. Internet Explorer is NOT recommended for Blackboard. **Firefox is the recommended Internet browser for the course.** Go to [https://download.uky.edu/](https://download.uky.edu/) to download a free version of Firefox. Log in with your **LINK BLUE** id and password and search for **Firefox**.


4. You will also need **Flash, Adobe Acrobat Reader, Windows Media Player and QuickTime and Adobe Shockwave**. Go to [http://wiki.uky.edu/blackboard/Wiki%20Pages/Browser%20Check.aspx](http://wiki.uky.edu/blackboard/Wiki%20Pages/Browser%20Check.aspx) then click **BbGO!** If you do not have these installed, you can download them from this site.

5. Students and faculty can download **Microsoft Office Suite** (including Word and PowerPoint) from this site: [https://download.uky.edu/](https://download.uky.edu/).

If you experience technical difficulties contact the Customer Service Center at 859-218-HELP (4357) or by e-mail at helpdesk@uky.edu. Please also inform the course instructor when you are having technical difficulties.

**Distance Learning Library Services**  
([http://www.uky.edu/Libraries/DLLS](http://www.uky.edu/Libraries/DLLS))
- Carla Cantagallo, DL Librarian, Email: dlservice@email.uky.edu
- Local phone number: 859. 257.0500, ext. 2171;
- Long-distance phone number: (800) 828-0439 (option #6)

**Bb 101 for First-Time Online Students**
This is a brief introduction for students using Blackboard for the first time.
- Go to [http://elearning.uky.edu](http://elearning.uky.edu) and log in with your **Link Blue ID**.
- Click on the Courses link near the top left of the page (to the right of My Bb and under the Library tab).
- In the Course Search line, type **Bb9-101** (exactly as you see it there, including the hyphen).
- Find the Course ID (first column) **Bb9-101-OnLine-Stu**, and click the down arrow next to the Course ID. Click **Enroll** then **Submit**.

## Course Schedule

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<tr>
<th>Week</th>
<th>Topics</th>
<th>Readings</th>
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| 1    | • A Case for Evolutionary Thinking: Understanding HIV  
     • The Evidence for Evolution  
     • Darwinian Natural Selection  
     • **Virtual Lab**: Darwinian Snails | Chapters 1-3 |
| 2    | • Reconstructing Evolutionary Trees  
     • Mutation and Genetic Variation  
     • Mendelian Genetics in Populations I: Selection and Mutation as Mechanisms of Evolution  
     • **Virtual Lab**: Flowers and Trees | Chapters 4-6 |
| 3    | • Mendelian Genetics in Populations II: Migration, Genetic Drift, and Nonrandom Mating  
     • Evolution at Multiple Loci: Quantitative Genetics  
     • Studying Adaptation: Evolutionary Analysis of Form and Function  
     • **Virtual Lab**: Bugsville  
     • **Exam 1**: May 28th | Chapters 7, 9, 10 |
| 4    | • Aging and Other Life History Characters  
     • **SimBio Chapter**: Life History  
     • **SimBio Chapter**: Evolution for Ecology  
     • **Virtual Lab**: Domesticating Dogs | Chapter 13 plus two SimBio Chapters |
| 5    | • Phylogenomics and the Molecular Basis of Adaptation  
     • Mechanisms of Speciation  
     • The Origins of Life and Precambrian Evolution  
     • The Cambrian Explosion and Beyond  
     • **Virtual Lab**: Conch Phylogeny | Chapters 15-18 |
| 6    | • Development and Evolution  
     • Evolution and Human Health  
     • Human Evolution  
     • **Virtual Lab**: Sickle-Cell Alleles  
     • **Final Exam**: June 18th | Chapters 19, 14, 20 |

*The course instructor retains the right to modify or adapt this outline to meet the needs of the class. Adequate notice will be given of any change.*