



Syllabus – Marine Phylogeography

FALL 2005

BIOL. 517T SECTION 1 #18489

Tuesday nights 6 p.m. to 8:50 p.m.

SLC 268

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Office Hrs.: T 10:00-12:00 1:30-4:30 (Subject to Change)

Primary Course Website: <http://biology.fullerton.edu/phyloge/>

Current Syllabus: http://biology.fullerton.edu/phyloge/bio517_F05.pdf

Course Schedule: <http://biology.fullerton.edu/phyloge/schedule.html>

Blackboard Website (if used): Access available once logged in to Student Portal

Prerequisites – Graduate-level standing in Biology or related disciplines. Advanced undergraduate students must obtain permission from the Instructor before enrolling.

Overview - This seminar course focuses on molecular estimates of gene genealogies within species or between closely-related species of marine organisms and how these are related to patterns of geographic distribution. Species distributional patterns will be addressed from the broad historical perspective that constitutes the emerging field of phylogeography, integrating available biogeographical, phylogenetic, population genetic, life history, and ecological data sets for selected marine taxa. Students will read, discuss, and write critiques of assigned primary research articles related to marine phylogeography. Each student will be actively involved in discussions and activities related to marine phylogeography and will assume primary responsibility for leading at least one discussion of primary research article related to marine phylogeography.

Written assignments will require research of the primary literature and could also involve reanalysis of related data sets.

Course Organization - The course will be organized as follows into four phases:

1. Introduction to the physical and biological features of marine ecosystems relevant to the principles of phylogeographic analysis (Led by instructor, weeks 1-4)
2. Investigation of particular research articles from the primary literature related to Baja phylogeography (Led by enrolled students, weeks 5-13)
3. Student presentations (15-20 minutes each) of final projects, emphasizing the phylogeography of a particular taxon of marine organisms and based on original reanalysis of one or more selected primary research articles.

Approximately the first four sessions will be devoted to an overview of basic concepts in marine phylogeography, with some emphasis on the West Coast of North America, including aspects related to local southern California marine habitats. Specific readings will be assigned for these introductory sessions, and these will be distributed as photocopies the week before they will be covered if not posted in pdf format to the "Course Documents" section of the Course website.

Weekly Written Synopses – Starting with week 2 and ending with week 13, you will be expected to read the weekly assigned article(s) and write a synopsis and discussion of the main points, to be turned in at the start of the class when the article(s) will be discussed.

The format you choose in your write-up is up to you. The score you receive for each synopsis write-up will be based on the following rubric (20 points possible):

- 1) Do you provide an accurate overview of the main points from the assigned reading, including discussion of alternative hypotheses that are addressed, the source of new data analyzed, results obtained, and discussion of their implications? Do you appropriately cite the article? Do you provide a concise and original synopsis of the important conclusions avoiding merely quoting long portions of the assigned reading? (8 points)
- 2) Do you build on the previous readings and seminar discussions, for example, do you address questions raised in either the assigned reading or in seminar discussion? Does the research article(s) help in comparing or contrasting terrestrial and marine patterns, or the patterns observed by different taxa within one of these categories? (3 points)
- 3) Do you offer a critical analysis of the significance of this article relative to previous studies, for example, those cited by the author(s)? Are previous interpretations of phylogeographic pattern further supported or contradicted? If contradicted, are the new hypotheses or evidence compelling in providing a more general explanation for the pattern or does it more likely apply only to the specific case investigated? Do you appropriately use citations for ideas that come from other people? Do you summarize the important conclusions of previous articles in your own words rather than quoting? (3 points)

- 4) Do you present your own ideas or questions and allow them to be considered in light of the current evidence, and do you consider alternative ideas? Do you recognize naïve ideas and relinquish or refine them after considering evidence? (3 points)
- 5) Is your writing clear and free of mechanical errors (complete sentences, well organized, grammatically correct, legible, and free of spelling errors)? (3 points)

Note: Papers will not be accepted after the start of class (6:00 p.m.) without a legitimate medical excuse. The reason for this policy is to ensure that you will come to the scheduled course meeting time ready to discuss the assigned reading. Papers must be hard-copy, **not** electronic via email.

Student-led Discussions - Starting with the sixth week, the weekly discussions will be led by one or two enrolled students. If you choose to share your leadership role with another student then you will each be expected to lead a second week, preferably each with different partner for the second session. A carefully selected list of articles from the primary literature involving important aspects of marine phylogeography will be made available on-line as announced in class on the first class meeting. When available, there will be links to a PDF version of the article, which you can read on-line or print out on your own printer. The weekly presentations will either be organized around a particular topic related to marine phylogeography or around a specific paper. Each student will be expected to choose a featured paper with or without a more general topic. While emailing your choice(s) to Prof. Eernisse at deernisse@fullerton.edu might help reserve a topic you wish to present, the exact details of scheduling will be up to Prof. Eernisse and further announcements will be made by the third week on the selection procedure. Generally, students will only be expected to read a single featured full-length paper each week. However, each presenter will be expected to research multiple related articles in addition to the one featured. One week before a presentation, the scheduled presenter(s) will be expected to distribute a “study outline” for the upcoming presentation to the rest of the class. These outlines should be designed to help students with their conceptual understanding of the featured article. In some cases, the presenter(s) might also distribute a modest number of photocopied pages of supplementary reading or figures from other sources besides the primary featured article. Feel free to suggest alternative articles not on the list provided they are related to marine phylogeography. The schedule of your presentation(s) will be assigned, depending on when it best fits with the sequence of topics to be covered, and the schedule of selected articles will be posted to the course website. PDF versions of the articles or supplementary material will most likely be made available for downloading from a web page URL announced in class. Alternatively (as a last resort), articles will be made available through the course Blackboard website under the “Course Documents” section. Students enrolled in this course will be automatically enrolled in the Blackboard course website, accessible by clicking on the “Blackboard” tab once you have logged into your Student Portal (<http://www.fullerton.edu>). Besides the article assigned as the presenter, you are encouraged to pursue supplementary supporting materials on your own. Such supplementary material might include in-person or on-line library research (e.g., Web of Science, Biosis), references provided on the course website listing of references, clarifying sections of textbooks, or on-line supporting course web

pages that you find with the help of a Web search engine (e.g., google.com or scholar.google.com).

All students other than presenters will be expected to not only carefully read the assigned articles and supporting material to be covered for a particular week before coming to class, but will also be expected to submit at the beginning of each class a concise thoughtful written synopsis of each weekly reading assignment (see “Weekly Written Synopses” section above). The instructor will read and provide a numeric score on each of your write-ups, and these points will constitute the primary component for assessing the performance of the student in the class. Expect that papers might take a week or more to be returned to you. You will also be evaluated on the quality of your presentation and for the leadership qualities that you exhibit, including your efforts to involve other students in the discussion.

Final Presentation and Term Paper – During the course of the semester, you will either choose a particular taxon (group of species or single species) and geographic region (e.g., West Coast) or else a topic related to marine phylogeography. You will independently investigate your choice of taxon or topic, drawing on all available sources. More details about the content expected will be distributed in the classroom. You are encouraged to make direct observations of this taxon if feasible. The results of your independent research will be the subject of a 15-20 minute PowerPoint presentation to be delivered during one of the final two scheduled course meetings. You will also be expected to turn in a term paper related to your presentation. These will be due no later than 5 p.m. on Thursday, December 15, 2005, turned in to Prof. Eernisse’s box in MH282. Please turn in a hard copy, not an electronic one.

Assessment – Grades will be based on the following estimated point totals:

Weekly write-ups (12 at 20 points each, none due the first week)	240 points
Attendance and participation (up to 10 points per week)	140 points
Leading one or more assigned discussions (total points possible)	100 points
Final Presentation and Term Paper (Week 14 or 15)	<u>100 points</u>
Total estimated points	580 points

Your final grade in the course will be based on the percentage of the total accumulated according to the scale depicted below. Under unusual circumstances, the instructor might adjust scores of individual graded assignments or final grades in your favor, but do not count on such adjustments to the scores. The following +/- grading scale will be used in this course:

A	92-100	C	69-71
A-	88-91	C-	66-68
B+	85-87	D+	60-65
B	80-85	D	55-59
B-	77-79	F	0-54
C+	72-76		

Adds/Drops:

Important dates concerning registration or drops are on the inside cover of the CSUF Fall, 2005 Class Schedule or at: <http://www.fullerton.edu/admissions/>

Please check with the Biology Office for the most current College of NSM policy concerning late adds or drops, and do so immediately if you are interested in adding this class.

Extra Credit:

You can submit up to one book review (20 points possible) or two seminar reports (10 points possible each) for up to 20 points total extra credit for the course. A book review should be on a book you have read since the beginning of the semester that is related to biogeography or phylogeography. For example, "Song of the Dodo" is highly recommended as an excellent choice. If you are unsure whether or not a particular book will qualify, ask Prof. Eernisse. In order to earn extra credit points for attending a primary research seminar it must be somehow related to some aspect of phylogeography, and you must make this connection clear in your seminar write-up. You can earn up to 10 points per seminar (20 points maximum including any book review). Selected seminars from the Fall 2005 Biology Seminar Series that are deemed appropriate will be announced in class, but ask if you would like to attend one that has not been announced but seems appropriate to you. The Departmental Seminar schedule is at: <http://biology.fullerton.edu/events/> and are held each Wednesday at 4 p.m., MH468. If you find another scheduled seminar elsewhere or an alternative activity that you feel will enhance your understanding of the course topics, email or otherwise provide me with details in advance of the potential activity, or take a chance and do it and I may or may not approve it. In general, I will want you to provide a written account of the following: 1) What was the main take-home message of the presentation?; 2) What questions do you have for the speaker or as a result of your experience?; 3) How can you suggest extending the research or other activities presented? I will assign 0-10 points per seminar attended, depending on the quality of your write-up. Note that the write-up must be thoughtful and carefully reasoned in order to get the full number of points available. A brief general write-up will not get full credit.

Make-up Policy:

Due to the nature of the course, it will be difficult to make up missed course meetings. If you miss a week of the course, I will consider prorating your other attendance scores ONLY when arrangements are made prior to the course meeting time, and you have a legitimate excuse for missing class. Documentation is required. Contact me about whether I will penalize your submission of a weekly write-up if it must be late and you have a valid excuse. This is your responsibility, and failure to follow the above guidelines could result in a zero grade for the assignment or a deduction for late submission in less severe cases. Generally, late submissions for weekly write-ups will be assessed a late penalty of at least 25 percent minimum for one day late and an additional 10 percent of any portion of every other day it is late. I might elect to waive these penalties, depending on the circumstances that caused you to miss class, or not turn in a weekly write-up.

Rules About Withdrawing from Courses:

CSUF has a policy (UPS 300.016) regarding withdrawal from classes. After the first census date, students may be granted withdrawal only by presentation of documentation outlining a physical, medical or emotional condition that prevents completion of the course. Poor academic performance is not evidence of a serious reason for withdrawal. Students unable to produce official documentation will be required to take the grade they have earned in the class.

Academic Dishonesty Policy:

Although you will be conducting several group-oriented discussion activities, each assigned weekly write-up must be completed individually, and the work must be your own. Use online or library sources of information, always properly cited, and work together often. However, your weekly write-ups must reflect your own 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 or drawings you produce in your lab notebook. Cheating will not be tolerated and could result in both a failing grade in the course and formal reporting to the CSUF academic administration.

REQUIRED MATERIALS: No textbook will be required. Instead, individual reading assignments will be made available to you as PDF-format downloads (requires the free Adobe Acrobat Reader software available from www.adobe.com) or as photocopies.

SCHEDULE:

You are expected to attend ALL weekly class sessions and participate actively. We will follow the attached tentative course schedule posted to our course website and will update it throughout the semester, when necessary.

CLASSROOM 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.
- If you want to bring visitors to the classroom, you must obtain permission from the instructor in advance and must sign a volunteer form.
- 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: 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/phyloge/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.

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.