Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submitt original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Wildlife & Fisheries Sciences

2. Course prefix, number and complete title: WFSC 646 - Quantitative Phylogenetics

3. Course description (not more than 50 words): Designed to provide students with the theory and tools required for inference of phylogenetic (evolutionary) relationships among biological taxa using various types of comparative data including morphological characters, biochemical and molecular characters, and DNA sequences; hands-on analysis of data using contemporary tools.

4. Prerequisite(s): ENTO 601 or approval of instructor

5. Is this a variable credit course? ☐ Yes ☐ No
   If yes, from _______ to _______.

6. Is this a repeatable course? ☐ Yes ☐ No
   If yes, this course may be taken _______ times. Will the course be repeated within the same semester/term? ☐ Yes ☐ No

7. Has this course been taught as a 489/689? ☐ Yes ☐ No
   If yes, how many times? __________ Indicate the number of students enrolled for each academic period it was taught.

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

10. Prefix | Course # | Title (exclude punctuation) | Lect. | Lab | SCH | Subject Matter Code | Content Code | Admin. Unit | Acad. Year | FICE Code | Level
      WFSC 646 QUANTIT PHYLOGENETICS | 0 | 2 | 0 | 3 | 0 | 3 | 2 | 6 | 0 | 8 | 0 | 4 | 0 | 0 | 0 | 2 | 9 | 5 | 1 | 0 | 8 | 0 | 9 | 0 | 0 | 3 | 6 | 3 | 2

Approval recommended by:
Head of Department: James R. Wild
Date: 1/3/08

Chair, College Review Committee: David W. Reed
Date: 2/13/08

Dean of College: David W. Reed
Date: 2/18/08

Submitted to Coordinating Board by:
Dean of College: David W. Reed
Date: 4/10/08

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.
OAR/AS-5/04
Instructor:

Dr. Mariana Mateos  
Dept. of Wildlife and Fisheries Sciences  
979-847-9462  
mmateos@tamu.edu

Purpose:

To provide students with hands-on experience in the inference of phylogenetic relationships using current computer applications

Course information:

Class meets at 110 Nagle Hall:  
  - Lecture on Mon/Wed 10:20–11:10 AM  
  - Lab on Fri 9:10 AM–12:00PM

Office Hours at 320B Old Herman Heep Bldg. (HLB) by appointment.

Course Description:

This course provides the theory and tools that are used to infer phylogenetic relationships using morphological characters, and DNA and protein sequences. The course emphasizes a hands-on approach to molecular phylogenetics and combines lecture presentations with computer exercises and discussion of original scientific literature.

Course credit:

3 semester hours, based on 2 one-hour lectures per week and one three-hour laboratory session per week.

Prerequisite:

Permission by instructor.

Textbooks (Both are optional):

Grading:

Grades will be based on Final Paper (50%), discussion presentation (15%), and homework/lab assignments (35%). Each student will lead the discussion of one paper selected by instructor.

[90–100% = A; 80–90% = B; 70–80% = C; 60–70 = D; <60 = F]

Attendance:

Attendance to lectures and labs is optional. However, assignments will be given during lectures. Student is responsible for assignments even if he/she did not attend lecture during which the assignment was given.

Course outline (tentative):

Mon Jan 15  Holiday
Wed Jan 17  Lecture: Introduction to Phylogenetics
Fri Jan 19  Lab: Introduction to computer lab; MacClade software.
Mon Jan 22  Lecture: Steps in phylogenetic analysis
Wed Jan 24  Lecture: Character homology; paper discussion.
Fri Jan 26  Lab: GENBANK and Alignment Software
Mon Jan 29  Parsimony Methods
Wed Jan 31  Lecture
Fri Feb 2   Lab: PAUP*
Mon Feb 5   Distance-based Methods
            Lecture: One-page summary of Final project proposal due.
Wed Feb 7   Lecture
Fri Feb 9   Lab: distance methods MEGA/PAUP/Phylip
Mon Feb 12  Maximum Likelihood Methods
Wed Feb 14  Lecture
Fri Feb 16  Lab: PAUP/Phylip
Mon Feb 12  Lecture
Wed Feb 14  Lecture
Fri Feb 16  Lab: PAUP/Phylip
            Assessing reliability
Mon Feb 19  Lecture: Alignment of data for final project due.
Wed Feb 21  Lecture
Fri Feb 23  Lab: Non-parametric bootstrap/jackknife

Mon Feb 26  Lecture
Wed Feb 28  Lecture
Fri Mar 2   Lab: MrBayes
Mon Mar 5   Lecture
Wed Mar 7   Lecture
Fri Mar 9   Lab
Mon Mar 12  Spring Break. No classes.
Wed Mar 14  Spring Break. No classes.
Fri Mar 16  Spring Break. No classes.

Mon Mar 19  Lecture
Wed Mar 21  Lecture: Final paper outline due.
Fri Mar 23  Lab: PAML

Mon Mar 26  Lecture
Wed Mar 28  Lecture
Fri Mar 30  Lab
Mon Apr  2  Lecture
Wed Apr  4  Lecture
Fri Apr  6  Reading day. No classes.
Mon Apr  9  Lecture
Wed Apr 11  Lecture
Fri Apr 13  Lab

Mon Apr 16  Lecture
Wed Apr 18  Lecture
Fri Apr 20  Lab

Mon Apr 23  Lecture: Final Paper due.
Fri Apr 27  Lab
Mon Apr 30  Dead day; no classes
Tue May  1  Redefined day (Friday class): Open discussion, critique of course, suggestions, problems encountered during course, etc.

Americans with Disabilities Act (ADA) Policy Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this
legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Cain Hall or call 845-1637.

**Academic Integrity Statement**

*An Aggie does not lie, cheat, or steal or tolerate those who do.*