Syllabus

CSUF Biology 402
Computer Lab in Molecular Systematics
Fall, 2004
(Sched. #: 10773, Sec. 1)
MH 319 - Lecture: TR 11:30-12:20; Lab: R 1-3:50

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Office MH217C, Enter Rm. 207
Office Hrs.: MW 2:15-3:45 T 1:00-3:00 (Subject to Change)
Main Course Website: http://biology.fullerton.edu/biol402
See this home page for links to the lecture and lab schedules for the course.

Prerequisites: Upper-division undergraduate or graduate student status with completion of Biology Core at least through Biol. 273 or equivalent courses, or by permission of the instructor (note that upper-division computer science or chemistry students with an interest in bioinformatics are likely to be welcome). This is truly an upper-division course, which will be difficult for students without a strong background in at least some molecular biology. Some basic computer experience with word processors and web browsers is necessary. Familiarity with particular computers or software is not, but some experience with computers is generally helpful.

Objectives: To gain practical and theoretical experience with primary software tools employed in molecular systematics through a series of lab assignments and lectures. Subjects emphasized include navigation of Internet resources for molecular biologists, gene and protein sequence data acquisition, similarity searches, multiple sequence alignment, molecular secondary structure prediction, sequence evolution simulations, and especially phylogenetic analysis of sequence alignments.

Required Materials: Molecular Evolution: A Phylogenetic Approach, by R.D.M. Page and E.C. Holmes, required. The attached lecture schedule specifies reading assignments. Selected reading and “Exercise” write-ups will be provided as handouts, as announced in class. The latter are specific to this course. Some 3.5" floppy or zip drive diskettes are required. You can store your files on a MH 319 hard disk in a “Student Temp” folder and also email them as attachments to yourself. Because neither of these strategies is completely safe, I recommend that you save to your own floppy or zip drives copies of any file that you expect to keep or use on another computer. An additional requirement is that you purchase a folder or 3-ring binder in order to hold the reading handouts and assignments.

Grades: These will be primarily based on successful completion of lab exercise reports write-ups, including an independent final written project and oral presentation. There will also be periodic reading assignments and in-class (announced or unannounced) or on-line quizzes
(approximately one per week, 5-10 pts. each). These are intended to encourage you to complete assigned reading. If quizzes are provided on-line, there will be a point deduction if you complete the quiz after the corresponding lecture.

1) Lab exercise reports (15-30 points each, approx. 150 points total) – This course is organized around a series of exercises designed to give you first-hand experience with skills required for molecular systematics. Unless announced otherwise, you will be required to turn in both a hard copy and electronic version of each write-up. The hard copy version will typically be turned in to me at the beginning of the class meeting on the due date. If you are unable to attend class for reasons of illness, please turn the write-up in to my mailbox in the Biology Office (MH282). You will receive additional instructions on how to turn any electronic version of your write-up if that is also required. The reason for the latter is if I want to be able to directly examine or test any data file that you have assembled in support of your hard-copy report. In any case that you are turning in multiple files for a single assignment, you will also be required to enclose each set of files in an appropriately named folder. Please use the following naming convention for either the single file or the enclosing folder: “LastName_N” where “N” is the assignment number. If you are submitting more than one folder or file, then add a letter (e.g., Jones_1A, Jones_1B, Jones_1C). You should also follow the announced naming conventions when you name your data files. An example might be “Jones_Ex1c_nex.txt” for the third (“c”) updated version of your Exercise 1 data text (“.txt”) file in “Nexus” format. More details will follow. Electronic files should be handed in on disk or placed in the course "Drop Folder" on the MH-319 Server, or through the similar “Drop Folder” facility at the course Blackboard site, or otherwise as announced.

2) Independent final project (100 points total; 50 points for oral presentation in one of the last few class sessions, 50 points for written report that is due by regularly scheduled Final Exam) - This final project will essentially be your last assigned exercise. The written part will build on the report completion skills emphasized in the previous exercises, with a format similar to one you would use for the submission of an article for publication in an appropriate scientific journal. The oral presentation will require that you present a 12-15 minute summary of your final project, followed by a 5-minute period when you will be expected to answer questions from the audience. Your presentation supported by appropriate graphics, normally as a Microsoft PowerPoint slide presentation. The format will be the same as you would expect if you were to present your research at an appropriate scientific conference. You must assume that your audience is not already familiar with specific aspects of your study, but can assume they will be reasonably familiar with the basic methods and terminology of molecular systematics.

3) Reading assignments/quizzes (5-10 points each, with one about every week, approx. 100 to 150 points total) – There will be take-home or on-line assignments or quizzes approximately every two weeks. Short-answer assignments must be turned in at the beginning of a lecture on the specified due date. Quizzes will include multiple-choice or short-answer questions and cannot be made up if you miss them for any reason, but I can pro-rate quizzes missed for a legitimate reason, such as illness with an accompanying note from your physician. Both assignments and quizzes will be designed to test your comprehension of assigned reading material.

4) The following scale: A: 85-100%; B: 75-84%; C: 60-74%; D: 50-59%; F: < 50% will be used in determining the grades, although I may lower the cut-off scores in your favor. You can turn in
one exercise write-up and one assignment late. After that, any late write-up/assignment turned in late without a valid excuse will be subject to a standard penalty of at least 10 percent reduced possible score (increasing the later it is turned in). However, it will be much better to turn in any exercise write-up or assignment late than not at all. In special cases, where I anticipate that the majority of the class will be unable to complete an assignment by the announced due date, I may elect to postpone the due date. Explanatory email messages to me at least one day before a class meeting will help me make such decisions. Because we have MH319 available for the lab component of this course for only 3 hours per week, you will be expected to use the scheduled lab time expeditiously and, if necessary, complete exercises at available computers at home or in drop-in campus computer labs. The lab exercises (including the final project) are emphasized as the most important component of this course.

Some extra credit points (max. 15) will be available for attending and appropriately reporting on specific optional activities such as selected seminars related to the course, with a maximum of 5 points per activity. Further details will be announced well in advance of any activity that qualifies for extra credit.

MAKE-UP POLICY
Missed assignments can be made up or rescheduled ONLY under the following conditions:
1. Arrangements are made a week or more prior to the exam or assignment for important, unavoidable conflicting activities (e.g., surgery, out-of-town job interview, etc.).
   Documentation is required.
2. For illness, personal tragedy, or unavoidable emergencies, call me or leave a message with the department before the assignment or within two days thereafter.

Contact me to confirm whether you meet the requirements for make-up exams or assignments. That is your responsibility. Failure to follow the above guidelines will result in a zero grade for an exam or assignment. Failure to complete any graded assignment may result in a grade of “incomplete” for the course.

ACADEMIC DISHONESTY POLICY
Academic dishonesty includes such things as cheating, inventing false information or citations, plagiarism, and helping someone else commit an act of academic dishonesty. It usually involves an attempt by a student to show possession of a level of knowledge or skill that he or she does not possess. Cheating is the act of obtaining or attempting to obtain credit for work by the use of any dishonest, fraudulent, or unauthorized means. Plagiarism is the act of taking the specific substance of another and offering it as one’s own without giving credit to the source. Although you will be conducting several group projects, when assignments are clearly to be completed individually, the work must be your own. Use online forums, work together, and get information from the Web, but when you write your answers, your work must reflect your independent thinking. When you use information from sources external to yourself, you need to reference the source appropriately (literature citation, URL for web-derived material). Just because you referenced a source does not give you the right to insert segments, verbatim, into papers you write. An instructor who believes that an act of academic dishonesty has occurred is obligated to discuss the matter with the student involved. The instructor should possess reasonable evidence, such as documents or personal observation. An instructor who is convinced by the evidence that a student is guilty of academic dishonesty shall (1) assign an appropriate academic penalty; and (2) report to the student involved, to the department chair, and to the vice president for student
affairs the alleged incident and make recommendations for action. See the CSU Fullerton Catalog for further details.

**Classroom and Computer Lab Safety:**
In the event of an emergency such as earthquake or fire:
- Take all your personal belongings and leave the classroom. Use the stairways located at the east, west, or center of the building.
- Do not use the elevator. They may not be working once the alarm sounds.
- Go to the lawn area towards Nutwood Avenue. Stay with class members for further instruction.
- For additional information on exits, fire alarms and telephones, Building Evacuation Maps are located near each elevator.
- Anyone who may have difficulty evacuating the building, please see me after class.
- Dial 911 on any campus phone, pay phone, or blue emergency phones to connect directly to University Police. Dialing 911 on your cell phone will connect with the Highway Patrol. Tell CHP dispatcher that CSUF Police is the responding agency. Stay on the line until asked to hang up.

Other safety issues:
- Food or drink is not allowed in the computer lab in order to protect the computers.
- To avoid the risk of electrocution, never stick your fingers in an electrical outlet and do not touch the metal parts of plugs that are in contact with an electrical outlet.
- Do not touch internal portions of any computer that might be opened for maintenance as some parts can pose a significant threat of electrical shock.
- If you want to bring visitors to the classroom, you must obtain permission from the instructor in advance and must sign a volunteer form.
- You may work alone in the computer lab only with explicit permission of the instructor.
- There is no smoking within 20 feet of every campus building. This especially includes the MH balcony because the air intake for MH is directly above these balconies.

**Tentative Schedule:** There are provisional lecture and lab appended to this syllabus, copied from: [http://biology.fullerton.edu/biol402/lecture.html](http://biology.fullerton.edu/biol402/lecture.html) and : [http://biology.fullerton.edu/biol402/lecture.html](http://biology.fullerton.edu/biol402/lecture.html). Please note that the current and official schedule will be the one posted to the web by Monday at 8 a.m. of each week. If there are problems, please contact me as soon as possible. In the event that the Biology server (http://biology.fullerton.edu) is down for unknown reasons, I will attempt to mirror the current course schedule and hopefully other current course web pages at: [http://scied.fullerton.edu/biol409/biol402/index.html](http://scied.fullerton.edu/biol409/biol402/index.html) (not yet available).

**Email and Phone Logistics:** Due to the increase in SPAM email, please ALWAYS put “BIOL404” or something similar in the subject of your email. Also, please remember to end your email with your name and current email address. It is my policy to respond to email questions or comments that meet these criteria within 48 hours. Under most circumstances, I will reply even sooner. Alternatively, feel free to call my office at extension 3749 [or (714) 278-3749].

**Office Hour Logistics:** Many students are confused on their first to my office. In order to get to my office (MH217C) you must first gain access to the outside door (MH207) by calling me on the campus phone (extension 3749) just outside that door.