1. **Discussion Items:**
   a. Important Dates Schedule
   b. Committee Membership
   c. Elections of Chair and Vice Chair
   d. New Course Form/Syllabus Checklist

2. **New Course Requests:**
   a. CPSY 637 Latino Psychology (*tabled at May 2013 meeting*)
   b. ECEN 755 Stochastic System
   c. ECEN 777 Photonics: Fiber and Integrated Optics
   d. ECON 614 The Economics of Microfinance
   e. ECON 668 Decisions Under Risk and Uncertainty
   f. ENGR 677 Science, Technology, Engineering and Mathematics (STEM) Teaching Professional Development
   g. GEOS 677 Science, Technology, Engineering and Mathematics (STEM) Teaching Professional Development
   h. HORT 619 Plant-Associated Microorganisms (*tabled at August 2013 meeting*)
   i. MEPS 619 Plant-Associated Microorganisms (*tabled at August 2013 meeting*)
   j. PLPA 619 Plant-Associated Microorganisms (*tabled at August 2013 meeting*)
   k. SCEN 677 Science, Technology, Engineering and Mathematics (STEM) Teaching Professional Development

3. **Course Change Requests:**
   a. BAEN 651 Geographic Information Systems
   b. ESSM 651 Geographic Information Systems
   c. BOTN 685 Directed Studies
   d. BOTN 691 Research
   e. ZOOL 681 Seminar
   f. ZOOL 685 Directed Studies
   g. ZOOL 691 Research
   h. ENGL 688 Introduction to Comparative Literature
   i. MARA 650 Distribution Logistics (*tabled at August 2013 meeting*)
   j. MSEN 602 Advanced Materials Science and Engineering
   k. POLS 603 Quantitative Political Analysis II

4. **Special Consideration Items:**
   a. Ecology and Evolutionary Biology Doctoral Program Proposal (*tabled at August 2013 meeting*)
Discussion Items
Graduate Council Important Dates (2013-2014)

### Fall 2013

<table>
<thead>
<tr>
<th>Agenda Items Due</th>
<th>GC Meeting</th>
<th>Report to Faculty Senate</th>
<th>Faculty Senate Meeting</th>
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<td>20 August 2013</td>
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### Spring 2014

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<td>2 January 2014*</td>
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<td>18 February 2014</td>
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### Summer 2014

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<tr>
<td>22 July 2014</td>
<td>7 August 2014*</td>
<td>27 August 2014</td>
<td>8 September 2014</td>
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*Subject to change or cancellation.

Agenda items are due by 5 p.m. on dates noted.

Catalog Deadline – Items approved at the December Graduate Council meeting will be included in the next catalog pending approval by Faculty Senate and the President.
NEW /CHANGE COURSE FORM

- Department name
- Course prefix, number and title
- Course description (for catalog)
  - No sentences; use phrases/fragments separated by semi-colons, and commas to separate a series.
  - Do not use the word “introduction” in the title or beginning of the course description for 300 and 400 level courses.
- Prerequisites
  - Prerequisites on course form must match syllabus and catalog.
  - For 300 and 400 level courses, prerequisites must contain either a course prerequisite implying course is designated for upper division students or if no prerequisites, then junior or senior classification. Reference FS.16.166.
- Cross-listed Course (more than one department but at same level)
  - Cross-listed courses must be exactly alike (except prefix and sometimes course number).
  - Both departments must sign the course form.
- Stacked Course (undergraduate and graduate)
  - Include reference to graduate information if course will be stacked.
- Variable Credit
- Course Repeatability
- Required or Elective
- Letters of Support
  - Include if course appears to duplicate another department’s course offering, or if adding/dropping another department’s course in prerequisites.
- Course Inventory Information (shortened title, hours, codes, etc.).
- Signatures
- Brief Supporting Statement
  - Include for changes in prerequisites, course withdrawals, cross-listings, course titles and/or descriptions.

Completed Course Form Examples at http://curriculumservices.tamu.edu/forms/

MINIMUM SYLLABUS REQUIREMENTS

- Course title, number, and term (e.g. Spring 201X), meeting times and location
- Course description and prerequisites
  - Prerequisites must match course form and catalog.
- Learning Outcomes (required for undergraduate courses only)
  - A learning outcome is defined as a statement of what the student will know or be able to do upon successfully completing the course. It must be both observable and measurable.
- Instructor Information
- Textbook and / or resource materials
- Grading policies
  - Must include a grading scale (A=90-100, B=80-89, etc.).
  - Include weights as applicable to exams, laboratory assignments, field student work, projects, papers, homework, class attendance and participation, and other graded activities in the calculation of the course grade.
  - If more than 10% of grade is based on participation, syllabus should explicitly define and outline how grade is determined.
  - Stacked courses – syllabus must clearly indicate additional work required for graduate students.
- Attendance and make-up policies
  - Include website link to student rule 7 http://student-rules.tamu.edu/rule07
  - Must include attendance and make-up policy, especially if attendance/class participation will count as a grade.
  - Policies should detail excused absences, unexcused absences, and make-up policies.
  - Attendance and make-up policies should not contradict student rules.
  - See attached example.
- Course topics, calendar of activities, major assignments, test dates
  - 14 weeks (15th week is first week of finals).
  - Include lab hours.
  - Must include dates on which major exams will be given and assignments will be due.
- Americans with Disabilities Act (ADA) Policy Statement
  - Use current ADA statement with Can Hall location and Disability Services (does not show Koldus or Department of Student Life).
  - Do not change statement; add separate paragraph if additional information is needed.
- Academic Integrity Statement and Policy
  - Include Aggie Honor Code statement and website link http://aggiehonor.tamu.edu

Minimum Syllabus Requirements http://curriculumservices.tamu.edu/minimum-syllabus-requirements/
EXAMPLE

Attendance Policies:

[Insert instructor policy here on penalties for unexcused absences or rewards/requirements for attendance. If you have no attendance requirement, say so.]

Make-up Policy:
If an absence is excused, the instructor will either provide the student an opportunity to make up any quiz, exam or other work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. If the instructor has a regularly scheduled make up exam, students are expected to attend unless they have a university approved excuse. The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial absence. The reasons absences are considered excused by the university are listed below. See Student Rule 7 for details (http://studentrules.tamu.edu/rule07). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.

1) Participation in an activity that is required for a class and appears on the university authorized activity list at https://studentactivities.tamu.edu/app/spo/search/index
2) Death or major illness in a student’s immediate family.
3) Illness of a dependent family member.
4) Participation in legal proceedings or administrative procedures that require a student’s presence.
5) Religious holy day. NOTE: Prior notification is NOT required.
6) Injury or illness that is too severe or contagious for the student to attend class.
   a) Injury or illness of three or more class days:
      Student will provide a medical confirmation note from his or her medical provider within one week of the last date of the absence (see Student Rules 7.1.6.1)
   b) Injury or illness of less than three class days:
      Student will provide one or both of these (at instructor’s discretion), within one week of the last date of the absence:
      (i) Texas A&M University Explanatory Statement for Absence from Class form available at http://attendance.tamu.edu or (ii) Confirmation of visit to a health care professional affirming date and time of visit.
7) Required participation in military duties.
8) Mandatory admission interviews for professional or graduate school that cannot be rescheduled.

Other absences may be excused at the discretion of the instructor with prior notification and proper documentation. In cases where prior notification is not feasible (e.g., accident or emergency) the student must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class.
New Courses
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus. •

Form Instructions

1. Request submitted by (Department or Program Name): Department of Educational Psychology

2. Course prefix, number and complete title of course: CPSY 637: Latino Psychology

3. Catalog course description (not to exceed 50 words): Examine psychological research and literature related to Latino experience in the U.S. via readings, media and class discussion; introduction to various Latino groups with the primary focus on individuals of Mexican descent.

4. Prerequisite(s): Graduate classification; approval of department head

Cross-listed with: Stacked with:

Cross-listed courses require the signature of both department heads.

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 this course be repeated within the same semester? □ Yes ☒ No

7. 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)

   Ph.D. Students in Counseling Psychology

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

9. Prefix  Course #  Title (excluding punctuation)
   CPSY 637  LATINO PSYCHOLOGY

   Lect  Lab  SCH  CP and Fund Code  Admin. Unit  Acad. Year  HUC Code
   0 3 0 0 0 3 4 2 2 8 0 3 0 0 4 0 9 2 0 1 4 - 1 5 0 0 3 6 3 2

Approval recommended by:
Victor Willson, Ph.D. George Cunningham, Ph.D.
Department Head or Program Chair (Type Name & Sign) Date Chair, College Review Committee

Department Head or Program Chair (Type Name & Sign) Date (if cross-listed course)
George Cunningham, Ph.D.
Dean of College

Mark Zoran, Ph.D.
Chair, GC or UCC

Submitted to Coordinating Board by:
Associate Director, Curricular Services

Date Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 3/10
CPSY 637: LATINO PSYCHOLOGY
June 3 – July 1, 2013

Instructor: Lizette Ojeda, Ph.D.
Email: LizetteOjeda@tamu.edu
Office: 710 Harrington Tower

Class Time: MTW 9am-12pm
Class Location: Harrington Tower rm
Office Hours: by appointment

COURSE OBJECTIVES

Examine psychological research and literature related to Latino experience in the U.S. via readings, media and class discussion; introduction to various Latino groups with the primary focus on individuals of Mexican descent. Pre-requisites: Graduate Classification and approval of department head.

Course goals include the following:

- To acquire knowledge regarding historical, cultural, economic, and political factors that explains the experiences and value orientations of Latinos in the U.S.
- To explore theories of identity development, theories of acculturation, language, and Latino research and theory.
- To gain cultural competence through exploring the research literature and media to advance one’s knowledge of between and within group difference among Latinos.
- To gain knowledge, awareness, and skills in working with Latino populations.

COURSE FORMAT

The course will take a seminar format, primarily reciprocal and cooperative learning for synthesizing and analyzing. The primary vehicle of learning is discussion and interaction. This requires active participation and adequate participation for each and every member of the class. For this course to function as a true seminar each of us must contribute our time and ideas. This necessitates preparation for each class meeting and active involvement in the learning process. The format of the course will be wholly interactive and participatory in nature. As is typically true, you will get out of this class what you are willing to put into it. We are each dependent on and responsible to one another in this course.

STUDENT EXPECTATIONS

- Read assigned readings and come to class prepared to discuss the selected topic(s)
- Attend class sessions regularly and punctually. For information on University absences please see student rule 7: http://student-rules.tamu.edu/rule07
- Participate actively in class discussions.
- Complete and present assignments on time.
- Maintain confidentiality of personal information within the class.

Academic Integrity
"An Aggie does not lie, cheat, or steal, or tolerate those who do." http://aggiehonor.tamu.edu

Americans with Disabilities Act (ADA)
The 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 Disability Services, in Cain Hall, Room B118, or call 845-1637 For additional information visit http://disability.tamu.edu
REQUIRED READINGS

Required readings are available on the eLearning website and can be found under the folder corresponding to the topic that will be discussed on a given class day. We may not always have enough time to discuss every reading, but it is still your responsibility to read them. Please bring readings to class.

COURSE ASSIGNMENTS

1. **Discussion Questions (4): Due on assigned dates**
   Bring a critically thought out question to class for group discussion based on readings assigned on a given day. Introduce and lead the class discussion related to your question.

2. **News Article Critique: Due on assigned date**
   Select a news article relevant to the topic of the class day you are assigned to. (Be prepared to introduce the issue discussed in the article in case someone is not familiar with it and it is not clearly explained in the article.) The selected news article should contradict your beliefs on the given issue. Criticize the article’s stance, provide a rationale for your critique, and provide an alternative perspective/resolution to the issue. Bring copies for everyone.

3. **Film Analyses: Tuesday June 25th**
   You will watch the films “My Family” and “La Mission” on the specified dates and provide a short paper (2-4 pgs) in which you synthesize and analyze your observations of relevant issues in the film. Provide implications for your observations.

4. **Special Topic Presentation (20-30 minutes): Wednesday June 19th**
   Conduct a literature review on a relevant topic of your choice with Latinos that has not been extensively covered in class and provide a PowerPoint presentation. Examples of topics include application of a particular theory or specific issues within health, immigration, culture, education, etc. The presentation should go beyond a mere review of the issue. Provide the background information, statistics if applicable, and implications of the issue. Propose potential ways to address the issue. Receive instructor approval for your topic by Wednesday June 12th.

5. **Case Presentation (20-30 minutes): Wednesday June 26th**
   To gain an insider’s perspective, conduct an in-person semi-structured interview of a Latino individual to learn about the individual’s experiences, perceptions, attitudes, behaviors, coping strategies, and ideas about Latino issues and psychology. Gather demographic information such as generation level, immigration history, family of origin, education level, and occupation. Based on data gathered, how would you describe their level of acculturation, ethnic identity, cultural-related stress, cultural values, etc.? What other culturally based issues do you see at play? Include pictures if the individual permits.

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<td>Discussion Questions</td>
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<tr>
<td>News Article Critique</td>
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<td>Film Analysis I</td>
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<td>Film Analysis II</td>
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<td>Topic Presentation</td>
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<td>Case Presentation</td>
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<td><strong>TOTAL</strong></td>
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**Grades by Points:** A = 90 -100; B = 80 – 89; C = 70 – 79; F = 69 and below
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<tr>
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<td>June 4th</td>
<td>Acculturation &amp; Enculturation</td>
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<td>DISCUSSION QUESTION</td>
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<td>M 17th</td>
<td>Gender Issues</td>
<td>DISCUSSION QUESTION</td>
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<td>T 18th</td>
<td>Children, Youth, Parents</td>
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<td>W 19th</td>
<td>Education, Work, Career Development</td>
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<td>M 24th</td>
<td>Mental Health Issues</td>
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<td>Movie: La Mission (2009)</td>
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<td>CASE PRESENTATION</td>
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<tr>
<td>M July 1st</td>
<td>Wrap-up</td>
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*This is a tentative course outline and may be subject to change due to the seminar format of the course.*
Kristie Stramaski

From: Lizette Ojeda
Sent: Friday, April 19, 2013 1:36 PM
To: Kristie Stramaski
Cc: Linda Castillo (Forward)
Subject: Re: Latino Psyc Course Request

Importance: High

Kristie, you are too funny.
The course is actually of interest to more students outside the Counseling Psych program such as Sociology, Hispanic Studies, and Public Health. Therefore, I hesitate to change the title or to change the course objectives. Hopefully it will change to where more of our own program students are taking it, but for now, I think the course name should stay as is.

Lizette Ojeda, Ph.D.
Assistant Professor
Licensed Psychologist
Counseling Psychology Program
Department of Educational Psychology
Texas A&M University
(979) 845-8608
http://people.cehd.tamu.edu/~lojeda/

From: Kristie Stramaski <kstramaski@tamu.edu>
Date: Friday, April 19, 2013 1:30 PM
To: lizetteojeda <lizetteojeda@tamu.edu>
Cc: "Linda Castillo (Forward)" <lcastillo@tamu.edu>
Subject: Latino Psyc Course Request

Please note that I am just the messenger here. Please do not shoot me.

There were some minor changes requested of the course before being sent forth to GC.

1. It was requested that the title be changed so that is was more clear that the course was for counseling students. i.e Counseling Psychology for Latinos or Social Latino Psychology (see next point)
2. It was suggested that the objectives be adjusted to be less sociological or social oriented
3. I need to make a minor changes syllabus.

You don’t have to make these changes, but they were suggested. If you do want to make these changes, please send me a new syllabus. If you do not, please let me know and I will make the minor change I need to make and resubmit.

Thanks

Kristie

Kristie Stramaski
Texas A&M University
Departmental Request for a New Course
Undergraduate ∙ Graduate ∙ Professional
* Submit original form and attach a course syllabus.*

1. Request submitted by (Department or Program Name): Electrical and Computer Engineering

2. Course prefix, number and complete title of course: ECEN 755 Stochastic Systems

3. Catalog course description (not to exceed 50 words): This course will cover the principles of stochastic systems, including performance evaluation, estimation, control, scheduling, identification and adaptation, as well as Electrical and Computer Engineering applications. It will include applications in communication networks and control.

4. Prerequisite(s): Math 411; approval of instructor and graduate classification

5. Is this a variable credit course? □ Yes □ No

6. Is this a repeatable course? □ Yes □ No

7. This course will be:
   a. required for students enrolled in the following degree programs(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)

8. MS and PHD, ELEN and CEEN

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

Approval recommended by:

C. Singh
Department Head or Program Chair (Type Name & Sign) Date

Chair, College Review Committee Date

Dean of College Date

Chair GC of USC Date

Submitted to Coordinating Board by:

Associate Director, Curricular Services

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 3/10
Course Title: ECEN 755: Stochastic Systems

Term: Fall 2014

Meeting Times & Location: TBA

Course Description
Important applications in electrical and computer engineering require knowledge of stochastic systems. This course deals with several models of stochastic systems and their analysis. It studies topics including performance evaluation, estimation, control, scheduling, identification and adaptation. It has applications in several fields such as computer engineering, communication networks and control.

Prerequisites
Math 411; Approval of Instructor and Graduate classification

Class absences:
The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located on-line at http://student-rules.tamu.edu/rule07.

Learning Outcomes or Course Objectives
Upon completion of this course, students will be able to (i) formulate stochastic systems problems with application to Electrical and Computer Engineering, (ii) analyze stochastic systems methods using a variety of methodologies, and (iii) develop algorithms for stochastic systems problems in Electrical and Computer Engineering.

Instructor Information
Name: P. R. Kumar
Telephone number: 979-862-3376
Email address: prk@tamu.edu
Office Hours: Wednesdays 10-11am
Office Location: Room 331E WERC

Textbook

Grading
Homeworks: 50%, Project 50%
Grading scale (will be adjusted according to student performance distribution):
90-100 A, 80-89 B, 70-79 C, 60-69 D, below 59 F.
Late work will be accepted according to the provisions of Student Rule 7: [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07)

**Course Schedule**

1. Stochastic Models (14 hours)
   - a. Markov chains (1 hours)
   - b. Classification and class properties (3 hours)
   - c. Equilibrium distribution (1 hours)
   - d. Stability (3 hours)
   - e. Queueing networks (6 hours)

2. Dynamic Programming (13 hours)
   - a. Shortest path problem (1.5 hours)
   - b. The dynamic programming recursion (1 hours)
   - c. Controlled Markov chains (1.5 hours)
   - d. Finite horizon Cost Criterion (1.5 hours)
   - e. Discounted and Average Cost criteria (6 hours)
   - f. Value iteration, policy iteration and linear programming (1.5 hours)

3. Partially observed systems (9 hours)
   - a. State estimation (1.5 hours)
   - b. Unnormalized distribution (1.5 hours)
   - c. Information state (1.5 hours)
   - d. Dynamic programming for partially observed systems (3 hours)
   - e. Bandit problems (1.5 hours)

4. Linear Quadratic Gaussian Systems (6 hours)
   - a. State estimation and Kalman filter (1.5 hours)
   - b. The separation of estimation and control (1.5 hours)
   - c. Linear Gaussian and LQG Systems (1.5 hours)
   - d. Certainty equivalence (1.5 hours)

**TOTAL** 42 hours

**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 Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu. For additional information visit http://disability.tamu.edu

**Academic Integrity Statement and Policy**

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

For additional information please visit: http://aggiehonor.tamu.edu
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and attach a course syllabus.

Form Instructions:

1. Request submitted by (Department or Program Name): Electrical and Computer Engineering

2. Course prefix, number and complete title of course: ECEN 777 Photronics: Fiber and Integrated Optics

3. Catalog course description (not to exceed 50 words): Optical power and spectral measurements of single mode and multimode optical fibers, hands-on arc fusion splicing, lasers, amplifiers, interferometers, photodetectors, integrated optics, fiber-optic devices, optical modulators

4. Prerequisite(s): Equivalent of ECEN 322 and 370 or approval of instructor

Cross-listed with: Stacked with: ECEN 477

Cross-listed courses require the signature of both department heads.

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 this course be repeated within the same semester? ☐ Yes ☐ No

7. This course will be:
   a. required for students enrolled in the following degree programs(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)

   BS, MS and PhD students in ECEN

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

9. Prefix Course # Title (excluding punctuation)

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Approval recommended by:

[Signature]

Department Head or Program Chair (Type Name & Sign) Date

Chair, College Review Committee Date

Dean of College Date

Chair, GC or UCC Date

Submitted to Coordinating Board by:

Associate Director, Curricular Services

Level 6

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 3/10
SYLLABUS

Course title and number: Photonics: Fiber and Integrated Optics ECEN 777
Term: Spring TBA
Lecture times and location: TR 2:20-3:35PM, ZEC 223A
Laboratory Times:
  - Section 504/601: TBD
  - Section 505/602: TBD
  - Section 506/606: TBD
  - Section 508/607: TBD

Official Class Syllabus: Posted on Elearning.tamu.edu

Course Description and Prerequisites

Optical power and spectral measurements of singlemode and multimode optical fibers, hands-on arc fusion splicing, lasers, amplifiers, interferometers, photodetectors, integrated optics, fiber-optic devices, optical modulators.

Prerequisites: Equivalent of ECEN 322 and 370 or approval of instructor.

Learning Outcomes or Course Objectives

1. Safely handle fiber and semiconductor lasers, prepare fiber for splicing and splice standard singlemode fiber
2. Describe attributes of commonly used sources and detectors and perform basic optical measurements for measuring the output power sources and the loss of optical devices
3. Describe the physical principles on which waveguiding is based, the concept of modes and the application to coupling optical fibers to sources, detectors and free-space systems
4. Understand the principles of diffraction and perform spectrally-resolved measurements.
5. Understand the physical principles nonlinear optics

Instructor Information

Name: Christi Madsen
Telephone number: 979-845-4935
Email address: cmadsen@tamu.edu
Office hours: After lectures or by appointment
Office location: JEB 724
TA: TBA

Textbook and/or Resource Material

Class notes. TAMU Library electronic resources including:
Andrew Yablon, 2005, Fiber Optic Splicing
Powers, 2012, Fundamentals of Nonlinear Optics
Hecht, "Understanding Fiber Optics"
Saleh and Teich: "Fundamentals of Photonics"
Agrawal: "Fiber-Optic Communication Systems"

Class Policies and Grading

Policies:
1. You are expected to attend all lectures and your assigned lab time.
2. Late work will be penalized with penalties determined at the discretion of the instructor in accordance with the university excused absence and attendance policy. See http://student-rules.tamu.edu/rule07.
3. Lab reports should be electronically prepared and emailed for submission to the TA.
4. Quizzes may be given and the grades included with the lab reports toward the overall grade.
5. For graduate credit, extra problems may be assigned on labs, homework, quizzes or tests.

Grading:
Lab Reports & quizzes 50%
Midterm 15%
Lab project & Final 35%

Grading scale: 90-100 A, 80-89 B, 70-79 C, 60-69 D, below 60 F.

Mid-term Exam: Tentatively March 21, 2013
Final Exam: May 8, 1-3pm

Tentative Course Topics (by week)
1. Introduction & Lab Safety
2-3. Fiber optic handling, cleaving, splicing
4. Basic power and transmission measurements
5. Optical waveguiding, beam diffraction, fiber-to-fiber coupling
6-7. Amplifiers, lasers and broadband sources
8. Detectors and Noise
9. Diffraction gratings & spectral measurements
10-11. Fiber optic devices, sensors, & dispersion
12. Interference Filters, modulators, ring resonators
13. Integrated optics
14. Nonlinear optics

Americans with Disabilities Act (ADA)
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Academic Integrity
For additional information please visit: http://www.tamu.edu/aggiehonor

"An Aggie does not lie, cheat, or steal, or tolerate those who do."
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional

• Submit original form and attach a course syllabus.

Form Instructions

1. Request submitted by (Department or Program Name): Department of Economics

2. Course prefix, number and complete title of course: ECON 614: The Economics of Microfinance

3. Catalog course description (not to exceed 50 words):
   Analysis of recent research in financial markets in developing countries with a primary emphasis on microfinance; micro-asymmetries involved in lending; financial impact studies; the macro-economic literature on financial development and growth.

4. Prerequisite(s):
   ECON 607 or equivalent; graduate major in the Department of Economics’ master’s program or approval of director of master’s program.

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

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

7. 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)

M.S. in Economics

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

9. Prefix  Course #: Title (excluding punctuation)
    ECON 614  ECON OF MICROFINANCE

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Approval recommended by:

Timothy J. Gronberg 7/19/17
Department Head or Program Chair (Type Name & Sign) Date

Chair, College Review Committee 7-30-13

Dean of College 7-30-13

Department Head or Program Chair (Type Name & Sign) Date
(if cross-listed course)

Submitted to Coordinating Board by:

Chair, GC or UCC Date

Associate Director, Curricular Services Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 3/10
MASTER OF SCIENCE IN ECONOMICS
WITH A CONCENTRATION IN FINANCIAL ECONOMICS OR ECONOMETRICS

ECON 614: ECONOMICS OF MICROFINANCE
SPRING 2014

Class Time: (Tuesday/Thursday) 3:05-4:20 pm
Location: Allen 1002

Instructor: Dr. Adel Varghese
Email: avarghese@tamu.edu
Office: Allen 3057
Office Hours: TBA

Class Website:

Description of Course

This course will analyze recent research in financial markets in developing countries. The first two thirds of the course will focus on the economics of microfinance. The recent publication of The Economics of Microfinance will provide us with a basic text covering the fundamental issues. A number of frontier issues in microfinance are covered in recent papers, these will supplement the text. The last third of the course will focus on other aspects of financial markets in developing countries, mainly the ties between financial development and growth.

Prerequisites: ECON 607 or equivalent; graduate major in the Department of Economics' master's program or approval of director of master's program.


Learning Objectives

By the end of this course, students should:
• Be able to identify and describe the many different models for micro-finance.
• Understand thoroughly micro asymmetries in lending.
• Understand how to evaluate impact studies.
• Have improved their analytical and presentation skills.
• Understand the connection between financial development and growth.
Schedule:

WEEK 1: Introduction to Credit Markets and its Problems
T (T=Text): 1. Rethinking Banking

WEEK 2: Introduction to Credit Markets and its Problems (cont.)
T: 2. Why Intervene in Credit Markets?

WEEK 3: Group Lending: Theory
T: 4. Group Lending

WEEK 4: Beyond Group Lending
T: 5. Beyond Group Lending

WEEK 5: EXAM I

WEEK 6: Impact Studies Microsaving & Microinsurance
T: 9. Measuring Impacts

WEEK 7: Group Lending: Evidence
T: 4. Group Lending

Spring Break Week (No Classes)

WEEK 8: Microsaving & Microinsurance & Gender
T: 6. Savings & Insurance
T: 7. Gender

WEEK 9: Commercialization and Regulation & Subsidy and Sustainability
T: 9. Subsidy and Sustainability
T: 10. Commercialization and Regulation

WEEK 10: EXAM II

WEEK 11: Linking Banks with Microfinance
Readings: TBA

WEEK 12: Financial Development and Growth I
Readings: TBA

WEEK 13: Financial Development and Growth II
Readings: TBA

WEEK 14: Financial Development and Growth III
Readings: TBA

WEEK 15: Exam Week

Final Exam Date - TBA
Course Grading

There will be three exams, pop quizzes, and a group presentation. 
Exams: 2 x 20 + 1 x 30 (final) = 80 %
Pop quizzes (drop lowest grade): 10 %.
Group Presentation: 10 %

GRADE SCALE

A = (90 –100]
B = (80 – 89)
C = (70 – 79)
D = (60 – 69)
F = (below 60)

HOMEWORKS - This course involves analytical practice problems. These are assigned throughout the course. Solutions will be provided. Homeworks are thus, uncropped.

RESPONSE SHEETS - The two page briefs are in response to readings. The reading list will be announced one week before the due date. Sheets should be typewritten. More on the response sheets below in the syllabus.

CLASS PARTICIPATION - Since much of the class learning involves students, class participation is actively encouraged. Please ask questions and offer points of view and own valuable experience in the topics that interest you.

GROUP PRESENTATIONS- Each week a group in the class will lead the class discussion in the last section of class. This group should choose a topic that interests them. They may read extra material other than the class readings and will summarize the readings to the class in a presentation. The presentation will be on PowerPoint and then will ask the class to go over the readings. The students will meet with the professor one week before the presentation so that the professor and the students can agree on the presentation material.

EXAMINATIONS - The examinations are more fact based and will test you on much of the text readings and more exercise driven part of the course.

POP QUIZZES - Throughout the course, pop quizzes will be given. They will test you on homework and/or class notes. The number is undetermined. The lowest pop quiz grade will be dropped.

OTHER POLICIES and ISSUES

LAPTOP USE DURING CLASS - The use of laptops is strictly prohibited during class time. Experience with previous classes has revealed that laptops are more of a distraction than an aid.

TARDINESS AND ABSENCES - Tardiness disrupts class learning and is extremely disruptive. Please try to be on time even when returning to class post breaks as well. Absences, on the other hand, are up to the student. As Masters students, you are mature enough to know that you should come to class. It is common courtesy, though, to inform the professor if you know you will be absent. It will be your responsibility to obtain notes on the missed material. It is also your responsibility to turn in your weekly response sheet even if you cannot make class.

RESPONSE SHEETS - You will write a short paper (no more than 2 pages length) in response to the additional non-text readings for that particular week. The response papers will follow this format: (1) a paragraph with an over-arching summary of the papers, (2) three -four paragraphs that cover the following: the interlinkage among this week’s reading and the readings and topics from other weeks, the contribution of the readings to our understanding of microfinance, your personal opinion on the readings
and (3) the bottom line that policy makers can learn from these readings, i.e. if you were a policymaker in microfinance, what would you take from this reading.

These papers are not collected, they are to stimulate discussion. These will not be collected but occasional checks will be made to make sure students complete them.

The purpose of the weekly response sheets are to encourage students to read and critically evaluate the required readings, facilitate in-class discussion of the readings, learn to summarize readings, provide a change of pace, and force students to become active members of the class.

**Academic Dishonesty**

The Aggie Honor Code is: *"An Aggie does not lie, cheat, or steal or tolerate those who do."* Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System.

A student may be academically dishonest in ways other than plagiarizing. These include: acquiring information not permitted by the instructor, providing information during an exam, and complementarity (if you submit a paper that was completed for another course). If the professor identifies academic dishonesty, then the issue will be forwarded to the Aggie Honors Council. Your responsibilities with regard to scholastic dishonesty are described in detail in various Texas A&M University policy statements on scholastic dishonesty. Scholastic dishonesty may result in failure on the examination, project, or course.

For additional information please visit: [www.tamu.edu/aggiehonor/](http://www.tamu.edu/aggiehonor/)

**ADA 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.
Texas A&M University
Departmental Request for a New Course
Undergraduate ▶ Graduate ▶ Professional
* Submit original form and attach a course syllabus.*

Form Instructions

1. Request submitted by (Department or Program Name): Department of Economics

2. Course prefix, number and complete title of course: ECON 668: Decisions Under Risk and Uncertainty

3. Catalog course description (not to exceed 50 words):
The mean-variance and expected utility decision models; the use of risk models in asset valuation, financial decision-making, and economic analysis; portfolio choice, insurance demand, saving, investment and consumption decisions.

4. Prerequisite(s): ECON 607 or equivalent; enrolled in the Department of Economics’ master's program or approval of director of the master's program.

Cross-listed with: Stacked with:

Cross-listed courses require the signature of both department heads.

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 this course be repeated within the same semester? □ Yes ☒ No

7. This course will be:
   a. required for students enrolled in the following degree programs(s) (e.g., B.A. in history)
       M.S. in Economics
   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

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

9. Prefix Course # Title (excluding punctuation)

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Approval recommended by:

Timothy J. Gronberg 7/15/2013
Department Head or Program Chair (Type Name & Sign) Date

Patricia A. Nery 7/30/13
Chair, College Review Committee Date

Dean of College Date

Department Head or Program Chair (Type Name & Sign) Date

Submitted to Coordinating Board by:

Chair, GC or UCC Date

Associate Director, Curricular Services Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu. Curricular Services – 3/10
ECON 668: Decisions Under Risk and Uncertainty
Spring 2014

Class Time:  (Wednesday) 5:45 – 8:15 pm
Location:  NCTM 122

Instructor:  Dr. Jack Meyer
Allen 3073; 845-7382; jackmeyer@ tamu.edu
Office Hours: TBA.
Also by appointment – email for an appointment

Class Website:

Description of Course

This course presents the mean-variance and expected utility decision models so that students learn to use these models to analyze various economic and financial decisions under risk. We discuss portfolio choices, insurance demand, saving, investment and consumption, and other financial decisions.

Learning Objectives

By the end of this course students will:

1. Be familiar with the underlying theory behind asset choice under uncertainty, including:
   a. The mean-variance model approach,
   b. The impact of Expected Utility and Risk Aversion on portfolio choice, Insurance demand, and Intertemporal consumption and saving decisions.

2. Have experience applying portfolio theory under uncertainty to
   a. A variety of real-life problems and applications, and
   b. Output and production, and the value of information.

Prerequisites:  ECON 607 or equivalent; enrolled in the Department of Economics’ master’s program or approval of director of the master’s program.

In addition to the textbook, I will make available to students a number of book chapters and journal articles that we are going to use in classroom discussion, including:


**Schedule:**

**TOPICS/SCHEDULE:**

**Week 1:** *Introduction* and First Class Day Discussion of Course Requirements and Content (1)

**Week 2 & 3:** *The Mean-Variance Decision Model* (6)
Representing alternatives whose outcome is random
Choosing among alternatives whose outcome is random

**Week 4, 5 & 6:** *The Expected Utility Decision Model* (12)
Axioms of expected utility and finding your utility function
Risk aversion: Absolute and Relative
Increasing Risk and Stochastic Dominance
Decreasing Absolute Risk Aversion (DARA)

**Week 7 & 8:** *The Portfolio Decision Model* (8)
One risky and one riskless asset or activity
Multiple risky assets or activities

*Spring Break – No Classes*

**Week 9, 10 &11:** *The Insurance Demand Model* (8)
Coinsurance and Deductible Insurance
General Indemnification Functions
Background Risk
Week 12 & 13:  *The Consumption, Investment and Saving Decision (5)*  
Two period models  
Multiperiod models

Week 14:  *Other Financial and Economic Decisions (5)*  
Output and Production Decisions  
Information Acquisition

**Course Grading**

*Exams:* I give one in-class midterm exam and one final exam. The midterm will contribute 40%, and the final 60% toward the course grade. The final exam will cover all course material, but will emphasize the material discussed after the midterm exam.

Make-up exams will only be given for officially excused absences as outlined in Academic Rule 7 (http://student-rules.tamu.edu/rule07); absences must be documented in line with Rule 7. In addition, you must email me within 24 hours after the exam to alert me of the situation. These exams will be open book and open notes. A calculator that is not a communication device can be used. The questions will be similar to homework problems.

*Homework:* I hand out homework sheets each class. I also post the sheets on the web. I do not collect homework problems for grading and you are encouraged to work together when completing the assignments. We will discuss selected problems in class, including those any students wish to review. In order to perform well on the exams you must do the homework before looking at the posted answers.

**Grade Scale:**  
A = 90-100  
B = 80-89  
C = 70-79  
D = 60-69  
F = <60

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Note that evidence of group/joint effort on individual class assignments constitutes academic dishonesty and will result in a **failing grade for the course**. Your responsibilities with regard to scholastic dishonesty are described in detail in various Texas A&M University policy statements on scholastic dishonesty. Scholastic dishonesty may result in failure on the examination, project, or course.

For additional information please visit: [www.tamu.edu/aggiehonor/](http://www.tamu.edu/aggiehonor/)

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Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus.

1. Request submitted by (Department or Program Name): College of Engineering

2. Course prefix, number and complete title of course: ENGR 677 - Science, Technology, Engineering and Mathematics (STEM) Teaching Professional Development

3. Catalog course description (not to exceed 50 words): Center for Teaching Excellence (CTE) consultation and faculty mentoring in STEM teaching; course topic and syllabus design; learning outcomes and assessment; teaching methodology; reflection on teaching philosophy; reflection on teaching as research; must be taken on a satisfactory/unsatisfactory basis.

4. Prerequisite(s): GEOS 677 & SCEN 677

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 this course be repeated within the same semester? □ Yes □ No

7. This course will be:
a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
N/A
b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)
Any PhD student in College of Engineering

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

9. Prefix Course # Title (excluding punctuation)

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Approval recommended by:

Scott Miller
Department Head or Program Chair (Type Name & Sign) Date

Scott Miller
Chair, College Review Committee Date

Scott Miller
Dean of College Date

Mark Zoran
Chair, GC or UCC Date

Submitted to Coordinating Board by:

Associate Director, Curricular Services Date Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-3201 or sandra.williams@tamu.edu
Curricular Services – 3/10
Course title and number: ENGR 677 STEM Teaching Professional Development
Term: Spring 20XX
Meeting times and location: Specific Fridays listed in schedule, 3:00-5:00 p.m., Blocker 117

Course Description and Prerequisites

Description: Center for Teaching Excellence (CTE) consultation and faculty mentoring in STEM teaching; professional development in teaching; course topic and syllabus design; learning outcomes and assessment; teaching methodology; reflection on teaching philosophy; reflection on teaching as research
Prerequisites: Graduate classification and approval of instructor

Instructor Information

Name: Scott Miller
Telephone number: 979.862.3946
Email address: smiller@tamu.edu
Office Hours: By appointment
Office Location: Zachry 129

Name: Ra’sheerah Richardson
Telephone number: 979.845.0793
Email address: sheedah@tamu.edu
Office Hours: By appointment
Office Location: 109 Henderson

The format of the course will be interactive lecture as well as online, small group and large group discussion. Required readings will be posted in eCampus and the expectation is that they will be read prior to the class session. (see schedule)

Learning Outcomes

By the end of this class, students will be able to:

• Apply principles of integrated course design in the development of a course within your discipline (aligned learning outcomes, assessments and learning experiences/teaching methods)
• Apply classroom management strategies
• Develop a reflective and purposeful approach to teaching
• Develop a teaching philosophy statement
• Practice self-assessment and peer assessment of teaching

Grading

The course is graded as pass/fail. Student attendance and completion of learning experiences and course assignments will be evaluated as passing utilizing rubrics. Examples of the teaching philosophy, peer review and syllabus rubrics are included with this syllabus.

Pass: ≥ 75 points  Fail: < 75 points

Please see student rule 7 regarding attendance: http://student-rules.tamu.edu(rule07)
Learning Experiences and Assignments

Online Discussion Forum (10 pts)
The online discussion forum provides you with opportunities to draw broader connections with teaching and learning topics, such as relating these topics to your personal experience in the classroom and linking these topics with the larger body of research in teaching and learning. Engagement in “frequent” and “quality” discussion, characteristic of graduate level work, is encouraged.

Philosophy of Teaching Statement (15 pts - first draft; 15 pts - final draft)
Each of us has a unique approach to teaching and most academic positions will require that you can articulate why you use the approach that you do. Documenting your teaching philosophy is a highly reflective process regarding what teaching and learning mean to you.

Classroom Teaching (40 pts)
Each of you will have an opportunity to design a module or section of content for a specific course in your discipline. You will either teach the content to a class of undergraduates or to a group of your graduate peers in this course. Each of these teaching experiences will be peer reviewed.

You will choose your topic in collaboration with your faculty mentor in this course. The module will contain learning outcomes, an assessment, and a learning experience/teaching method capturing the interest of and challenging the students. The activity should include the following:
- A lesson plan that communicates the learning outcomes, organization and activities of your Session (10 pts);
- Handouts or a bibliography of resources that you found useful in designing your session (10 pts);
- Self-evaluation and reflection (It is preferred that supplementary materials such as results of feedback from the class and peer review forms be included with your self-evaluation and reflection.) (20 pts); and
- The self-evaluation and reflection, including supplementary materials, will be discussed with your faculty mentor and the CTE consultant as appropriate.

Syllabus for a Proposed Class in Your Discipline (20 pts)
You will compile a syllabus and a rationale for the course and statement of where the course fits into a larger program or degree. A short description of the situational factors (i.e., context, subject matter, student, instructor; Fink, 2005) should be included with the syllabus so the context is understood. The syllabus should contain learning outcomes, assessment methods and student experiences that will be incorporated into the course. Use the current TAMU required syllabus components. You will receive a rubric that outlines these requirements.

Create an open and safe classroom by doing your part. Please adhere to the following:

The Ten Components of a Thinking Environment
Time to Think by Nancy Kline

1. **Attention**: Listening with respect, interest and fascination.
2. **Incise Questions**: Removing assumptions that limit ideas.
3. **Equality**: Treating each other as thinking peers.
   - Giving equal turns and attention.
   - Keeping agreements and boundaries
4. **Appreciation**: Practicing a five-to-one ratio of appreciation to criticism.
5. **Ease**: Offering freedom from rush or urgency.
6. **Encouragement**: Moving beyond competition.
7. **Feelings**: Allowing sufficient emotional release to restore thinking.
8. **Information**: Providing a full and accurate picture of reality.
9. **Place**: Creating a physical environment that says back to people, ‘You matter.’
10. **Diversity**: Adding quality because of the differences between us.
Course Development Cycle

Americans with Disabilities Act (ADA)

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Academic Integrity

For additional information please visit: http://aggiehonor.tamu.edu

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

References

CLASS SCHEDULE/TOPICS/ASSIGNMENT DUE DATES
(This schedule is subject to change)

Note: All Readings can be found online at ecampus.tamu.edu.

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<th>ESSENTIAL QUESTIONS</th>
<th>ASSIGNMENTS and DUE DATES</th>
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| Week 1: Friday, 1/25 3:00 – 5:00 | Course Intro – What will the semester bring? Knowledge Survey Course Development Cycle Teaching Philosophy | Who are we as a cohort and how will that support our learning experience? What do I know about college teaching and student learning? How do we promote learning through informed course design? | Teaching Philosophy Statement  
Reading: Coppola 2002, Eierman 2008  
Reading: Integrated Course Design, Fink 2005  
Reading: Constructive Alignment, Biggs 2003 |
| Week 2: Friday, 2/8 3:00 – 5:00 | Situational Factors/Learning Outcomes Bloom’s Taxonomy Classroom Management | Who are we teaching? What do we expect from them? | **DUE:** First Draft Teaching Philosophy Statement  
Bring: Situational Factors for Course Design  
Reading: Bransford, Vye & Bateman 2002 |
| Week 3: Friday, 2/22 3:00 – 5:00 | Intellectual Development of Scientists and Engineers | How does the intellectual development of undergraduate students effect how we teach? | Reading: Felder and Brent 2004 (I)  
**DUE:** Date for teaching session established and signed off by instructors |
| 2/25 – 3/21 (Optional) | Individual Consultations with faculty and CTE | Where do I begin my design? Who will I be teaching? |  |
| 2/25 – 3/21 | Classroom Teaching Classroom Observation | How do I apply teaching and learning theory in the classroom? | **DUE** one day prior to classroom teaching: Lesson Plan  
**DUE** one week following classroom teaching: Handouts and/or Bibliography of teaching resources; and Self Evaluation and Reflection |
| Week 4:  
Friday, 3/22  
3:00 – 5:00 | Assessment and Rubrics  
Student Experiences/Teaching Methods | How do we know when the expectations have been met and how do we communicate that to students?  
How can we best utilize class time? | **Reading:** Felder and Brent 2004 (II) |
|---|---|---|---|
| Week 5:  
Friday, 4/5  
3:00 – 5:00 | Reflection and Feedback on our Teaching  
Teaching as Research  
Peer Review | How can we use reflection to integrate what we’ve learned and deepen our understanding of learning and good teaching? | **Reading:** Brookfield 2006  
CIRTL: Teaching as Research  
**DUE:** Final Draft Teaching Philosophy Statement |
| Week 6:  
Friday, 4/19  
3:00 – 5:00 | Syllabus Development  
Final Peer Review – Key learning experiences  
Special Topics | How does the type of class influence how we teach?  
How do we create an environment that is welcoming for all learners? | **DUE:** Draft of Syllabus |
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and attach a course syllabus.

1. Request submitted by (Department or Program Name): College of Geosciences

2. Course prefix, number and complete title of course: GEOS 677- STEM Teaching Professional Development

3. Catalog course description (not to exceed 50 words):
Center for Teaching Excellence (CTE) consultation and faculty mentoring in STEM teaching; professional development in teaching; course topic and syllabus design; learning outcomes and assessment; teaching methodology; reflection on teaching philosophy; reflection on teaching as research

4. Graduate classification and approval of instructor

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

6. Is this a repeatable course? □ Yes □ No
   Will this course be repeated within the same semester? □ Yes □ No
   If yes, this course may be taken _____ times.

7. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
      N/A
   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)
      Any PhD student in the College of Geosciences

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

9. Prefix Course # Title (excluding punctuation)

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course #</th>
<th>Title (excluding punctuation)</th>
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<tbody>
<tr>
<td>GEOS</td>
<td>677</td>
<td>STEM - Teaching Professional Development</td>
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</table>

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<tr>
<th>Lec.</th>
<th>Lab</th>
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<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>ECE Code</th>
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<td>3</td>
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</table>

Approval recommended by:

Department Head or Program Chair (Type Name & Sign) Date: 8/2/13
Chair, College Review Committee Date: 8/1/13
Dean of College Date: 8/1/13

Submitted to Coordinating Board by:

Associate Director, Curricular Services Date: Effective Date:

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 3/10
Course title and number: GEOS 677 STEM Teaching Professional Development
Term: Spring 20XX
Meeting times and location: Specific Fridays listed in schedule, 3:00-5:00 p.m., Blocker 117

Course Description and Prerequisites

Description: Center for Teaching Excellence (CTE) consultation and faculty mentoring in STEM teaching; professional development in teaching; course topic and syllabus design; learning outcomes and assessment; teaching methodology; reflection on teaching philosophy; reflection on teaching as research.

Prerequisites: Graduate classification and approval of instructor

Instructor Information

Name: Sarah Bednarz
Telephone number: 979.845.3651
Email address: s-bednarz@tamu.edu
Office Hours: By appointment
Office Location: 202 O&M Bldg

Name: Ra'sheedah Richardson
Telephone number: 979.845.0793
Email address: sheedah@tamu.edu
Office Hours: By appointment
Office Location: 109 Henderson

The format of the course will be interactive lecture as well as online, small group and large group discussion. Required readings will be posted in eCampus and the expectation is that they will be read prior to the class session. (see schedule)

Learning Outcomes

By the end of this class, students will be able to:

- Apply principles of integrated course design in the development of a course within your discipline (aligned learning outcomes, assessments and learning experiences/teaching methods)
- Apply classroom management strategies
- Develop a reflective and purposeful approach to teaching
- Develop a teaching philosophy statement
- Practice self-assessment and peer assessment of teaching

Grading

The course is graded as pass/fail. Student attendance and completion of learning experiences and course assignments will be evaluated as passing utilizing rubrics. Please adhere to all policies for attendance provided in Student Rule 7 (student-rules.tamu.edu). Examples of the teaching philosophy, peer review and syllabus rubrics are included with this syllabus.

Pass: ≥ 75 points
Fail: < 75 points

Learning Experiences and Assignments

Online Discussion Forum (10 pts)
The online discussion forum provides you with opportunities to draw broader connections with teaching and learning topics, such as relating these topics to your personal experience in the classroom and linking these topics with the larger body of research in teaching and learning. Engagement in “frequent” and “quality” discussion, characteristic of graduate level work, is encouraged.

**Philosophy of Teaching Statement** (15 pts - first draft; 15 pts - final draft)
Each of us has a unique approach to teaching and most academic positions will require that you can articulate why you use the approach that you do. Documenting your teaching philosophy is a highly reflective process regarding what teaching and learning mean to you.

**Classroom Teaching** (40 pts)
Each of you will have an opportunity to design a module or section of content for a specific course in your discipline. You will either teach the content to a class of undergraduates or to a group of your graduate peers in this course. Each of these teaching experiences will be peer reviewed.

You will choose your topic in collaboration with your faculty mentor in this course. The module will contain learning outcomes, an assessment, and a learning experience/teaching method capturing the interest of and challenging the students. The activity should include the following:
- A lesson plan that communicates the learning outcomes, organization and activities of your Session (10 pts);
- Handouts or a bibliography of resources that you found useful in designing your session (10 pts);
- Self-evaluation and reflection (It is preferred that supplementary materials such as results of feedback from the class and peer review forms be included with your self-evaluation and reflection.) (20 pts); and
- The self-evaluation and reflection, including supplementary materials, will be discussed with your faculty mentor and the CTE consultant as appropriate.

**Syllabus for a Proposed Class in Your Discipline** (20 pts)
You will compile a syllabus and a rationale for the course and statement of where the course fits into a larger program or degree. A short description of the situational factors (i.e., context, subject matter, student, instructor; Fink, 2005) should be included with the syllabus so the context is understood. The syllabus should contain learning outcomes, assessment methods and student experiences that will be incorporated into the course. Use the current TAMU required syllabus components. You will receive a rubric that outlines these requirements.

Create an open and safe classroom by doing your part. Please adhere to the following:

**The Ten Components of a Thinking Environment**

*Time to Think by Nancy Kline*

1. **Attention:** Listening with respect, interest and fascination.
2. **Incisive Questions:** Removing assumptions that limit ideas.
3. **Equality:** Treating each other as thinking peers.
   - Giving equal turns and attention.
   - Keeping agreements and boundaries
4. **Appreciation:** Practicing a five-to-one ratio of appreciation to criticism.
5. **Ease:** Offering freedom from rush or urgency.
6. **Encouragement:** Moving beyond competition.
7. **Feelings:** Allowing sufficient emotional release to restore thinking.
8. **Information:** Providing a full and accurate picture of reality.
9. **Place:** Creating a physical environment that says back to people, ‘You matter.’
10. **Diversity:** Adding quality because of the differences between us.
Course Development Cycle

Americans with Disabilities Act (ADA)

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 Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu)

**Academic Integrity**

*For additional information please visit: [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu)*

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

References


# CLASS SCHEDULE/TOPICS/ASSIGNMENT DUE DATES

This schedule is subject to change.

**Note:** All Readings can be found online at ecampus.tamu.edu.

<table>
<thead>
<tr>
<th>DAY</th>
<th>TOPIC</th>
<th>ESSENTIAL QUESTIONS</th>
<th>ASSIGNMENTS and DUE DATES</th>
</tr>
</thead>
</table>
| **Week 1:**
Friday, 1/25
3:00 – 5:00 | Course Intro – What will the semester bring?
Knowledge Survey
Course Development Cycle
Teaching Philosophy | Who are we as a cohort and how will that support our learning experience?
What do I know about college teaching and student learning?
How do we promote learning through informed course design? | Teaching Philosophy Statement
Reading: Coppola 2002, Eierman 2008
Reading: Integrated Course Design, Fink 2005
Reading: Constructive Alignment, Biggs 2003 |
| **Week 2:**
Friday, 2/8
3:00 – 5:00 | Situational Factors/Learning Outcomes
Bloom’s Taxonomy Classroom Management | Who are we teaching?
What do we expect from them? | DUE: First Draft Teaching Philosophy Statement
Bring: Situational Factors for Course Design
Reading: Bransford, Vye & Bateman 2002 |
| **Week 3:**
Friday, 2/22
3:00 – 5:00 | Intellectual Development of Scientists and Engineers | How does the intellectual development of undergraduate students effect how we teach? | Reading: Felder and Brent 2004 (I)
DUE: Date for teaching session established and signed off by instructors |
| 2/25 – 3/21 (Optional) | Individual Consultations with faculty and CTE | Where do I begin my design? Who will I be teaching? | |
| 2/25 – 3/21 | Classroom Teaching Classroom Observation | How do I apply teaching and learning theory in the classroom? | DUE one day prior to classroom teaching: Lesson Plan
DUE one week following classroom teaching: Handouts and/or Bibliography of teaching resources; and Self Evaluation and Reflection |
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<th>Assessment and Rubrics</th>
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<th>Reading: Felder and Brent 2004 (II)</th>
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<td><strong>Reflection and Feedback on our Teaching</strong></td>
<td><strong>How can we use reflection to integrate what we’ve learned and deepen our understanding of learning and good teaching?</strong></td>
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<td>3:00 – 5:00</td>
<td><strong>Teaching as Research Peer Review</strong></td>
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<td></td>
<td><strong>DUE: Final Draft Teaching Philosophy Statement</strong></td>
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<td><strong>Week 6: Friday, 4/19</strong></td>
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<td><strong>How does the type of class influence how we teach? How do we create an environment that is welcoming for all learners?</strong></td>
<td><strong>DUE: Draft of Syllabus</strong></td>
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<tr>
<td>3:00 – 5:00</td>
<td><strong>Final Peer Review – Key learning experiences Special Topics</strong></td>
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Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and attach a course syllabus.

1. Request submitted by (Department or Program Name): Department of Horticultural Sciences

2. Course prefix, number and complete title of course: HORT, 619, Plant-Associated Microorganisms

3. Catalog course description (not to exceed 50 words):
Basic concepts and current topics in plant-microbe interactions including the diversity of plant-associated microorganisms; the plant as a microbial environment; endophytes; microbial roles in plant nutrition and fitness; uses of microorganisms for improved plant health and sustainable agriculture; microbial roles in food safety and future challenges; discussion of current literature.

4. Prerequisite(s):

Cross-listed with:
PLPA 619 and MEPS 619

Stacked with:

Cross-listed courses requires the signature of both department heads.

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.

7. 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)

All majors in the college of Agriculture and Life Sciences

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

9. Prefix Course Code (excluding punctuation)

HORT 619 PLANT-ASSOCIATED MICROBE

Lect Lab SCH CRP and Fund Code
0 3 0 0 3 0 1 1 0 5 0 0 0 5 1 5 2 0 1 4 1 5 0 3 6 3 2

Approval recommended by:

Michael A. Arnold (Assoc. Head) Date

Department Head or Program Chair (Type Name & Sign) Date

Chair, College Review Committee Date

Dean of College Date

Submitted to Coordinating Board by:

Associate Director, Curricular Services Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu
Curricular Services – 3/10
Syllabus
HORT619 - MEPS619 – PLPA619
Plant-Associated Microorganisms
Spring 2015

Instructor: Elizabeth (Betsy) Pierson, Ph.D.
Office: Room 427 HFSB
Office Phone: 862-1307
Email: EAPierson@tamu.edu
Office hours: By appointment
Class Time: 11:30-12:30 MWF
Class location: HFSB 101

Catalog description (50 words):
Basic concepts and current topics in plant-microbe interactions including the diversity of plant-associated microorganisms; the plant as a microbial environment; endophytes; microbial roles in plant nutrition and fitness; uses of microorganisms for improving plant health and sustainable agriculture; roles in food safety and future challenges; discussion and critique of literature.

Course Description:
HORT/MEPS/PLPA 619 Plant-Associated Microorganisms is a 3-credit lecture course.

Plant health is the net result of complex interactions between the plant and its environment. Essential components of this environment are the microorganisms living on and inside plants. Plant-beneficial microbes contribute to plant nutrition, affect plant herbivory, promote plant growth, and suppress plant disease. Detrimental microbes create food safety and plant disease problems. Understanding and manipulating plant-associated microbes represent key ecological control points for improving plant fitness.

We will explore basic concepts and current topics through lectures, assigned readings, classroom discussion, and presentations. We will cover the diversity of microorganisms associated with plants, the ecology of the plant phyllosphere and rhizosphere, the cryptic world of plant endophytes, the uses of plant-beneficial microorganisms for improving plant health, and the nature of deleterious plant-associated microbes. We will discuss issues as they relate to: sustainable agriculture, the development of commercial products aimed at improving plant fitness, and food safety. Students are expected to actively participate in the discussions, and find, present, and critique recent literature in the field of plant-microbe interactions.

Prerequisites
An undergraduate class in basic plant biology or plant ecology is recommended. A previous course in microbiology is helpful, but not required.

Learning Outcomes or Course Objectives
The goals of this course are to:
- Foster an understanding of the diversity microorganisms associated with plants and the types of interactions between plants and microbes that promote plant health
- Foster an understanding of the plant as a microbial environment.
- Foster critical thinking and an ability to read, discuss, and write about ideas presented in the published literature
- Introduce students to commercial/agricultural products and applications utilizing plant-associated microbes or directed toward manipulating plant-microbe interactions
- Broaden the students' perspective on how plant-associated microbes contribute to the ecology, physiology, biochemistry and genetics of plants.
- Broaden the students' perspective on how understanding po

**Textbook and resource materials**
There is no textbook associated with the class. Resource materials include lecture notes and assigned readings.

**Grading Policy**

<table>
<thead>
<tr>
<th>Course Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Participation</td>
<td>10%</td>
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<tr>
<td>Assignments</td>
<td>10%</td>
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<tr>
<td>Midterm</td>
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<tr>
<td>Presentation</td>
<td>20%</td>
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<tr>
<td>Final Paper</td>
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<tr>
<td>Final Exam</td>
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**Grading Scale**

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<th>Course Letter Grade</th>
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<td>D</td>
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<tr>
<td>0-59</td>
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* I reserve the right to modify grading policy or scale, as needed.

**Additional Grading Policy:**
Participation credit: In order to receive participation credit you need to be present for all sessions and participate in all class discussions (unless you have a University excused absence—see below). If you miss a class session, and have an approved excuse, please contact me within 24 hours via email or give me advanced notice.

Assignments: During the course, you will be asked to submit literature reviews or some other form of written assignment. I will describe each assignment and provide the due date at the time I make the assignment. For literature reviews you should assess (in one paragraph each) the background and objectives, methods and results, discussion and significant findings, and your opinion of the paper. The assignments are due typically at the start of class on Fridays.

Final Paper: The final paper will be an essay aimed at assessment of the graduate student’s capacity to review literature and addresses the issues related to understanding and manipulating microbial communities to promote plant health. The final paper should focuses on a specific plant-microbe interaction where increased understanding might result in agricultural gains. The paper is required to have three sections: one that describes current knowledge related to the chosen topic (including the biology of the interaction, current applications and their limitations and the desired agricultural gains), a second that describes specific area(s) of research that may lead to the desired agricultural gains (including a description of the specific objectives, treatments and controls, experimental design, response variables, replication and analysis, expected results, and deliverables), and a third section that discusses broader impacts and future studies.
Presentation: Students are required to give a 20 minute presentation to the class covering the three sections of their paper, and defend their research in a 10 minute exchange with class members. Students are graded not only on their prepared oral presentation, but on their ability to defend their ideas during questioning. They also are graded on their ability to critique and discuss other students' presentations and defenses.

Exams: Exams will consist of brief definitions, short answers, problem solving, and short discussion/opinion questions.

I absolutely do not tolerate plagiarism. Please make sure you understand what plagiarism is.

<table>
<thead>
<tr>
<th>Lecture Period</th>
<th>Topics/Activities</th>
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<tbody>
<tr>
<td>Week 1: Lecture 1</td>
<td>Course Overview &amp; Types of Plant-Associated Microbes: Well-studied Eukaryotes</td>
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<tr>
<td>Week 1: Lecture 2</td>
<td>Types of Plant-Associated Microbes: Well-studied Eukaryotic and Prokaryotic groups continued</td>
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<tr>
<td>Week 1:</td>
<td>Class activity</td>
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<tr>
<td>Week 2:</td>
<td>Holiday</td>
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<tr>
<td>Week 2: Lecture 3</td>
<td>Quorum Sensing</td>
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<tr>
<td>Week 2:</td>
<td>Literature discussion/class activity</td>
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<tr>
<td>Week 3: Lecture 4</td>
<td>Phyllosphere ecology: definition, physical characteristics, diversity of microorganism</td>
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<tr>
<td>Week 3: Lecture 5</td>
<td>Rhizosphere Ecology: definition, physical characteristics, diversity of microorganism</td>
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<td>Week 3: Lecture 6</td>
<td>Special Lecture: Biofilms</td>
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<tr>
<td>Week 4: Lecture 7</td>
<td>Endophytic environment</td>
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<tr>
<td>Week 4: Lecture 8</td>
<td>Endophytes: Diversity of culturable microbes, fungal endophytes, alkaloid production and herbivory</td>
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<tr>
<td>Week 4:</td>
<td>Literature discussion/class activity</td>
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<tr>
<td>Week 5: Lecture 9</td>
<td>Biological Nitrogen Fixers: Importance, diversity and distribution (symbiotic vs. associative N-fixers), nitrogen fixation (biochemistry and genetics)</td>
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<tr>
<td>Week 5: Lecture 10</td>
<td>Nitrogen Fixers: components of the interaction (nodulation and fixation) occurrence of rare but complex symbionts, commercial products</td>
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<tr>
<td>Week 5: Lecture 11</td>
<td>Special Lecture: Rhizobium-Legume Symbioses</td>
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<tr>
<td>Week 6: Lecture 12</td>
<td>Mycorrhizae, importance in phosphate nutrition, diversity and distribution (ecto vs. endo mycorrhizae)</td>
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<tr>
<td>Week 6: Lecture 13</td>
<td>Mycorrhizae: arbuscule formation (structure and signals), commercial products</td>
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<tr>
<td>Week 6: Lecture 14</td>
<td>Special Lecture: comparison of Mycorrhizal and Rhizobial Symbioses</td>
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<td>Week 7:</td>
<td>Review</td>
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<td>Week 7:</td>
<td>Midterm exam</td>
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<td>Week 7: Lecture 15</td>
<td>Biological Control 1: Principles of Biological Control: definition, history, discovery of disease suppressive soils and promise of biological control, goals and role in sustainable agriculture</td>
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<tr>
<td>Week 8:</td>
<td>Class activity (discuss exam and student project)</td>
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<td>Week 8: Lecture 16</td>
<td>Biological Control2: Antagonism, Competition, Predation/Parasitism</td>
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<tr>
<td>Week 8: Lecture 17</td>
<td>Biological Control 3: Induced resistance, Hypovirulence, Cross Protection</td>
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<td>Week 8:</td>
<td>Literature discussion/class activity</td>
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<tr>
<td>Week 9:</td>
<td>Spring Break!!!! Have fun. Be safe.</td>
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<tr>
<td>Week 10: Lecture 18</td>
<td>Ramping up plant defenses, commercial applications</td>
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<tr>
<td>Week 10: Lecture 19</td>
<td>Commercialization/Integration of Biological Control: strategy to identify effective biological controls, formulation, production, registration</td>
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<tr>
<td>Week 10:</td>
<td>Literature discussion/class activity</td>
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<tr>
<td>Week 11: Lecture 20</td>
<td>The Use of Manure, Compost, Compost Extracts and Teas; Biofumigation and Green Manuring, Solarization and Mulching: benefits/detriment to plant nutrition, roles in disease suppression</td>
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<tr>
<td>Week 11: Lecture 21</td>
<td>Alternative controls that affect microbial populations</td>
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<td>Week 11:</td>
<td>Literature discussion/class activity</td>
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<td>Week 12: Lecture 22</td>
<td>Genetically Modified Organisms</td>
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<td>Week 12: Lecture 23</td>
<td>Productions Systems</td>
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<tr>
<td>Week 12</td>
<td>Group Discussion: GMOs and Organic Agriculture</td>
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<tr>
<td>Week 13: Lecture 24</td>
<td>Food Safety: diversity of deleterious microbes, ecology and epidemiology of deleterious microbes on plants, GAPs</td>
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<td>Week 13: Lecture 25</td>
<td>Probiotics</td>
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<tr>
<td>Week 13: Lecture 26</td>
<td>Grand Challenges in Agriculture</td>
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<td>Week 14:</td>
<td>Presentations on student paper</td>
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<td>Week 14:</td>
<td>Presentations on student paper</td>
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<tr>
<td>Week 15:</td>
<td>Presentations on student paper; FINAL PAPER DUE</td>
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<tr>
<td>Week 15:</td>
<td>Review for Final</td>
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<tr>
<td>Week 15:</td>
<td>Final exam (not comprehensive)</td>
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**Academic Integrity Statement**

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**Class Attendance:** Students are expected to attend class unless satisfactory evidence is presented to substantiate the reason for absence [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07).
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and attach a course syllabus.

1. Request submitted by (Department or Program Name): Molecular and Environmental Plant Sciences

2. Course prefix, number and complete title of course: MEPS, 619, Plant-Associated Microorganisms

3. Catalog course description (not to exceed 50 words):
Basic concepts and current topics in plant-microbe interactions including the diversity of plant-associated microorganisms; the plant as a microbial environment; endophytes; microbial roles in plant nutrition and fitness; uses of microorganisms for improved plant health and sustainable agriculture; microbial roles in food safety and future challenges; discussion of current literature.

4. Prerequisite(s):
Basic plant biology or plant ecology is recommended; microbiology is helpful, but not required.

Cross-listed with: PLPA 619 and HORT 619
Stacked with:

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 this course be repeated within the same semester? □ Yes ☑ No

7. 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)

All majors in the College of Agriculture and Life Sciences

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

9. Prefix Course Title (excluding punctuation):

<table>
<thead>
<tr>
<th>Prefix</th>
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<td>MEPS</td>
<td>619</td>
<td>PLANT-ASSOCIATED MICROBE</td>
</tr>
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</table>

Elect  Eth  SCH  GP and Fund Code  Admin Unit  Acad Year  TRR Code
| 0 | 3 | 0 | 0 | 0 | 3 | 0 | 1 | 1 | 0 | 5 | 0 | 0 | 5 | 1 | 5 | 2 | 0 | 1 | 4 | - | 1 | 5 | 0 | 0 | 3 | 6 | 3 | 2 |

Approval recommended by:

Dirk Heya (Program Chair) 5/15/13
Department Head or Program Chair (Type Name & Sign) Date

Michael (signature) 5/15/13
Department Head or Program Chair (Type Name & Sign) Date

Submitted to Coordinating Board by:

Chair, GC or UCC Date

Associate Director, Curricular Services

Questions regarding this form should be directed to Sandra Williams at 945-8201 or sandra.williams@tamu.edu.
Syllabus
HORT619 - MEPS619 – PLPA619
Plant-Associated Microorganisms
Spring 2015

Instructor: Elizabeth (Betsy) Pierson, Ph.D.
Office: Room 427 HFSB
Office Phone: 862-1307
Email: EAPerson@tamu.edu
Office hours: By appointment
Class Time: 11:30-12:30 MWF
Class location: HFSB 101

Catalog description (50 words):
Basic concepts and current topics in plant-microbe interactions including the diversity of plant-associated microorganisms; the plant as a microbial environment; endophytes; microbial roles in plant nutrition and fitness; uses of microorganisms for improving plant health and sustainable agriculture; roles in food safety and future challenges; discussion and critique of literature.

Course Description:
HORT/MEPS/PLPA 619 Plant-Associated Microorganisms is a 3-credit lecture course.

Plant health is the net result of complex interactions between the plant and its environment. Essential components of this environment are the microorganisms living on and inside plants. Plant-beneficial microbes contribute to plant nutrition, affect plant herbivory, promote plant growth, and suppress plant disease. Detrimental microbes create food safety and plant disease problems. Understanding and manipulating plant-associated microbes represent key ecological control points for improving plant fitness.

We will explore basic concepts and current topics through lectures, assigned readings, classroom discussion, and presentations. We will cover the diversity of microorganisms associated with plants, the ecology of the plant phyllosphere and rhizosphere, the cryptic world of plant endophytes, the uses of plant-beneficial microorganisms for improving plant health, and the nature of deleterious plant-associated microbes. We will discuss issues as they relate to: sustainable agriculture, the development of commercial products aimed at improving plant fitness, and food safety. Students are expected to actively participate in the discussions, and find, present, and critique recent literature in the field of plant-microbe interactions.

Prerequisites
An undergraduate class in basic plant biology or plant ecology is recommended. A previous course in microbiology is helpful, but not required.

Learning Outcomes or Course Objectives
The goals of this course are to:

- Foster an understanding of the diversity microorganisms associated with plants and the types of interactions between plants and microbes that promote plant health
- Foster an understanding of the plant as a microbial environment.
- Foster critical thinking and an ability to read, discuss, and write about ideas presented in the published literature
• Introduce students to commercial/agricultural products and applications utilizing plant-associated microbes or directed toward manipulating plant-microbe interactions
• Broaden the students’ perspective on how plant-associated microbes contribute to the ecology, physiology, biochemistry and genetics of plants.
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Grading Policy*

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Final Paper: The final paper will be an essay aimed at assessment of the graduate student’s capacity to review literature and addresses the issues related to understanding and manipulating microbial communities to promote plant health. The final paper should focuses on a specific plant-microbe interaction where increased understanding might result in agricultural gains. The paper is required to have three sections: one that describes current knowledge related to the chosen topic (including the biology of the interaction, current applications and their limitations and the desired agricultural gains), a second that describes specific area(s) of research that may lead to the desired agricultural gains (including a description of the specific objectives, treatments and controls, experimental design, response variables, replication and analysis, expected results, and deliverables), and a third section that discusses broader impacts and future studies.
Presentation: Students are required to give a 20 minute presentation to the class covering the three sections of their paper, and defend their research in a 10 minute exchange with class members. Students are graded not only on their prepared oral presentation, but on their ability to defend their ideas during questioning. They also are graded on their ability to critique and discuss other students’ presentations and defenses.

Exams: Exams will consist of brief definitions, short answers, problem solving, and short discussion/opinion questions.

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<td>Types of Plant-Associated Microbes: Well-studied Eukaryotic and Prokaryotic groups continued</td>
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<td>Week 6: Lecture 13</td>
<td>Mycorrhizae: arbuscule formation (structure and signals), commercial products</td>
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<tr>
<td>Week 6: Lecture 14</td>
<td>Special Lecture: comparison of Mycorrhizal and Rhizobial Symbioses</td>
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<tr>
<td>Week 7:</td>
<td>Review</td>
</tr>
<tr>
<td>Week 7:</td>
<td>Midterm exam</td>
</tr>
<tr>
<td>Week 7: Lecture 15</td>
<td>Biological Control 1: Principles of Biological Control: definition, history, discovery of disease suppressive soils and promise of biological control, goals and role in sustainable agriculture</td>
</tr>
<tr>
<td>Week 8:</td>
<td>Class activity (discuss exam and student project)</td>
</tr>
<tr>
<td>Week 8: Lecture 16</td>
<td>Biological Control 2: Antagonism, Competition, Predation/Parasitism</td>
</tr>
<tr>
<td>Week 8: Lecture 17</td>
<td>Biological Control 3: Induced resistance, Hypovirulence, Cross Protection</td>
</tr>
<tr>
<td>Week 8:</td>
<td>Literature discussion/class activity</td>
</tr>
<tr>
<td>Week 9</td>
<td>Spring Break!!! Have fun. Be safe.</td>
</tr>
<tr>
<td>Week 10: Lecture 18</td>
<td>Ramping up plant defenses, commercial applications</td>
</tr>
<tr>
<td>Week 10: Lecture 19</td>
<td>Commercialization/Integration of Biological Control: strategy to identify effective biological controls, formulation, production, registration</td>
</tr>
<tr>
<td>Week 10:</td>
<td>Literature discussion/class activity</td>
</tr>
<tr>
<td>Week 11: Lecture 20</td>
<td>The Use of Manure, Compost, Compost Extracts and Teas; Biofumigation and Green Manuring, Solarization and Mulching: benefits/detriments to plant nutrition, roles in disease suppression</td>
</tr>
<tr>
<td>Week 11: Lecture 21</td>
<td>Alternative controls that affect microbial populations</td>
</tr>
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<td>Week 11</td>
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<td>Genetically Modified Organisms</td>
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<td>Week 12: Lecture 23</td>
<td>Productions Systems</td>
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<tr>
<td>Week 12</td>
<td>Group Discussion: GMOs and Organic Agriculture</td>
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<tr>
<td>Week 13: Lecture 24</td>
<td>Food Safety: diversity of deleterious microbes, ecology and epidemiology of deleterious microbes on plants, GAPs</td>
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<tr>
<td>Week 13: Lecture 25</td>
<td>Probiotics</td>
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<tr>
<td>Week 13: Lecture 26</td>
<td>Grand Challenges in Agriculture</td>
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<tr>
<td>Week 14</td>
<td>Presentations on student paper</td>
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<tr>
<td>Week 14</td>
<td>Presentations on student paper</td>
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<tr>
<td>Week 15</td>
<td>Presentations on student paper; FINAL PAPER DUE</td>
</tr>
<tr>
<td>Week 15</td>
<td>Review for Final</td>
</tr>
<tr>
<td>Week 15</td>
<td>Final exam (not comprehensive)</td>
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Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and attach a course syllabus.

1. This request is submitted by the Department of Plant Pathology & Microbiology

2. Course prefix, number and complete title of course:
   PLPA 619 Plant-Associated Microorganisms

3. Course description (not more than 50 words): Basic concepts and current topics in plant-microbe interactions including the diversity of plant-associated microorganisms; the plant as a microbial environment; endophytes; microbial roles in plant nutrition and fitness; uses of microorganisms for improved plant health and sustainable agriculture; microbial roles in food safety and future challenges; discussion of current literature.

4. Prerequisite(s): Cross-listed with
   Basic Plant biology or plant ecology is recommended. Microbiology is helpful but not required.
   Cross-listed courses require the signature of both department heads.

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 289/489/689? □ 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)
   All Majors in the College of Agriculture and Life Sciences

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

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</table>

10. Approval recommended by:
   [Signature] 13 May 2013

   Head of Department Date

   Head of Department (if cross-listed course) Date

   Submitted to Coordinating Board by:
   [Signature] Date

   Director of Academic Support Services Date

   Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8836.
OAR/AS - 04/97
Syllabus
HORT619 - MEPS619 – PLPA619
Plant-Associated Microorganisms
Spring 2015

Instructor: Elizabeth (Betsy) Pierson, Ph.D.
Office: Room 427 HFSB
Office Phone: 862-1307
Email: EAPierson@tamu.edu
Office hours: By appointment
Class Time: 11:30-12:30 MWF
Class location: HFSB 101

Catalog description (50 words):
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Course Description:
HORT/MEPS/PLPA 619 Plant-Associated Microorganisms is a 3-credit lecture course.

Plant health is the net result of complex interactions between the plant and its environment. Essential components of this environment are the microorganisms living on and inside plants. Plant-beneficial microbes contribute to plant nutrition, affect plant herbivory, promote plant growth, and suppress plant disease. Detrimental microbes create food safety and plant disease problems. Understanding and manipulating plant-associated microbes represent key ecological control points for improving plant fitness.

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Prerequisites
An undergraduate class in basic plant biology or plant ecology is recommended. A previous course in microbiology is helpful, but not required.

Learning Outcomes or Course Objectives
The goals of this course are to:

- Foster an understanding of the diversity microorganisms associated with plants and the types of interactions between plants and microbes that promote plant health
- Foster an understanding of the plant as a microbial environment.
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</tr>
<tr>
<td>Week 6: Lecture 14</td>
<td>Special Lecture: comparison of Mycorrhizal and Rhizobial Symbioses</td>
</tr>
<tr>
<td>Week 7:</td>
<td>Review</td>
</tr>
<tr>
<td>Week 7:</td>
<td>Midterm exam</td>
</tr>
<tr>
<td>Week 7: Lecture 15</td>
<td>Biological Control 1: Principles of Biological Control: definition, history, discovery of disease suppressive soils and promise of biological control, goals and role in sustainable agriculture</td>
</tr>
<tr>
<td>Week 8:</td>
<td>Class activity (discuss exam and student project)</td>
</tr>
<tr>
<td>Week 8: Lecture 16</td>
<td>Biological Control 2: Antagonism, Competition, Predation/Parasitism</td>
</tr>
<tr>
<td>Week 8: Lecture 17</td>
<td>Biological Control 3: Induced resistance, Hypovirulence, Cross Protection</td>
</tr>
<tr>
<td>Week 8:</td>
<td>Literature discussion/class activity</td>
</tr>
<tr>
<td>Week 9</td>
<td>Spring Break!!!! Have fun. Be safe.</td>
</tr>
<tr>
<td>Week 10: Lecture 18</td>
<td>Ramping up plant defenses, commercial applications</td>
</tr>
<tr>
<td>Week 10: Lecture 19</td>
<td>Commercialization/Integration of Biological Control: strategy to identify effective biological controls, formulation, production, registration</td>
</tr>
<tr>
<td>Week 10:</td>
<td>Literature discussion/class activity</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Week 11: Lecture 20</td>
<td>The Use of Manure, Compost, Compost Extracts and Teas; Biofumigation and Green Manuring, Solarization and Mulching: benefits/detriments to plant nutrition, roles in disease suppression</td>
</tr>
<tr>
<td>Week 11: Lecture 21</td>
<td>Alternative controls that affect microbial populations</td>
</tr>
<tr>
<td>Week 11:</td>
<td>Literature discussion/class activity</td>
</tr>
<tr>
<td>Week 12: Lecture 22</td>
<td>Genetically Modified Organisms</td>
</tr>
<tr>
<td>Week 12: Lecture 23</td>
<td>Productions Systems</td>
</tr>
<tr>
<td>Week 12</td>
<td>Group Discussion: GMOs and Organic Agriculture</td>
</tr>
<tr>
<td>Week 13: Lecture 24</td>
<td>Food Safety: diversity of deleterious microbes, ecology and epidemiology of deleterious microbes on plants, GAPs</td>
</tr>
<tr>
<td>Week 13: Lecture 25</td>
<td>Probiotics</td>
</tr>
<tr>
<td>Week 13: Lecture 26</td>
<td>Grand Challenges in Agriculture</td>
</tr>
<tr>
<td>Week 14:</td>
<td>Presentations on student paper</td>
</tr>
<tr>
<td>Week 14:</td>
<td>Presentations on student paper</td>
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<tr>
<td>Week 14:</td>
<td>Presentations on student paper</td>
</tr>
<tr>
<td>Week 15:</td>
<td>Presentations on student paper; FINAL PAPER DUE</td>
</tr>
<tr>
<td>Week 15:</td>
<td>Review for Final</td>
</tr>
<tr>
<td>Week 15:</td>
<td>Final exam (not comprehensive)</td>
</tr>
</tbody>
</table>

**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 Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu.

**Academic Integrity Statement**

Aggie Honor Code “An Aggie does not lie, cheat, or steal or tolerate those who do.” Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M University community from the requirements or the processes of the Honor System. For additional information please visit: www.tamu.edu/aggiehonor/.

**Class Attendance:** Students are expected to attend class unless satisfactory evidence is presented to substantiate the reason for absence http://student-rules.tamu.edu/rule07.
Texas A&M University  
Departmental Request for a New Course  
Undergraduate • Graduate • Professional  
• Submit original form and attach a course syllabus.

1. Request submitted by (Department or Program Name): College of Science

2. Course prefix, number and complete title of course: SCEN 677-STEM Teaching Professional Development

3. Catalog course description (not to exceed 50 words):  
Center for Teaching Excellence (CTE) consultation and faculty mentoring in STEM teaching; course topic and syllabus design; learning outcomes and assessment; teaching methodology; reflection on teaching philosophy; reflection on teaching as research

4. Prerequisite(s):  
Graduate classification and approval of instructor

Cross-listed with: GEOS 677 & ENGR 677  
Stacked with:

Cross-listed courses require the signature of both department heads.

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 this course be repeated within the same semester?  
☐ Yes  ☑ No

7. This course will be:

a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)

N/A

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

Any PhD student in College of Science

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

9. Prefix | Course # | Title (excluding punctuation)  
---|---|---  
SCEN 677 | STEM-TEACHING-PROF-DEV  

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
<th>SCR</th>
<th>CIP and Fund Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>HIC Code</th>
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<tbody>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
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</tbody>
</table>

Approval recommended by:

Department Head or Program Chair (Type Name & Sign) Date 
Chair, College Review Committee Date 
Dean of College Date 

Submitted to Coordinating Board by:

Chair, GC or UCC Date 

Associate Director, Curricular Services Date Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu. 
Curricular Services – 3/10
Course title and number: SCEN 677 STEM Teaching Professional Development
Term: Spring 20XX
Meeting times and location: Specific Fridays listed in schedule, 3:00-5:00 p.m., Blocker 117

Course Description and Prerequisites
Description: Center for Teaching Excellence (CTE) consultation and faculty mentoring in STEM teaching; professional development in teaching; course topic and syllabus design; learning outcomes and assessment; teaching methodology; reflection on teaching philosophy; reflection on teaching as research
Prerequisites: Graduate classification and approval of instructor

Instructor Information
Name: Mark J. Zoran
Telephone number: 979.458.8001
Email address: zoran@science.tamu.edu
Office location: 514 Blocker

Name: Ra'sheedah Richardson
Telephone number: 979.845.0793
Email address: sheedah@tamu.edu
Office location: 109 Henderson

The format of the course will be interactive lecture as well as online, small group and large group discussion. Required readings will be posted in elearning and the expectation is that they will be read prior to the class session. (see schedule)

Learning Outcomes
By the end of this class, students will be able to:

• Apply principles of integrated course design in the development of a course within your discipline (alined learning outcomes, assessments and learning experiences/teaching methods)
• Develop a reflective and purposeful approach to teaching
• Develop a teaching philosophy statement
• Practice self-assessment and peer assessment of teaching

Grading Policies
Course is graded as pass/fail. Student attendance and completion of learning experiences and course assignments will be evaluated as passing utilizing rubrics. Examples of the teaching philosophy, peer review and syllabus rubrics are included with this syllabus.

Pass > or = 75 points; Fail < 75 points

Learning Experiences and Assignments

Online Discussion Forum (10 pts)
The online discussion forum provides you with opportunities to draw broader connections with teaching and learning topics, such as relating these topics to your personal experience in the classroom and linking these topics with the larger body of research in teaching and learning. Engagement in “frequent” and “quality” discussion, characteristic of graduate level work, is encouraged.
Philosophy of Teaching Statement (15 pts – first draft; 15 pts – final draft)
Each of us has a unique approach to teaching and most academic positions will require that you can articulate why you use the approach that you do. Documenting your teaching philosophy is a highly reflective process regarding what teaching and learning mean to you.

Classroom Teaching (40 pts)
Each of you will have an opportunity to design a module or section of content for a specific course in your discipline. You will either teach the content to a class of undergraduates or to a group of your graduate peers in this course. Each of these teaching experiences will be peer reviewed.

- You will choose your topic in collaboration with your faculty mentor in this course. The module will contain learning outcomes, an assessment, and a learning experience/teaching method capturing the interest of and challenging the students. The activity should include the following:
  - A lesson plan that communicates the learning outcomes, organization and activities of your session (10 pts)
  - Handouts or a bibliography of resources that you found useful in designing your session (10 pts)
  - Self-evaluation and reflection (It is preferred that supplementary materials such as results of feedback from the class and peer review forms be included with your self-evaluation and reflection.) (20 pts)
  - The self-evaluation and reflection, including supplementary materials, will be discussed with your faculty mentor and the CTE consultant as appropriate.

Syllabus for a Proposed Class in Your Discipline (20 pts)
You will compile a syllabus and a rationale for the course and statement of where the course fits into a larger program or degree. A short description of the situational factors (i.e., context, subject matter, student, instructor; Fink, 2005) should be included with the syllabus so the context is understood. The syllabus should contain learning outcomes, assessment methods and student experiences that will be incorporated into the course. Use the current TAMU required syllabus components. You will receive a rubric that outlines these requirements.

Create an open and safe classroom by doing your part. Please adhere to the following:

The Ten Components of a Thinking Environment
Time to Think by Nancy Kline

1. Attention: Listening with respect, interest and fascination.
2. Incisive Questions: Removing assumptions that limit ideas.
3. Equality: Treating each other as thinking peers.
   - Giving equal turns and attention.
   - Keeping agreements and boundaries
4. Appreciation: Practicing a five-to-one ratio of appreciation to criticism.
5. Ease: Offering freedom from rush or urgency.
6. Encouragement: Moving beyond competition.
7. Feelings: Allowing sufficient emotional release to restore thinking.
8. Information: Providing a full and accurate picture of reality.
9. Place: Creating a physical environment that says back to people, ‘You matter.’
10. Diversity: Adding quality because of the differences between us.
CLASS SCHEDULE/TOPICS/ASSIGNMENT DUE DATES
(This schedule is subject to change)
Note: All Readings can be found online at the TAMU elearning site.

<table>
<thead>
<tr>
<th>DAY</th>
<th>TOPIC</th>
<th>ESSENTIAL QUESTIONS</th>
<th>ASSIGNMENTS and DUE DATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1:</td>
<td>Course Intro – What will the semester bring?</td>
<td>Who are we as a cohort and how will that support our learning experience?</td>
<td>Teaching Philosophy Statement</td>
</tr>
<tr>
<td></td>
<td>Course Development Cycle</td>
<td>How do we promote learning through informed course design?</td>
<td>Reading: Integrated Course Design, Fink 2005</td>
</tr>
<tr>
<td></td>
<td>Teaching Philosophy</td>
<td></td>
<td>Reading: Constructive Alignment, Biggs 2003</td>
</tr>
<tr>
<td>Week 2:</td>
<td>Situational Factors/Learning Outcomes</td>
<td>Who are we teaching? What do we expect from them?</td>
<td>DUE: First Draft Teaching Philosophy Statement</td>
</tr>
<tr>
<td>Friday, 2/8</td>
<td>Bloom's Taxonomy</td>
<td></td>
<td>Bring: Situational Factors for Course Design</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reading: Bransford, Vye &amp; Bateman 2002</td>
</tr>
<tr>
<td>Week 3:</td>
<td>Intellectual Development of Scientists and Engineers</td>
<td>How does the intellectual development of undergraduate students effect how we teach?</td>
<td>Reading: Felder and Brent 2004 (I)</td>
</tr>
<tr>
<td>Friday, 2/22</td>
<td></td>
<td></td>
<td>DUE: Date for teaching session established and signed off by instructor</td>
</tr>
</tbody>
</table>
Americans with Disabilities Act (ADA)

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 Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

Academic Integrity

For additional information please visit: http://aggiehonor.tamu.edu

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


Course Changes
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
Submit original form and attachments

1. Request submitted by (Department or Program Name): Department of Ecosystem Science and Management
   ESSM 651 and BAEN 651

2. Course prefix, number and complete title of course: Graduate classification.
   GEOG 398 and RENR 444 or approval of instructor.

3. Change requested
   Attach a brief supporting statement for changes made to items 3a through 3d and 6 below.
   a. Prerequisite(s): From: ____________________________ To: _______________________
   b. Withdrawal (reason): ____________________________
   c. Cross-list with: ____________________________
   d. Change in course title and description. Enter complete current course title and current course description in item 5; enter proposed course title and proposed course description in item 6. Complete item 7 for change in title.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 7. Attach a course syllabus.

4. For informational purposes only, please indicate course number if this course will be stacked: ____________________________

5. Complete current course title and current catalog course description:
   Geographic Information Systems. (2-2) Credit 3. Design, planning and implementation of geographic information systems; computer hardware and software evaluation; practical experience in data entry, analysis and update of spatial and characteristic data; linkages of GIS and artificial intelligence; use of maps and remotely sensed data as data inputs. Prerequisites: GEOG 398 and RENR 444 or approval of instructor. Cross-listed with BAEN 651.

6. Complete proposed course title and proposed catalog course description (not to exceed 50 words):
   Geographic Information Systems for Resource Management. (2-2) Credit 3. Geographic Information System (GIS) approach to the integration of spatial and attribute data to study the capture, analysis, manipulation and portrayal of natural resource data; examination of data types/formats, as well as the integration of GIS with remote sensing and Global Positioning System; laboratory includes extensive use of GIS applications to conduct analyses of topics in natural resources. Prerequisites: Graduate classification. Cross-listed with BAEN 651.

7. a. As currently in course inventory:
   Prefix Course# Title (excluding punctuation) Lect Lab SCH CIP and Fund Code Admin Unit HCE Code Level
   ESSM 651 GEOGRAPHIC INFO SYSTEMS
   02 02 03 11 04 01 00 02 10 84 1 0 03 06 32 6

   b. Change to:
   Prefix Course# Title (excluding punctuation) Lect Lab SCH CIP and Fund Code Admin Unit Academic Year HCE Code Level
   ESSM 651 GEOG INFO SYS RES MGMT
   02 02 03 11 04 01 00 02 10 84 11 13 -1 14 0 03 06 32

   Approval recommended by:
   Dr. David Baltensperger Department Head or Program Chair (Type Name & Sign) 7/15/13
   Dr. Steve Scarr Department Head or Program Chair (Type Name & Sign) 7/15/13

   Submitted to Coordinating Board by:
   Associate Director, Curricular Services

   Date

   Date

   Effective Date
Introduction to Geographic Information Systems
ESSM 351/651 (also known as BAEN 651)
Fall 2012

Instructor: Dr. Rusty Feagin
Office: 221C Centeq Building B, 1500 Research Parkway
Phone: 862-2612
E-mail: feaginr@tamu.edu
TAs: Ricky Colón-Rivera, ricardojcolon@gmail.com
     Frances Toledo, frans1985@hotmail.com

Office Hours: By appointment. Please contact through e-mail.

Lecture: All Sections—MW 11:30 am -12:20 pm. Room HFSB 102

Labs: ESSM 351 Section 501--- T 8-10 am, Room HFSB 124
      ESSM 351 Section 502--- M 1-3 pm, Room HFSB 124
      ESSM 351 Section 503--- M 3-5 pm, Room HFSB 124
      BAEN/ESSM Section 601--- M 8-10 am, HFSB 124
      BAEN/ESSM Section 602--- T 3-5 pm, HFSB 124

Required Text: None.

Course Web Page and WebCT site: http://elearning.tamu.edu

Bus Route to Centeq: http://transport.tamu.edu

Attendance: Make-ups on class tests, quizzes, and lab homework assignments will not be allowed unless the student has a university-excused absence.

Late Work Policy: No late work accepted without a university-excused absence. If the student has a university-excused absence, assignments are worth full credit.

Prerequisites: None

Grading: A = 90-100, B = 80-89, C = 70-79, D = 60-69, F = 0-59

Undergraduates (FRSC 461)
Two Tests 40 pts. (20 pts. each)
Lab 60 pts.

Graduates (ESSM 651)
Two Tests 40 pts. (20 pts. each)
Lab 50 pts.
Term Project 10 pts.
Hi Theresa,

We already took care of this a week or so ago. The registrars office has already made the changes.

Plus we don't use BAEN any longer.

Heather

Heather Haliburton Janke’00
Senior Academic Advisor I
Ecosystem Science & Mgmt
322 ANIN Bldg.
Hjanke@tamu.edu
979.862.8993

Begin forwarded message:

From: Chris Wilson <a-wilson@tamu.edu>
Date: August 14, 2013, 8:46:19 PM CDT
To: Heather Janke <hjanke@tamu.edu>
Subject: Fwd: BAEN/ESSM 651

Does this mean anything to you?

Sent from my iPad

Begin forwarded message:

From: Theresa Nemec <tnemec@tamu.edu>
Date: August 14, 2013, 8:47:52 AM MDT
To: Stormy King <stoking@tamu.edu>, Chris Wilson <a-wilson@tamu.edu>
Subject: BAEN/ESSM 651

I talked to Sandra Williams and she indicated we will need separate forms for each course. I would like to have the forms by the end of the week if possible so I can get them on the GPC website. Thanks

Theresa Nemec
Administrative Assistant
College of Agriculture and Life Sciences
Texas A&M University
tnemec@tamu.edu

600 John Kimbrough Boulevard, Suite 515 | 2402 TAMU | College Station, TX 77843-2402

Tel. 979.847.6180 | Fax. 979.845.6083

http://aglifesciences.tamu.edu

Welcome to Aggieland
July 9, 2013

Dr. David Baltensperger
Head
Dept. Ecosystem Science & Management
2138 TAMU

Dr. Baltensperger,

I request that we alter the course description and pre-requisites for ESSM/BAEN 651, as it is out of date. We recently changed our curriculum and the stacked ESSM 351 now has a different description, so it would also be of benefit to coordinate the two graduate and undergraduate course descriptions. The old description for ESSM/BAEN 651 is over a decade old, and simply no longer reflects the course material in this rapidly evolving field. The pre-requisites are simply not valid, given that this is an introductory level course and the average student in today’s world is much more familiar with computers than they were a decade ago, hence making any prior experience with a computer irrelevant. The existence of a pre-requisite creates an undue burden on our advising and course registration for students every semester, thus it would be beneficial to remove it.

Sincerely,

[Signature]

Dr. Rusty A. Feagin
Associate Professor
Instructor for ESSM/BAEN 651
Dept. Ecosystem Science & Management
2138 TAMU
Texas A&M University
Departmental Request for a Change in Course
Undergraduate ♦ Graduate ♦ Professional
• Submit original form and attachments •

Form Instructions
1. Request submitted by (Department or Program Name): BIOLOGY
2. Course prefix, number and complete title of course: BOTN 685, BOTN 691, ZOOL 681, ZOOL 685, ZOOL 691

Attach a brief supporting statement for changes made to items 3a thru 3d, and 6 below.

3. Change requested
   a. Prerequisite(s): From: ___________________________ To: ___________________________
      We have eliminated all graduate programs in botany and zoology, and these degrees have been deleted by the
      Coordinating Board. We no longer offer any of the courses associated with these graduate degrees.
   b. Withdrawal (reason): Coordinating Board. We no longer offer any of the courses associated with these graduate degrees.
   c. Cross-list with: ____________________________________________
   d. Change in course title and description. Enter complete current course title and current course description in item 5; enter proposed
      course title and proposed course description in item 6. Complete item 7 for change in title.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 7. Attach a course syllabus.

4. For informational purposes only, please indicate course number if this course will be stacked: ___________________________

5. Complete current course title and current catalog course description: Directed Studies; Research; Seminar

6. Complete proposed course title and proposed catalog course description (not to exceed 50 words): N/A.

Please eliminate descriptions of the graduate degrees in botany and zoology from the catalog, as well. Thanks.

7. a. As currently in course inventory:
<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course #</th>
<th>Title (excluding punctuation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lect.</td>
<td>Lab</td>
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   b. Change to:
<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course #</th>
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   Approval recommended by:

   T.D. McKnight
   Department Head or Program Chair (Type Name & Sign) Date

   Chair, College Review Committee Date

   Department Head or Program Chair (Type Name & Sign) Date
   (if cross-listed course)

   Submitted to Coordinating Board by:
   Chair, GC or UCC Date

   Associate Director, Curricular Services Date
   Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 02/11
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
• Submit original form and attachments •

Form Instructions
1. Request submitted by (Department or Program Name): English

2. Course prefix, number and complete title of course: Engl 688/ Introduction to Comparative Literature

3. Change requested
   a. Prerequisite(s): From: ___________________________________________ To: ___________________________________________
   b. Withdrawal (reason): Graduate faculty no longer teach this course; it does not fulfill any degree distribution requirements
   c. Cross-list with: ___________________________________________

   Cross-listed courses require the signature of both department heads.

d. Change in course title and description. Enter complete current course title and current course description in item 5; enter proposed course title and proposed course description in item 6. Complete item 7 for change in title.

e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 7. Attach a course syllabus.

4. For informational purposes only, please indicate course number if this course will be stacked: ___________________________________________

5. Complete current course title and current catalog course description:

6. Complete proposed course title and proposed catalog course description (not to exceed 50 words):

7. a. As currently in course inventory:

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<tr>
<th>Prefix</th>
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<th>Title (excluding punctuation)</th>
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<td>INTRODUCTORY TO COMPARATIVE LIT</td>
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<td>Lect.</td>
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   b. Change to:

<table>
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<tr>
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<tr>
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<td>688</td>
<td>INTRODUCTORY TO COMPARATIVE LIT</td>
</tr>
<tr>
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<td>Lab</td>
<td>SCH</td>
</tr>
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<td>0</td>
<td>3</td>
<td>0</td>
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</tbody>
</table>

   Approval recommended by: ________________________________

   Nandini Bhattacharya
   7/18/13
   Department Head or Program Chair (Type Name & Sign)

   Patricia A. Hurley
   7/11/13
   Chair, College Review Committee

   ________________________________
   Patricia A. Hurley
   7/29/13
   Dean of College

   Submitted to Coordinating Board by:

   Chair, GC or UCC
   Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
Submit original form and attachments.

1. Request submitted by (Department or Program Name): Maritime Administration

2. Course prefix, number and complete title of course: MARA 650 Distribution Logistics

3. Change requested
   a. Prerequisite(s): From: ___________________________ To: ___________________________
   b. Withdrawal (reason): ___________________________
   c. Cross-list with: ___________________________
   d. Change in course title and description. Enter complete current course title and current course description in item 5; enter proposed course title and proposed course description in item 6. Complete item 7 for change in title.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 7. Attach a course syllabus.

4. For informational purposes only, please indicate course number if this course will be stacked: N/A

5. Complete current course title and current catalog course description:
Distribution Logistics
The course discusses contemporary distribution logistics and integrated supply chain management. Emphasis is given to customer service, transportation modes, inventory policies, warehousing, order processing, and optimizing the logistics gross margin.

6. Complete proposed course title and proposed catalog course description (not to exceed 50 words):
Supply Chain Management
The course discusses contemporary distribution logistics and integrated supply chain management. Emphasis is given to customer service, transportation modes, inventory policies, warehousing, order processing, and optimizing the logistics gross margin.

7. a. As currently in course inventory:

<table>
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b. Change to:

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<th>Title (excluding punctuation)</th>
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<tr>
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<td>SUPPLY CHAIN MANAGEMENT</td>
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<td>Lect.</td>
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Approval recommended by: Grant Miller 5-3-13

Department Head or Program Chair (Type Name & Sign) Date
Chair, College Review Committee 5-20-13

Department Head or Program Chair (Type Name & Sign) (If cross-listed course)
Dean of College 5-20-13

Submitted to Coordinating Board by:
Chair, GC or UCC 5-20-13

Associate Director, Curricular Services

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 02/11
Texas A&M University

Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
Submit original form and attachments •

Form Instructions:
1. Request submitted by (Department or Program Name): Materials Science and Engineering
2. Course prefix, number and complete title of course: MSEN 602 Advanced Materials Science and Engineering

3. Change requested
   a. Prerequisite(s): From: Undergraduate quantum mechanics or approval of instructor
   b. Withdrawal (reason): To: MSEN 604, undergraduate quantum mechanics course, or approval of instructor.
   c. Cross-list with:

   Cross-listed courses require the signature of both department heads.
   d. Change in course title and description. Enter complete current course title and current course description in item 5; enter proposed course title and proposed course description in item 6. Complete item 7 for change in title.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 7. Attach a course syllabus.
4. For informational purposes only, please indicate course number if this course will be stacked: 
5. Complete current course title and current catalog course description:

6. Complete proposed course title and proposed catalog course description (not to exceed 50 words):

7. a. As currently in course inventory:

   Prefix  | Course #  | Title (excluding punctuation) |
   _______ | ________  | ____________________________ |
   MSEN    | 602       | ADVANCED MATL. ENG

   Lect.  | Lab  | SCH | CIP and Fund Code | Admin. Unit | HCE Code | Level
   ______ | ______ | _____ | _____________ | __________ | ________ | _____
   0      | 4    | 0   | 4 01 1000         | 2059        | 003632    | 6

b. Change to:

   Prefix  | Course #  | Title (excluding punctuation) |
   _______ | ________  | ____________________________ |
   MSEN    | 602       | ADVANCED MATL. ENG

   Lect.  | Lab  | SCH | CIP and Fund Code | Admin. Unit | Acad. Year | HCE Code | Level
   ______ | ______ | _____ | _____________ | __________ | ________ | ________ | ______
   0      | 4    | 0   | 4 18 1000         | 61864141    | 15003632    | 6

Approval recommended by:
Ibrahim Karaman
Department Head or Program Chair (Type Name & Sign) Date 7/31/2012
Scott Miller
Chair, College Review Committee Date

NA
Department Head or Program Chair (Type Name & Sign) Date
(if cross-listed course)
Mark Zoran
Chair, GC or UCE Date

Submitted to Coordinating Board by:
Associate Director, Curricular Services Date
Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 02/11

Effective Date
MSEN 602 Advanced Materials Science and Engineering
Rationale for change in prerequisites

After MSEN 602 had been taught for a few years, it became apparent to the instructor, Dr. Donald Naugle, that graduate students with an engineering, versus a physics, background would benefit from a ramp-up course in modern physics, including quantum mechanics to prepare them for MSEN 602 Advanced Materials Science and Engineering. MSEN 604 was thus established.
Texas A&M University

Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
Submit original form and attachments

Form Instructions
1. Request submitted by (Department or Program Name): Political Science
2. Course prefix, number and complete title of course: POLS 603 Quantitative Political Analysis II

Attach a brief supporting statement for changes made to items 3 through 6 and 7 below.

3. Change requested
   a. Prerequisite(s): From: ___________________________ To: ___________________________
   b. Withdrawal (reason): ___________________________
   c. Cross-list with: ___________________________

Cross-listed courses require the signature of both department heads.

d. Change in course title and description. Enter complete current course title and current course description in item 5; enter proposed course title and proposed course description in item 6. Complete item 7 for change in title.

e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 7. Attach a course syllabus.

4. For informational purposes only, please indicate course number if this course will be stacked: ___________________________

5. Complete current course title and current catalog course description:

6. Complete proposed course title and proposed catalog course description (not to exceed 50 words):

7. a. As currently in course inventory:

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<thead>
<tr>
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<td>QUAN POL ANAL Y II</td>
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b. Change to:

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<th>Prefix</th>
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<th>Title (excluding punctuation)</th>
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</thead>
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<tr>
<td>POLS</td>
<td>603</td>
<td>QUAN POL ANAL Y II</td>
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<th>Lect.</th>
<th>Lab</th>
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<td>0</td>
<td>0 3 4 5 1 0 0 1</td>
<td>2 3 4 0</td>
<td>1 5 0 0</td>
<td>3 6 3 2</td>
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</tbody>
</table>

Approval recommended by:
James Rogers 9/26/13
Department Head or Program Chair (Type Name & Sign) Date
Chair, College Review Committee 9/26/13
Dean of College 9/30/13
Submit to Coordinating Board by:
Chair, GC or UCC Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
MEMORANDUM

To whom it may concern
From: Michelle M. Taylor-Robinson, Director of Graduate Studies, Dept. of Political Science
Re: Justification for change to POLS 603
Date: July 30, 2013

POLS 603 Quantitative Political Analysis is currently listed as a (2-2) Credit 3 course. However, the faculty who teach this course have all agreed that a 3 hour lecture format is preferable for teaching this material to a 2-2 format. For this reason we are requesting the course be changed to (3-0) Credit 3.
POLS 603: Quantitative Political Analysis II
Texas A&M University -- Fall 2013

Meeting time & location: Tuesdays, 12:45 - 15:35, Allen 2064
Instructor: Dr. Guy D. Whitten
Office: 2070 Allen Building
Telephone: (979) 845-2511
Email: whitten@polisci.tamu.edu
Office hours: by appointment

Course description and prerequisites: Introduction to advanced applications of quantitative analysis in political science; critical evaluation of the use of several advanced statistical techniques in political analysis. Prerequisite: POLS 602 or equivalent.

Political methodology is a rapidly-evolving field. The goal of this course is to provide students with the background necessary to understand and apply the ever-changing tools of the trade for empirical political science. We will start with an in-depth treatment of Ordinary Least Squares Regression models and then move to more complicated extensions. Throughout this course we will focus on the presentation of statistical results. Even the most exciting statistical results can be rendered useless if they are not effectively presented.

Learning outcomes: At the end of this course, students should be able to:
• utilize ordinary least squares regression models in their research.
• utilize time series models in their research.
• effectively present findings from statistical analysis.

Grades: Course grades will be based on performances on a midterm exam (20%), a final exam (35%), homework assignments and class participation (20%), and a final paper (25%).

• Grading scale: A = overall average of 89.5 or higher, B = 79.5 – 89.4, C = 69.5 – 79.4, D = 59.5 – 69.4, F = below 59.5

• Attendance policy: Attendance is required unless a student has a university acceptable excuse for their absence. Student Rule 7.3 states: Students may be excused from attending class on the day of a graded activity or when attendance contributes to a student’s grade, for the reasons stated in Section 7.1, or other reason deemed appropriate by the student’s instructor. Except in the case of the observance of a religious holiday, to be excused the student must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. In cases where advance notification is not feasible (e.g., accident, or emergency) the student must provide notification by the end of the second working day after the absence. This notification should include an explanation of why notice could not be sent prior to the class. Accommodations sought for absences due to the observance of a religious holiday can be sought either prior or after the absence, but not later than two working days after the absence. For more information see TAMU Student Rules at http://studentrules.tamu.edu/rule07

• Policy on late work: Late assignments lose a letter grade per day late (papers are due at the beginning of class on the assigned dates. Any time after that is considered late). If you have a university acceptable excuse that causes you to submit a paper late (e.g., illness with a note from a doctor), contact your professor by the second working day after your absence and the
late assignment will be accepted without penalty. For more information see TAMU Student Rules at http://student-rules.tamu.edu/rule07.

**Homework and class participation:** Homework assignments are an important part of methodology courses. Homework will be assigned at the end of each class meeting. We will start each class after the first meeting by going through the homework assigned from the previous class. Students will be also be expected to participate actively in class by asking and answering questions. Periodic quizzes on the course material will also be a part of this portion of the course grade.

**Final Paper:** Students will be expected to produce a paper in which they use one or more of the methods covered in this course to test an original political science theory. It is fine to have this paper also be submitted for credit in another course, as long as the student makes both instructors aware of this intention in advance. This paper must be solo-authored and is due at the beginning of the final exam.

**Analysis:** For most of the statistical work in this class, STATA will be required.


This book has the most comprehensive coverage of econometric techniques currently used by political scientists. It is, however, pitched at a mathematical level that many students find challenging during their second semester in our PhD program. In addition, Greene covers a wide range of topics that are not of general interest to political scientists. Thus, there will not always be perfect overlap between topics covered in the lectures and the textbook. The coverage and emphasis of materials in the lectures takes precedence over that of the textbook.

**Class Schedule:** We will spend as much time as necessary on each topic for this course. Because I am unable to predict in advance how long each topic will take, the schedule below is only a rough guideline. The timing of the exams will, however, not change without unanimous approval of a new time. It is expected that you will have attempted to read the assigned readings before the class period for which they are assigned.

Additional required readings will be announced during class meetings.

**Week 1 -- August 27 -- Scheduled Topics:**
- Course overview
- Introduction to matrix algebra

**Week 2 -- September 3 -- Scheduled Topics:**
- Introduction to OLS in matrix algebra

Readings: Read either or both of the following with particular attention to the topics covered in the August 27 lecture:
Week 3 & 4 -- September 10 & 17 -- No class meetings. Students will be expected to locate the data with which they intend to work in the course and to prepare an overview of these data for presentation.

Week 5 -- September 24 -- Scheduled Topics:
- OLS in practice I

Readings:
- Chapter 4 of Greene

Week 6 -- October 1 -- Scheduled Topics:
- OLS in practice II

Readings:
- Chapters 5-6 of Greene

Week 7 -- October 8 -- Scheduled Topics:
- OLS in practice III
- Review for midterm examination

Week 8 -- October 15 -- Midterm Examination

Week 9 -- October 22 -- Scheduled Topics:
- OLS in practice IV

Readings:
- Chapters 7-9 of Greene

Week 10 -- October 29 -- Scheduled Topics:
- Time Series Models I

Readings:
- Chapter 20 of Greene

Week 11 -- November 5 -- Visit by Skyler Cranmer, University of North Carolina. Class will be replaced by a research presentation and followed by an informal lunch with Dr. Cranmer. Scheduling details and readings TBA.

Week 12 -- November 12 -- Scheduled Topics:
- Time Series Models II
- Pooled Time Series Models

Readings:
- Chapter 21 of Greene

Week 13 -- November 19 -- Scheduled Topics:
• Discrete Choice I

Readings:
• Chapters 14 &17 of Greene

Week 14 -- November 26 -- Scheduled Topics:
• Discrete Choice II
• Review for final examination

Readings:
• Greene Chapter 18

December 3 -- Redefined Thursday -- no class meeting

Week 15 -- December __  -- Final Examination & final paper due

**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 Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu.

**Academic Integrity Statement and Policy:** Honor Code/Copyright and Plagiarism Statements

The Aggie Honor Code states: "An Aggie does not lie, cheat, or steal, or tolerate those who do." For more information see the Aggie Honor Code website at [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu)

The handouts and lectures used in this course are copyrighted. By “handouts," I mean all materials generated for this class, which include but are not limited to syllabi, exams, in-class materials, and
review sheets. Because these are copyrighted, you do not have the right to copy them, unless I expressly grant permission. In addition, I do not grant permission to tape class lectures.

"As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writings, etc., which belong to another. In accordance with the definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of the person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have any questions regarding plagiarism, please consult the Aggie Honor System Office website (http://aggiehonor.tamu.edu) or the latest version of the Texas A&M University Student Rules, under the section "Scholastic Dishonesty." Lectures can not be recorded without the permission of the instructor."
Special Consideration Items
June 20, 2013

To: Dr. Alan Sams
    Executive Associate Dean
    College of Agriculture and Life Sciences

       Dr. Mark J. Zoran
       Chair, Graduate Council

From: Dr. David Reed
       Associate Dean for Graduate Programs and Faculty Development
       College of Agriculture and Life Sciences

Subject: Ecology and Evolutionary Biology (EBB) Doctoral Program Proposal

The Graduate Program Council met on June 19, 2013 to discuss Ecology and Evolutionary Biology (EBB) new doctoral proposal. By a strong majority vote, the committee voted to approve the proposal.
Texas Higher Education Coordinating Board
New Doctoral Degree Proposal

Directions: An institution shall use this form to propose a new doctoral degree program. In completing the form, the institution should refer to Texas Administrative Code (TAC) 5.46 relating to Criteria for New Doctoral Programs. This form requires signatures of (1) the Chief Executive Officer, certifying adequacy of funding for the new program; (2) a member of the Board of Regents (or designee), certifying Board approval; and (3) if applicable, a member of the Board of Regents (or designee), certifying that criteria have been met for Coordinating Board staff-level approval.

Note: If an institution does not have Preliminary Authority for the proposed doctoral program, it must first submit a separate request for Preliminary Authority. That request shall address criteria set in TAC Section 5.24 (b).

Information: Contact the Division of Academic Affairs and Research at 512/427-6200.

Administrative Information

1. **Institution**: Texas A&M University – College Station

2. **Program Name** – Doctor of Philosophy (Ph.D.) in Ecology & Evolutionary Biology

3. **Proposed CIP Code**: 26.1310.00

4. **Program Description** – The fundamental theme of Ecology and Evolutionary Biology (EEB) is how organisms engage their environment, a question central to our understanding of how living systems work, how human minds and bodies work, and how the Earth works. The overall goal of the program is to provide rigorous disciplinary training in EEB, while taking advantage of the wide interdisciplinary expertise among EEB faculty and their departmental colleagues. All EEB students will be required to take a two-semester, team-taught core course in their first year, as well as a first-semester course focused on writing an NSF predoctoral fellowship application, and to attend a weekly EEB seminar. The remainder of the curriculum will be drawn from existing courses taught by EEB and departmental faculty.

5. **Administrative Unit** – Administrative Council

6. **Proposed Implementation Date** – Fall 2014

7. **Contact Person** – Provide contact information for the person who can answer specific questions about the program.

   Name: Dr. Gil Rosenthal

   Title: Associate Professor of Biology; Chair, Faculty of Ecology & Evolutionary Biology

   E-mail: grosenthal@bio.tamu.edu

AS/AP/Updated 10.14.09
Program Information

I. Need

A. Job Market Need
Ecology and evolutionary biology is a discipline that scrambles conventional disciplinary boundaries with the purpose of generating students that can provide modern solutions to the most important questions in the life sciences. Today students are confronted with the responsibility of answering questions like: How does the rapid evolution of harmful bacteria and viruses inform drug design and agricultural policy? How are endangered birds, tropical diseases, and crop pests responding to global climate change? How does evolutionary history influence human economic decisions, political behavior, and psychopathology? How do we deal with population growth that far exceeds resource availability? Employers are tasked with finding individuals that can span multiple conventional boundaries to answer such questions. Employment opportunities for EEB students are therefore widespread and include a number of careers in the life sciences that range from biomedical genomics, ecological and evolutionary genetics, neurobiology, conservation and sustainability science, as well as opportunities to specialize in conventional disciplines such as wildlife, fisheries, forestry, and entomology.

According to the Bureau of Labor Statistics, students with a doctoral degree in EEB are needed to fill a number of positions as scientists in the near future. EEB scientists (i.e. life scientists) are projected to increase 26.70%, which is one of the fastest growing occupations in the category of “Professional and Related Occupations” and is increasing at a greater rate than professional jobs as physical scientists (+15.12%), mathematical scientists (+19.79%), engineers (+11.35%), and healthcare practitioners (+21.35%). It is also expected that students with a doctoral degree in EEB from TAMU will be the strongest competitors for environmental positions in fields outside the life sciences. For example, EEB provides the foundation for students to fill positions as “environmental scientists and geoscientists,” the fastest growing occupation (+24.53%) as a physical scientist.

The key feature that makes an EEB degree program appealing to doctoral students and their employers is that it produces individuals that can fill multiple positions and are adaptable to future changes in job requirements. A student can be employed as a conservation scientist yet apply techniques typically used in evolutionary genetics, behavioral ecology, and/or biogeochemistry. Because of their background, that same student can fill a job in biogeochemistry yet apply their work in conservation and management. In contrast, the current academic infrastructure at TAMU relies heavily on conventional disciplinary boundaries, which largely restricts students to a narrow occupational area within the life sciences. One major weakness of such students is that they are poorly equipped to adapt to changes in the job market and work beyond the focus of their specialized training. Considering that the Bureau of Labor Statistics projects technical jobs will slightly decline in wildlife, fisheries, range, and forestry (see Appendix B), doctoral students specializing in these areas at TAMU may be charged with overcoming this weakness if projections are manifested at the level of professional degrees in the not-so-distant future. Subsequently, there is great demand among prospective and current students for broader training in ecology and evolutionary biology at TAMU.
B. **Student Demand**
The current lack of a degree-granting program in EEB is a recurring problem when it comes to recruiting outstanding graduate students. TAMU is unusual in not having such a program. The top 20 EEB programs in the US, according to rankings by the National Research Council, are located at universities in the top 100 of the Academic Ranking of World Universities. While TAMU is ranked #95, it is one of only ten US universities in the top 100 of the Academic Ranking of World Universities that do not offer an EEB program (estimate excludes two medical schools; see Appendix A). Since an EEB degree is consistently featured in the world’s highest ranked universities, outstanding students with an interest in ecology, evolution, and behavior are unlikely to even apply here unless they have been in contact with specific faculty. Faculty members serving on graduate admissions committees frequently see some of the best students opt for other universities because they are concerned that our specialized departmental programs do not fit their career-development needs.

Concerns over the lack of an EEB degree program are echoed by current doctoral students in EEB-affiliated departments at TAMU. Many have voiced that the lack of an EEB program is compromising their ability to compete for faculty positions at top academic institutions. In a recent survey taken by graduate students on the EEB student roster, 66% stated they would prefer an EEB degree over their current degree. As part of this survey, those students that preferred an EEB degree were given the opportunity to briefly outline why they chose an EEB degree over their current one. Two dominant responses were given: (1) EEB is more relevant to their research (66%), and (2) an EEB degree would improve their chances to acquire a job at the university of their choice (32%).

A degree program in EEB is also expected to enhance training of students in non-EEB disciplines. As one example, one of the main criticisms of environmental engineers, the second fastest growing specialization in engineering (+30.62%), is that they lack broader training in fundamental EEB concepts (Mitsch and Jorgensen 2004). The creation of an EEB degree program is expected to facilitate interactions among faculty and students in EEB and the Environmental Engineering Division of Emphasis in Civil Engineering. Many students from Environmental Engineering already enroll in specialized EEB classes and have expressed interest in broader training in EEB. The core course outlined in this proposal will help fill this demand and encourage future growth in this emerging trans-disciplinary field.

References

C. **Enrollment Projections** – Use this table to show the estimated cumulative headcount and full-time student equivalent (FTSE) enrollment for the first five years of the program. Provide an explanation of how headcount and FTSE numbers were determined.

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
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<tr>
<td><strong>New Students</strong></td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
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<tr>
<td><strong>Cumulative Headcount</strong></td>
<td>22</td>
<td>31</td>
<td>38</td>
<td>44</td>
<td>47</td>
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New student numbers were obtained by surveying program faculty as to how many EEB students they could support over a five-year period. Transfer students were estimated from responses of the current EEB students who indicated a wish to transfer to EEB, based on their academic qualifications and their expected date of graduation. We conservatively estimated actual numbers as approximately 60% of the self-reported responses.

II. Resources

A. Degree Requirements – Students entering with an undergraduate degree:

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<th>Category</th>
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<td>Prescribed Electives</td>
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<td>Free Electives</td>
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<tr>
<td>Dissertation</td>
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<td>Other (Specify, e.g., internships, clinical work)</td>
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<td>TOTAL</td>
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Students entering with a Master’s degree or equivalent:

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</tr>
<tr>
<td>Prescribed Electives</td>
<td>12</td>
</tr>
<tr>
<td>Free Electives</td>
<td>8</td>
</tr>
<tr>
<td>Dissertation</td>
<td>32</td>
</tr>
<tr>
<td>Other (Specify, e.g., internships, clinical work)</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>64</td>
</tr>
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</table>

B. Curriculum

i. Describe the proposed educational objectives of the program.

1. Students will acquire a broad understanding of the foundations of Ecology & Evolutionary Biology as a broad interdisciplinary field, with regards to conceptual background, theoretical underpinnings, empirical methodology, and practical application.

2. Students will receive specialized training in order to be able to apply cutting-edge approaches to their chosen dissertation topic.
3. Students will produce a written dissertation based on their original theoretical and/or empirical research, which is expected to result in at least three publications in peer-reviewed journals and multiple presentations at national and international meetings and to the general public.

ii. Use these tables to identify the required courses and prescribed electives of the program. Note with an asterisk (*) courses that would be added if the program is approved.

<table>
<thead>
<tr>
<th>Prefix and Number</th>
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<tr>
<td></td>
<td>EEB mini-courses (Appendix IV.A)*</td>
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<tr>
<td></td>
<td>First-year Graduate Orientation Seminar*</td>
<td>1</td>
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<td></td>
<td>EEB Colloquium Seminar*</td>
<td>6 (entering with BS/BA); 3 (entering with MS/MA)</td>
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<table>
<thead>
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<th>Prefix and Number</th>
<th>Prescribed Elective Courses (students entering from BS/BA)</th>
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<tr>
<td></td>
<td>Minimum of 9 credits total in at least two different</td>
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<tr>
<td></td>
<td>departments from the following categories (complete list</td>
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<tr>
<td></td>
<td>in Appendix IV.A): Quantitative, Ecology, and Evolution</td>
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<td>Journal clubs</td>
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<table>
<thead>
<tr>
<th>Prefix and Number</th>
<th>Prescribed Elective Courses (students entering from MS/MA)</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum of 6 credits total in at least two different</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>departments from two of the three following categories</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(complete list in Appendix IV.A): Quantitative, Ecology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and Evolution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Journal clubs</td>
<td>6</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Prefix and Number</th>
<th>Free Elective Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Students will choose free electives in conjunction</td>
<td>17 (entering with BS/BA); 8</td>
</tr>
<tr>
<td></td>
<td>with their committee chair and subject to approval</td>
<td>(entering with MS/MA)</td>
</tr>
<tr>
<td></td>
<td>of dissertation committee; free electives may include</td>
<td></td>
</tr>
<tr>
<td></td>
<td>formal courses or dissertation hours.</td>
<td></td>
</tr>
</tbody>
</table>

C. Faculty – Use these tables to provide information about Core and Support faculty. Add an asterisk (*) before the name of the individual who will have direct administrative responsibilities for the program. Add a pound symbol (#) before the name of any individual who has directed doctoral dissertations or master's theses. Add and delete rows as needed.
Faculty in this interdisciplinary program will be teaching courses on a rotating basis. Each faculty will contribute approximately 10% of the time to the program. (Core Faculty: Full-time tenured and tenure-track faculty who teach 50 percent or more in the doctoral program or other individuals integral to the doctoral program who can direct dissertation research. Support Faculty: Other full-time or part-time faculty affiliated with the doctoral program.)

<table>
<thead>
<tr>
<th>Name of Core Faculty and Faculty Rank</th>
<th>Highest Degree and Awarding Institution</th>
<th>Courses Assigned in Program</th>
<th>% Time Assigned to Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>#Alvarado-Bremer, Jaime; Associate Professor</td>
<td>PhD, University of Toronto</td>
<td>EEBX 601</td>
<td>10%</td>
</tr>
<tr>
<td>#Armitage, Anna; Associate Professor</td>
<td>PhD, University of California Los Angeles</td>
<td>EEBX 601</td>
<td>10%</td>
</tr>
<tr>
<td>*#Behmer, Spencer; Associate Professor</td>
<td>PhD, University of Arizona</td>
<td>EEBX 601</td>
<td>10%</td>
</tr>
<tr>
<td>#Boutton, Thomas; Regents Professor</td>
<td>PhD, Brigham Young University</td>
<td>EEBX 601</td>
<td>10%</td>
</tr>
<tr>
<td>#Cai, James; Assistant Professor</td>
<td>PhD, University of Hong Kong</td>
<td>EEBX 605</td>
<td>10%</td>
</tr>
<tr>
<td>#Campbell, Lisa; Professor</td>
<td>PhD, SUNY - Stony Brook</td>
<td>EEBX 605</td>
<td>10%</td>
</tr>
<tr>
<td>#Conway, Kevin; Assistant Professor</td>
<td>PhD, Saint Louis University</td>
<td>EEBX 605</td>
<td>10%</td>
</tr>
<tr>
<td>#Coulson, Robert; Professor</td>
<td>PhD, University of Georgia</td>
<td>EEBX 605</td>
<td>10%</td>
</tr>
<tr>
<td>#Criscone, Charles; Assistant Professor</td>
<td>PhD, Oregon State University</td>
<td>EEBX 605</td>
<td>10%</td>
</tr>
<tr>
<td>#Eubanks, Micky; Professor</td>
<td>PhD, Entomology University of Maryland</td>
<td>EEBX 603</td>
<td>10%</td>
</tr>
<tr>
<td>#Feagin, Rusty; Associate Professor</td>
<td>PhD, Texas A&amp;M University</td>
<td>EEBX 604</td>
<td>10%</td>
</tr>
<tr>
<td>#Fitzgerald, Lee; Professor</td>
<td>PhD, University of New Mexico</td>
<td>EEBX 604</td>
<td>10%</td>
</tr>
<tr>
<td>#Fujiwara, Masami; Assistant Professor</td>
<td>PhD, MIT/WHOI Joint Program</td>
<td>EEBX 602</td>
<td>10%</td>
</tr>
<tr>
<td>#Hamer, Gabriel; Clinical Assistant Professor</td>
<td>PhD, Michigan State University</td>
<td>EEBX 690</td>
<td>10%</td>
</tr>
<tr>
<td>#Hamer, Sarah; Assistant Professor</td>
<td>PhD, DVM, Michigan State University</td>
<td>EEBX 690</td>
<td>10%</td>
</tr>
<tr>
<td>#Hurtado, Luis; Assistant Professor</td>
<td>PhD, Rutgers University</td>
<td>EEBX 607</td>
<td>10%</td>
</tr>
<tr>
<td>#Jones, Adam; Associate Professor</td>
<td>PhD, University of Georgia</td>
<td>EEBX 607</td>
<td>10%</td>
</tr>
<tr>
<td>#Light, Jessica; Assistant Professor</td>
<td>PhD, Louisiana State University</td>
<td>EEBX 690</td>
<td>10%</td>
</tr>
<tr>
<td>#Marshall, Christopher; Associate Professor</td>
<td>PhD, University of Florida</td>
<td>EEBX 690</td>
<td>10%</td>
</tr>
<tr>
<td>#Mateos, Mariana; Assistant Professor</td>
<td>PhD, Rutgers University</td>
<td>EEBX 606</td>
<td>10%</td>
</tr>
<tr>
<td>#Medina, Raul; Assistant Professor</td>
<td>PhD, University of Maryland</td>
<td>EEBX 681</td>
<td>10%</td>
</tr>
<tr>
<td>#Moore, Georgianne; Associate Professor</td>
<td>PhD, Oregon State University</td>
<td>EEBX 681</td>
<td>10%</td>
</tr>
<tr>
<td>#Murphy, William; Associate Professor</td>
<td>PhD Tulsa University</td>
<td>EEBX 607</td>
<td>10%</td>
</tr>
<tr>
<td>#Olszewski, Thomas; Associate Professor</td>
<td>PhD, Pennsylvania State University</td>
<td>EEBX 606</td>
<td>10%</td>
</tr>
<tr>
<td>#Peterson, Markus; Associate Professor</td>
<td>PhD, Texas A&amp;M University</td>
<td>EEBX 606</td>
<td>10%</td>
</tr>
<tr>
<td>#Quigg, Antonietta; Associate Professor</td>
<td>PhD, Monash University, Australia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#Raymond, Anne; Professor</td>
<td>PhD, University of Chicago</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AS/AP/Updated 04.14.10
<table>
<thead>
<tr>
<th>Name</th>
<th>Highest Degree and Awarding Institution</th>
<th>Courses or Other Support Activity (e.g., Research Supervision) Assigned in Program</th>
<th>% Time Assigned to Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

D. **Student Recruitment** – Describe general recruitment efforts, including plans to recruit and retain students from underrepresented groups. We will recruit via our website (eeb.tamu.edu), announcements to professional society listservs, and distribution of electronic and print recruiting materials to EEB and life sciences programs nationwide. We will send representatives to the annual Pathways to the Doctorate symposium and will sponsor student and faculty recruiting visits to minority-serving institutions throughout the region. Outstanding applicants will be invited for a spring recruiting visit. Immediate association with a faculty sponsor and a “leveling” core course sequence will facilitate student retention.

E. **Student Financial Assistance** – Identify the number of full-time and part-time students who would be funded (*e.g.*, teaching assistantships, research assistantships, scholarships, etc.) and the anticipated amount of the stipends for the first five years. (*These costs should be reflected in the cost sheet as well.*) Department heads have indicated that interdisciplinary EEB students with departmental faculty as committee chairs will have access to
departmental teaching assistantships (see letters of support). Figures are based on surveys of EEB core faculty. Anticipated amounts will vary and depend on department and type of fellowship.

<table>
<thead>
<tr>
<th>Teaching Assistants</th>
<th># of students</th>
<th>20XX</th>
<th>20XX</th>
<th>20XX</th>
<th>20XX</th>
<th>20XX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>10</td>
<td>13</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Amount per student</td>
<td>$24,000</td>
<td>$24,000</td>
<td>$24,000</td>
<td>$24,000</td>
<td>$24,000</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Research Assistants</th>
<th># of students</th>
<th>10</th>
<th>13</th>
<th>16</th>
<th>18</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>24,000</td>
<td>$24,000</td>
<td>$24,000</td>
<td>$24,000</td>
<td>$24,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scholarships</th>
<th># of students</th>
<th>5</th>
<th>8</th>
<th>9</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$24,000</td>
<td>$24,000</td>
<td>$24,000</td>
<td>$24,000</td>
<td>$24,000</td>
</tr>
</tbody>
</table>

F. Admissions Standards
Prospective students may apply to the Interdisciplinary Graduate Program in Ecology & Evolutionary Biology through the TAMU Office of Graduate Studies. The overall graduate admission criteria are based on the entire record of the applicant and availability of departmental resources. Admission to the Interdisciplinary Graduate Program in EEB will be based upon the following criteria:

1) Hold a four-year baccalaureate degree from a college or university of recognized standing (i.e., a degree recognized as equivalent to a baccalaureate degree from an accredited institution in the U.S.),

2) Show promise of intellectual and academic ability, as evidenced by a minimum of three letters of recommendation from persons capable of judging the applicant's capabilities, a Statement of Purpose essay, an overall evaluation of the student's transcript, and the grade point average in the last 60 hours of coursework.

3) Submit, with application, scores on the General Test of the Graduate Record Examination (GRE), which will be evaluated in a manner that complies with House Bill 1641.

4) Demonstrate research aptitude in the form of prior research experience, presentations at professional meetings, and/or publications in the scientific literature.

5) an applicant from another country seeking admission to graduate studies must demonstrate the ability to read, write, speak, and understand the English language. Prospective students whose native language is not English must take the Test of English as a Foreign Language (TOEFL), which is administered by the Educational Testing Service in over 200 centers around the world. All applicants from non-English-speaking countries must present a computer-based TOEFL score of at least 213 to be admitted to graduate studies at the University.
6) Importantly, each EEB applicant must identify a prospective faculty sponsor who must provide a letter of support. Students will only be admitted if an EEB core faculty member agrees to serve as committee chair for the student.

EEB at TAMU is structured to attract and train top students who otherwise would enroll in EEB programs at other elite institutions. Accordingly, admissions standards will be more stringent than those for existing departmental programs. The EEB GRAC (Graduate Recruiting and Admissions Committee) will evaluate each application. Funding will be allocated to invite the top 10 candidates each year will for in-person interviews on campus.

G. Teaching Load – Indicate the targeted teaching load for core faculty supporting the program. (Teaching load: Total number of semester credit hours in organized teaching courses taught per academic year by core faculty divided by the number of core faculty in the prior year.) As an Interdisciplinary Degree Program, EEB will incur only modest additional teaching load for participating faculty, who will teach on a rotating basis. On average, 15 credit hours per year/44 faculty = .34 credit hours/faculty/year.

H. Candidacy/Dissertation:
Schedule and Requirements.
EEB students will be expected to fulfill the following requirements:

1) Successfully complete the two-semester EEB Core Course sequence in the first year.
2) Successfully complete a Graduate Research Seminar in the first year.
3) Pass the EEB Qualifying Examination at the end of the first academic year.
4) Establish a Dissertation Advisory Committee and file a graduate degree plan by the end of the third semester.
5) Pass the Preliminary Exam to be administered by the advisory committee plus an EEB "rover" by the end of the fifth semester. (This is an exam of knowledge as well as a formal defense of the proposed PhD dissertation research).
6) Register for a journal club or the weekly EEB seminar while in residence in College Station.
7) Continued participation in EEB seminars and related events (e.g., EIS) throughout the student’s tenure on campus.
8) Submission of annual progress reports and annual meeting with Dissertation Advisory Committee.

Qualifying Examination. At the end of their first year, after completing the Core Course and Graduate Research Seminar, all EEB students will be required to participate in a Qualifying Examination. The Qualifying Examination is intended to: 1. Determine whether a student has the preparation, intellectual capacity, and professional attitude to complete a Ph.D. program successfully; 2. Explore deficiencies in the student’s background and training in order to plan additional course work that may be needed; 3. Assess the student’s verbal and written English competency. The examination will consist of written and oral components to be evaluated by a committee to be assigned by the EEB curriculum committee representing a cross-section of departments. The committee can mandate additional coursework that must be completed before the student can defend the dissertation proposal.

Dissertation Advisory Committee. The dissertation advisory committee should conform to the general requirements of Texas A&M University (page 163 of the 2010-2011 TAMU Graduate Catalog). At least one half of a student’s committee must be EEB faculty or associates.

Proposal defense. The Preliminary Examination should conform to the general requirements of Texas A&M University (page 165 of the 2010-2011 TAMU Graduate Catalog). The Preliminary Exam is
administered after the student has essentially completed his/her course work and after successfully passing the Qualifying Exam. The exam will include both a defense of the proposed PhD research and questioning that enables the committee to assess the student’s mastery of the field. The examination of knowledge is intended to determine the student’s understanding of his/her chosen field of specialization ("depth") as well as general knowledge across Ecology and Evolutionary Biology ("breadth").

The exam shall be composed of a written thesis proposal and an oral exam. Student preparation of proposals can and should be guided by their committee members, and the proposal’s content should be discussed in earlier committee meetings. The proposal should be in a standard format (i.e., appropriate for submission to a funding agency) ~5-15 pages of text, abstract, references, and figures. Students will submit their proposal to committee members five working days prior to the oral exam, and one copy of the proposal will reside in the official student file. Individual members of the advisory committee may request that the student prepare answers to written questions; such written questions should be administered through the student’s primary advisor in accordance with instructions from the committee member (open versus closed book, time limit, etc.). Written questions should be provided to the primary advisor no less than ten working days before the scheduled oral exam and answers should be returned to the committee member no less than five working days before the scheduled oral exam. Committee members opting not to apply a written question should inform the student’s primary advisor.

The oral exam will include both a defense of the proposal and questioning that enables the committee to assess the student’s mastery of their field and EEB breadth. At the discretion of the advisor and committee members, students may present the key elements of their thesis proposal in a short (10-15 minute) oral presentation.

**Annual Progress Report.** All EEB students are required to submit an annual progress report at the end of the spring semester. The report should consist of course taken (and grades earned), papers published, talks presented, proposals submitted and funded (including both scholarships and research), courses taught or TA’d, and any other activities relevant to good standing in the EEB program (e.g., serving on the organizing committee of the annual TAMU Ecological Integration Symposium). The report will be filed as part of the student’s record and used to track progress as well as serve as a basis for information for scholarships and other such opportunities. Failure to submit a report will result in dismissal from the EEB program. After a student’s Dissertation Advisory Committee has been approved by the University, the student is required to meet with that committee to present progress at least once per year. The Preliminary Exam may be counted as the annual meeting.

I. **Use of Distance Technologies**: The majority of required EEB core courses will be available for distance learning with TAMUG. Major courses (the EEB core, the first-year seminar, and the research seminar) will be provided through distance learning technology (e.g., TVTVN interactive video, Saba Centra web conferencing, or Camtasia Relay lecture capture system). To share the diversity of courses offered at the participating entities (TAMU and TAMUG), EEB students will be able to take additional distance education courses available from TAMU or TAMUG. Distance education will also be available in smaller journal clubs through Skype sessions between TAMU and TAMUG.

J. **Library Resources** – *Provide the library director's assessment of both paper and electronic library resources for the program. Describe plans to build the library holdings to support the program. A letter of support from the library director is attached. TAMU has outstanding holdings in EEB.*
<table>
<thead>
<tr>
<th>Subject</th>
<th>Subsubject</th>
<th>Call number range</th>
<th>Last 3 years - Evans</th>
<th>Last 3 years - MSL</th>
<th>Shelf count Evans</th>
<th>Shelf count MSL</th>
<th>Shelf count total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental sciences</td>
<td>Paleontology</td>
<td>GE 1-350</td>
<td>616</td>
<td>0</td>
<td>1924</td>
<td>1</td>
<td>1925</td>
</tr>
<tr>
<td>Human ecology</td>
<td>Paleontology</td>
<td>GF 1-900</td>
<td>285</td>
<td>0</td>
<td>1818</td>
<td>3</td>
<td>1821</td>
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<tr>
<td>Geology</td>
<td>Paleozoology</td>
<td>QE701-760</td>
<td>84</td>
<td>0</td>
<td>2802</td>
<td>0</td>
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<tr>
<td></td>
<td>Paleobotany</td>
<td>QE760.8-899.2</td>
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<td>1</td>
<td>1422</td>
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<td>0</td>
<td>594</td>
<td>0</td>
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<tr>
<td>Natural history-biology</td>
<td>Evolution</td>
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<td>3</td>
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<td></td>
<td>Ecology</td>
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<td>487</td>
<td>4</td>
<td>6240</td>
<td>99</td>
<td>6339</td>
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<tr>
<td>Botany</td>
<td></td>
<td>QK1-989</td>
<td>919</td>
<td>33</td>
<td>21808</td>
<td>147</td>
<td>21955</td>
</tr>
<tr>
<td>Zoology</td>
<td></td>
<td>QL1-991</td>
<td>1918</td>
<td>208</td>
<td>45299</td>
<td>2495</td>
<td>47794</td>
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<tr>
<td>Physiology</td>
<td>General physiology</td>
<td>QQ1-345</td>
<td>450</td>
<td>49</td>
<td>11517</td>
<td>203</td>
<td>11720</td>
</tr>
<tr>
<td></td>
<td>Microbial ecology</td>
<td>QR100-130</td>
<td>69</td>
<td>8</td>
<td>762</td>
<td>29</td>
<td>791</td>
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<tr>
<td>Microbiology</td>
<td>Microorganisms in the animal body</td>
<td>QR171</td>
<td>8</td>
<td>0</td>
<td>29</td>
<td>0</td>
<td>29</td>
</tr>
<tr>
<td>Physiology</td>
<td>Human physiology</td>
<td>QT104-172</td>
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<td>36</td>
<td>250</td>
<td>250</td>
<td>250</td>
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<tr>
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<td>Microbiology</td>
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<td>164</td>
<td>1480</td>
<td>1480</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>5101</strong></td>
</tr>
</tbody>
</table>

K. **Facilities and Equipment** – Texas A&M has world-class natural history collections, including the Texas Cooperative Wildlife Collection, the Entomology insect collection, and the Tracy Herbarium. EEB will facilitate coordination and communication among these collections. TAMU has marine laboratory facilities at TAMU-Galveston as well as greenhouses, experimental agricultural plots, and vivarium facilities in College Station. The Borlaug Center has state-of-the-art facilities for evolutionary and ecological genomics, and additional resources are available in the Biology Core facility, the Molecular Phylogenetics facility, and the Texas Institute for Preclinical Studies. International facilities include the Soltis Center in Costa Rica and the Amazon Field School in Peru. The Stable Isotopes for Biosphere Science Laboratory conducts isotopic analysis of organic and inorganic materials in terrestrial, aquatic, and marine ecosystems.

L. **Accreditation** – No accreditation procedures exist for EEB.

M. **Program Evaluation** – The Administrative Council will develop an appropriate annual review process to evaluate the program’s impact. This assessment will likely include annual reviews by the internal advisory council and the executive committee, conducted in conjunction with annual university reports on interdisciplinary programs. This review will include evaluations of graduate recruitment, retention, curriculum, and faculty. Regarding faculty teaching, research, and service to the EEB program, results of the review will be shared with related department heads to incorporate into tenure, promotion, recognition, and annual report deliberations.

Annual evaluations of the program will be conducted in a timely fashion to assure proper assessment of the previous year’s activities and to ensure adequate funding for future activities. An annual report will be compiled that includes all of the information addressed.
above, as well as assessment of education, community, outreach, and diversity goals of the program.

Annual reviews of the interdisciplinary program will involve assessment of the Interdisciplinary Program in Ecology & Evolutionary Biology. Results will be presented to the Administrative Council. We anticipate an external review of the program every 5 years, as is mandated for all TAMU graduate programs. During this review, a panel of 3-5 internationally recognized ecologists and evolutionary biologists, each associated with an EEB training program, will assess the quality of the educational and scientific products of the program. They will then site-visit TAMU in order to evaluate the program in person. This external review board will be asked to provide a report of the program's progress and recommendations as to whether the program should continue and, if so, what changes should be made to improve it.

N. Related and Supporting Programs – Use this table to list all undergraduate and graduate programs within the same 2-digit CIP code that would undergird the proposed program. Include enrollment, number of graduates, graduation rate, and average time to degree for the last five years. Calculate the program graduation rate starting at the time a student takes the first course in his or her major outside the core curriculum. (Add and delete rows as needed.)

<table>
<thead>
<tr>
<th>Program</th>
<th>Year</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS in Entomology</td>
<td>Enrollment</td>
<td>26</td>
<td>32</td>
<td>38</td>
<td>38</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td># of Graduates</td>
<td>21</td>
<td>41</td>
<td>20</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Graduation Rate</td>
<td>No initial cohort</td>
<td>100%</td>
<td>100%</td>
<td>37.5%</td>
<td>66.7%</td>
</tr>
<tr>
<td>BS in Biology</td>
<td>Enrollment</td>
<td>1027</td>
<td>1134</td>
<td>1112</td>
<td>1043</td>
<td>1092</td>
</tr>
<tr>
<td></td>
<td># of Graduates</td>
<td>220</td>
<td>203</td>
<td>235</td>
<td>260</td>
<td>186</td>
</tr>
<tr>
<td></td>
<td>Graduation Rate</td>
<td>33.4%</td>
<td>31.6%</td>
<td>34.8%</td>
<td>34.3%</td>
<td>29.6%</td>
</tr>
<tr>
<td>BS in WL &amp; FS-Vertebrate Zoology</td>
<td>Enrollment</td>
<td>32</td>
<td>26</td>
<td>40</td>
<td>54</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td># of Graduates</td>
<td>10</td>
<td>14</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Graduation Rate</td>
<td>56.4%</td>
<td>46.3%</td>
<td>33.3%</td>
<td>56.4%</td>
<td>57.8%</td>
</tr>
<tr>
<td>BS in Zoology</td>
<td>Enrollment</td>
<td>99</td>
<td>117</td>
<td>102</td>
<td>87</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td># of Graduates</td>
<td>15</td>
<td>17</td>
<td>18</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Graduation Rate</td>
<td>23.7%</td>
<td>21.4%</td>
<td>27.8%</td>
<td>30.0%</td>
<td>No graduates in cohort</td>
</tr>
<tr>
<td>PhD in Biology</td>
<td>Enrollment</td>
<td>41</td>
<td>47</td>
<td>63</td>
<td>74</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td># of Graduates</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>PhD in Entomology</td>
<td>Enrollment</td>
<td>26</td>
<td>32</td>
<td>38</td>
<td>38</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td># of Graduates</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>PhD in Zoology</td>
<td>Enrollment</td>
<td>17</td>
<td>19</td>
<td>18</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td># of Graduates</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
O. **Graduation Rates** – Use this table to show the institution’s total number of graduates and comprehensive graduation rates from undergraduate and graduate programs in each of the last five years.

### University Graduation Rate Data

<table>
<thead>
<tr>
<th>Degree Year</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Undergraduate Programs</strong>&lt;sup&gt;(1)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Graduates</td>
<td>8117</td>
<td>8311</td>
<td>8451</td>
<td>8748</td>
<td>9020</td>
</tr>
<tr>
<td>Graduation rate: 4-year</td>
<td>46.0%</td>
<td>49.8%</td>
<td>48.7%</td>
<td>50.9%</td>
<td>50.9%</td>
</tr>
<tr>
<td>(cohort year)</td>
<td>2004</td>
<td>2005</td>
<td>2006</td>
<td>2007</td>
<td>2008</td>
</tr>
<tr>
<td>Graduation rate: 6-year</td>
<td>78.3%</td>
<td>79.7%</td>
<td>79.5%</td>
<td>80.4%</td>
<td>79.6%</td>
</tr>
<tr>
<td>(cohort year)</td>
<td>2002</td>
<td>2003</td>
<td>2004</td>
<td>2005</td>
<td>2006</td>
</tr>
<tr>
<td><strong>All Masters Programs</strong>&lt;sup&gt;(2)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Graduates</td>
<td>1930</td>
<td>2015</td>
<td>2051</td>
<td>2231</td>
<td>2105</td>
</tr>
<tr>
<td>Grad rate: 4-year</td>
<td>84.3%</td>
<td>85.9%</td>
<td>86.3%</td>
<td>71.6%</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>All Doctoral Programs</strong>&lt;sup&gt;(2)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Graduates</td>
<td>594</td>
<td>597</td>
<td>578</td>
<td>618</td>
<td>678</td>
</tr>
<tr>
<td>Graduation rate: 6-year</td>
<td>60.6%</td>
<td>57.2%</td>
<td>55.3%</td>
<td>56.2%</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<sup>(1)</sup> Source: DARS studies from published website data

<sup>(2)</sup> Source: internal DARS studies

P. **Existing Doctoral Programs** –


(b) Describe how the data represent the current quality of the institution’s existing doctoral programs. TAMU is a Tier 1 research university with over 10,000 graduate students enrolled. As described above, the lack of an EEB program represents a major gap in what is otherwise a very robust set of graduate programs in the sciences.

(c) Describe how existing closely-related doctoral programs would enhance and complement the proposed program. The existing doctoral programs in Wildlife & Fisheries Science, Entomology, Rangeland Ecology & Management, Biology, and Genetics all offer courses that are relevant to EEB. One of the factors that will greatly facilitate the establishment of a successful EEB PhD is that most of the major components are in place, in doctoral programs that have a different academic focus.

Q. Describe how the proposed doctoral program fits into the institution’s overall strategic plan, and provide the Web link to the institution’s strategic plan.

The Texas A&M strategic plan is available at: [http://provost.tamu.edu/strategic-planning-2010](http://provost.tamu.edu/strategic-planning-2010).

The Texas A&M strategic plan, known as “Vision 2020”, is designed to elevate TAMU to one of the country’s top 20 public universities within the next twelve years. Our EEB group is already in this league, but we need a nationally-recognized, formal identity in order to be perceived as such. The integrative nature of EEB means that increased prestige and increased quality of students is likely to have a ripple effect, and increase the overall quality of the life sciences at TAMU.
In order to achieve Vision 2020, 12 overarching ideas, known as "The twelve imperatives” have been defined. Our proposed EEB degree program would greatly strengthen Texas A&M in a several of these crucial areas:

**Elevate our Faculty and their Teaching, Research and Scholarship:**
"We need to increase drastically the size of our faculty, and we must attract and retain many more top scholars, teachers and researchers”

Our Texas A&M faculty is elevated through the recruitment of the most promising (young) scholars in their field. The lack of an EEB program is a concern for new faculty recruits, who are also choosing between TAMU and institutions with degree-granting programs in their area of research. A degree program in EEB would instantly put our faculty on the international radar and make us seriously competitive with top-20 institutions. Faculty recruitment and retention in EEB is also negatively affected by our inability to compete for the best and brightest graduate students in the field because we lack an EEB degree program (see below).

**Strengthen our Graduate Program:**
"We must create a dynamic, exciting, discovery-driven intellectual environment that will draw superior graduate students, comparable to those in the nation's best graduate programs”

The current lack of a degree-granting program in EEB is a recurring problem when it comes to recruiting these outstanding graduate students. TAMU is unusual in not having such a program, and students with an interest in EEB are unlikely to even apply here unless they have been in contact with specific faculty. Those of us who serve on graduate admissions committees frequently see some of the best students opt for another university because they are concerned that a departmental program doesn’t fit their career-development needs.

A degree granting program in EEB would greatly improve the quality of the education graduate students in this field would receive at Texas A&M. This would occur both through offering courses specifically designed for the EEB students, as well as through the integration of the EEB graduate student body into a single unit, with greatly increased interaction of students with their peers and faculty with related interests.

**Build the Letters, Arts and Sciences Core:**
"It is abundantly clear that we will never be seen as a premier institution nationally without a far stronger letters, arts and sciences core”

EEB is a core research area within the life sciences. As amply argued in E.O. Wilson’s “Consilience” (1998), EEB is in a very real sense the intellectual “glue” that holds the life sciences together and connects them with the social sciences. The vast majority of the top 100 research universities in the US have either EEB departments, or offer an EEB graduate degree, and our national reputation is seriously undermined by our lack of one. An EEB degree program would strengthen both this core research area as well as greatly improve the reputation and visibility of Texas A&M within the entire life sciences field.

**Diversify and Globalize the A&M Community**
"The ability to succeed is increasingly linked to the development of a more pluralistic, diverse and globally aware environment. It is essential that faculty, students and larger campus community embrace this more cosmopolitan environment”

EEB members do field work all over the world and engage in intellectual collaborations with colleagues worldwide; further, they interact with governments and NGO to implement policies relevant to conservation, agriculture, and natural research management. EEB faculty are often TAMU’s face to the world, and offer graduate and undergraduate students a full spectrum of cultural experiences in places where tourists seldom tread. TAMU’s position a short drive away from the Latin American tropics has made us an international center of research in tropical biology. Twenty of us base a substantial portion of our research there, and we have recruited numerous graduate students and postdocs from Latin America. Hence to strengthen the EEB program is to strengthen TAMU’s global network of research and collaboration.

**III. Costs and Funding**
Five-Year Costs and Funding Sources – On the attached forms, provide estimates of new costs to the institution related to the proposed program and provide information regarding sources of the funding that would defray those costs.

IV. Required Appendices

A. Course Descriptions and Prescribed Sequence of Courses
B. Curricula Vitae for Core Faculty
C. Curricula Vitae for Support Faculty – N/A
D. Five-Year Faculty Recruitment Plan/Hiring Schedule
E. Institution’s Policy on Faculty Teaching Load
F. Itemized List of Capital Equipment Purchases during the past five years
G. Librarian’s Statement of Adequate Resources

V. Recommended Appendices

A. Letters of Support
Signature Page

1. Adequacy of Funding – The chief executive officer shall sign the following statement:

   I certify that the institution has adequate funds to cover the costs of the new program. Furthermore, the new program will not reduce the effectiveness or quality of existing programs at the institution.

   ___________________________  ___________________________
   Chief Executive Officer         Date

2. Board of Regents Approval – A member of the Board of Regents or designee shall sign the following statement:

   On behalf of the Board of Regents, I certify that the Board of Regents has approved the program.

   ___________________________  ___________________________
   Board of Regents (Designee)    Date of Approval

3. Board of Regents Certification of Criteria for Commissioner or Assistant Commissioner Approval – For a program to be approved by the Commissioner or the Assistant Commissioner for Academic Affairs and Research, the Board of Regents or designee must certify that the new program meets the criteria under Texas Administrative Code (TAC) Section 5.50 (b) and (c). The criteria are:

   TAC §5.50(b):
   (1) be within the institution’s current Table of Programs;
   (2) have a curriculum, faculty, resources, support services, and other components of a degree program that are comparable to those of high quality programs in the same or similar disciplines at other institutions;
   (3) have sufficient clinical or in-service sites, if applicable, to support the program;
   (4) be consistent with the standards of the Commission of Colleges of the Southern Association of Colleges and Schools and, if applicable, with the standards or discipline-specific accrediting agencies and licensing agencies;
   (5) attract students on a long-term basis and produce graduates who would have opportunities for employment; or the program is appropriate for the development of a well-rounded array of basic baccalaureate degree programs at the institution;
   (6) not unnecessarily duplicate existing programs at other institutions;
   (7) not be dependent on future Special Item funding;
   (8) have new five-year costs that would not exceed $2 million;

   TAC §5.50 (c)
   (1-2) be in a closely related discipline to an already existing doctoral program(s) which is productive and of high quality;
   (3) have core faculty that are already active and productive in an existing doctoral program;
   (4) have received no objections from other institutions during the 30-day comment period; and
   (5) have a strong link with workforce needs or the economic development of the state.

   On behalf of the Board of Regents, I certify that the new program meets the criteria specified under TAC Section 5.50 (a and b).

   ___________________________  ___________________________
   Board of Regents (Designee)    Date
## COSTS TO THE INSTITUTION OF THE PROGRAM/ADMINISTRATIVE CHANGE

Note: Use this chart to indicate the dollar costs to the institution that are anticipated from the change requested.

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Cost Sub-Category</th>
<th>Before Approval Year*</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Year</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; Year</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Salaries</td>
<td>(New)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>(Reallocated)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Program Administration</td>
<td>(New)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Reassignments)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Assistants</td>
<td>(New)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Reallocated)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clerical/Staff</td>
<td>(New)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Reallocated)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplies &amp; Materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library &amp; IT Resources**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (Identify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Include costs incurred for three years before the proposal is approved by the Board (e.g., new faculty, library resources, equipment, facilities remodeling, etc.).
** IT = Instructional Technology

Explanations:

AS/AP/Updated 10.14.09
# ANTICIPATED SOURCES OF FUNDING

Note: Use this chart to indicate the **dollar amounts** anticipated from various sources. Use the reverse side of this form to specify as completely as possible each non-formula funding source.

<table>
<thead>
<tr>
<th>Funding Category</th>
<th>1st Year</th>
<th>2nd Year</th>
<th>3rd Year</th>
<th>4th Year</th>
<th>5th Year</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Formula Income*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$1,939,747.39</td>
</tr>
<tr>
<td>II. Other State Funding*</td>
<td>$130,000</td>
<td>$130,000</td>
<td>$30,000</td>
<td>$30,000</td>
<td>$30,000</td>
<td>$350,000</td>
</tr>
<tr>
<td>(TOP grant; allocations from participating Colleges)</td>
<td>(TOP grant; allocations from participating Colleges)</td>
<td>(allocations from participating colleges)</td>
<td>(allocations from participating colleges)</td>
<td>(allocations from participating colleges)</td>
<td>(allocations from participating colleges)</td>
<td></td>
</tr>
<tr>
<td>III. Reallocation of Existing Resources*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV. Federal Funding*</td>
<td></td>
<td></td>
<td>$559,022.02</td>
<td>$700,094.55</td>
<td>$770,630.82</td>
<td></td>
</tr>
<tr>
<td>(In-hand only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V. Other Funding*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>$130,000</td>
<td>$130,000</td>
<td>$559,022.02</td>
<td>$700,094.55</td>
<td>$770,630.82</td>
<td>$2,289,747.39</td>
</tr>
</tbody>
</table>

*For more information, please refer to the accompanying Anticipated Sources of Funding: Explanatory Notes and Examples.*
## NON-FORMULA SOURCES OF FUNDING

*Note: Use this form to specify as completely as possible each of the non-formula funding sources for the dollar amounts listed on the reverse side of this form.*

<table>
<thead>
<tr>
<th>Funding Category</th>
<th>Non-Formula Funding Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>II. Other State Funding*</td>
<td>#1 TOP grant (years 1 and 2)</td>
</tr>
<tr>
<td></td>
<td>#2 allocations from participating Colleges</td>
</tr>
<tr>
<td>III. Reallocation of Existing Resources*</td>
<td>#1</td>
</tr>
<tr>
<td></td>
<td>#2</td>
</tr>
<tr>
<td>IV. Federal Funding*</td>
<td>#1</td>
</tr>
<tr>
<td></td>
<td>#2</td>
</tr>
<tr>
<td>V. Other Funding*</td>
<td>#1</td>
</tr>
<tr>
<td></td>
<td>#2</td>
</tr>
</tbody>
</table>

*For more information, please refer to the accompanying Anticipated Sources of Funding: Explanatory Notes and Examples.

Explanations:
ANTICIPATED SOURCES OF FUNDING: EXPLANATORY NOTES AND EXAMPLES

I. Formula Income

A. The first two years of any new program should not draw upon formula income to pay for the program.

B. For each of years three through five, enter the smaller of:
   1. the new formula income you estimate the program would generate, based on projected enrollments and formula funding rates; or
   2. half of the estimated program cost for that year.

C. Because enrollments are uncertain and programs need institutional support during their start-up phase, it is the Coordinating Board’s policy to require institutions to demonstrate that they can provide:
   1. sufficient funds to support all the costs of the proposed program for the first two years (when no new formula funding will be generated); and
   2. half of the costs of the new program during years three through five from sources other than state formula funding.

D. When estimating new formula income, institutions should take into account the fact that students switching programs do not generate additional formula funding to the institution. For example, if a new master’s program has ten students, but five of them switched into the program from existing master’s programs at the institution, only five of the students will generate new formula income to help defray the costs of the program.

II. Other State Funding

This category could include special item funding appropriated by the legislature, or other sources of funding from the state that do not include formula-generated funds (e.g., HEAF, PUF, etc.).

III. Reallocation of Existing Resources:

If faculty in existing, previously budgeted positions are to be partially or wholly reallocated to the new program, you should explain in the text of your proposal how the institution will fulfill the current teaching obligations of those faculty and include any faculty replacement costs as program costs in the budget.

IV. Federal Funding

Only federal monies from grants or other sources currently in hand may be included. Do not include federal funding sought but not secured. If anticipated federal funding is obtained, at that time it can be substituted for funds designated in other funding categories. Make note within the text of the proposal of any anticipated federal funding.

V. Other Funding

This category could include Auxiliary Enterprises, special endowment income, or other extramural funding.
**Annual program budget for base operations.** Income above this amount in subsequent years will go towards salary increases for administrative assistant and student fellowship/assistantship support.

- Student travel awards: $15,000
- Ecological Integration Symposium: $7,000
- Seminar speakers: $6,000
- EEB fall symposium: $7,000

*These items continue and extend the scholarly activities of the existing IRG in EEB. We will increase the amount of money available for travel to meetings and complement the current EIS with a fall symposium focused on evolution. We are increasing our seminar budget to accommodate weekly speakers.*

- Graduate student recruiting weekend: $12,000
- Other recruiting materials: $2,000

*The EEB GRAC will select 10-12 outstanding applicants each year to invite for an EEB recruiting event in January or February. Other expenses will include advertising the program to appropriate institutions.*

- Administrative assistant/website: $50,000
- Benefits for above: $12,500
- Computer, office supplies: $5,000
- Miscellaneous expenses: $5,500

*A full-time coordinator will send out announcements, handle arrangements for seminar speakers, manage award applications and admissions, and coordinate administrative requirements and financial matters with participating departmental staff.*

**Total expenses:** $122,000
Appendix IV.A.
Course Descriptions and Prescribed Sequence of Courses

Syllabi are presented on the following pages. The new proposed courses are:

First-year core sequence (01 credits each)

Fall
EEBX 601. Physiological Ecology
EEBX 602. Population Ecology
EEBX 603. Community Ecology
EEBX 604. Ecosystems Ecology

Spring
EEBX 605. Population and Quantitative Genetics
EEBX 606. Phylogenetics and Comparative Biology
EEBX 607. Evolutionary Genomics
EEBX 608. Behavioral Ecology

EEBX 681. Colloquium (may be repeated for credit; students are required to register for six semesters; 01 credits)
EEBX 690. First-year graduate seminar (01 credits)

Journal clubs may be drawn from existing journal clubs in appropriate area in consultation with the dissertation committee.

Prescribed electives

The following table lists courses central to EEB according to whether they fit into the Ecology, Evolution, or Quantitative categories. Students entering with an undergraduate degree will be required to take one course from each of the three categories; students with a master's degree will be required to take courses from two out of the three categories. These courses will typically be taken in the second year of studies.

Ecology

<table>
<thead>
<tr>
<th>Year</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013 Spring</td>
<td>ENTO 614</td>
<td>Insect Comm Ecology</td>
<td>Eubanks</td>
</tr>
<tr>
<td>2012 Fall</td>
<td>ENTO 625</td>
<td>Landscape Ecology</td>
<td>Coulson</td>
</tr>
<tr>
<td></td>
<td>ESSM 621</td>
<td>Physiological Plant Ecol</td>
<td>West</td>
</tr>
<tr>
<td></td>
<td>WFSC 611</td>
<td>Estuarine Ecology</td>
<td>Roelke</td>
</tr>
<tr>
<td>2012 Spring</td>
<td>WFSC 624</td>
<td>Dynamics of Population</td>
<td>Fujiwara</td>
</tr>
<tr>
<td></td>
<td>WFSC 689</td>
<td>SPTP: Community Ecology</td>
<td>Winemiller</td>
</tr>
</tbody>
</table>

Evolution

<table>
<thead>
<tr>
<th>Year</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013 Spring</td>
<td>BIOL 610</td>
<td>Evolution</td>
<td>Jones</td>
</tr>
<tr>
<td>2012 Fall</td>
<td>BIOL 698</td>
<td>Behavior Genes Evolution</td>
<td>Rosenthal</td>
</tr>
<tr>
<td>2013 Fall</td>
<td>ENTO 601</td>
<td>Prncpl of Systmct Ento</td>
<td>Woolley</td>
</tr>
<tr>
<td>2012 Spring</td>
<td>ENTO 606</td>
<td>Quantitative Phylogenetics</td>
<td>Mateos/Woolley</td>
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<td>2013 Fall</td>
<td>MARB 668</td>
<td>Evolutionary Biology</td>
<td>Alvarado-Bremer</td>
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**Quantitative**

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<th>Instructor</th>
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<td>2013 Spring</td>
<td>WFSC 670</td>
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<td>DeWitt</td>
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**Free electives and dissertation hours**

Depending on individual student needs, students will, in consultation with their dissertation committee, choose additional courses and/or dissertation hours to complete their degree requirements.
EEBX 601 Physiological Ecology

Day: TR  
Time: TBD (75 min.)  
Location: TBD  
Number of Credits: 01 Credit

Instructors:
(odd years)  
Dr. Spencer T. Behmer  
Department of Entomology  
Room 509, Heep Building  
Phone: 979-845-3411 (office)  
Email: s-behmer@tamu.edu  
http://behmerlab.tamu.edu  
Office hours: by appointment

(even years)  
Dr. Jason B. West  
Dept. of Ecosystem Science & Management  
Room 413, Animal Industries Bldg.  
Phone: 979-845-3772  
Email: ibwest@tamu.edu  
http://goo.gl/fwhm3  
Office hours: by appointment

E-mail will be the primary means of communication for the course. Check your email often and keep your mailbox below quota! Go to elearning.tamu.edu for course materials.

Course prerequisites: Graduate classification.

Course description: This first component of the Core Sequence in Ecology & Evolutionary Biology examines how physiological systems respond, over different timescales, to variation in physical and biological environments. This course has two primary goals: (1) to understand how the interaction of organism and environment determines characteristics that are relevant to ecology, and (2) to understand how these individual characteristics affect population and interspecific dynamics. Readings will be drawn from book chapters, contemporary reviews and the primary literature.

Course requirements:
- Attend all lectures. Absences for previously scheduled activities will only be excused if they are communicated well in advance. If you have not discussed an absence with the instructor ahead of time, it will be considered unexcused unless proper documentation is provided. See http://student-rules.tamu.edu/rule07.
- Read all required material (textbook chapters, reviews, and original papers).
- Participate actively in discussions.
- Early in the class, complete a homework assignment on searching and referencing scholarly articles.
- A short, take-home, open-book exam to be submitted the day after the last lecture; answer four questions clearly and concisely in about 20 min each. Late exams will be downgraded a letter grade for each day late.

Course goals: The goal of this course is to provide an introduction to the key issues central to the field of physiological ecology. Examples will be drawn from studies involving plants and animals, as well as the interactions between these organisms.

Grading: Letter grades will be assigned based as follows: participation related to in-class discussion: 20%; homework assignments: 20%; a short, take-home essay exam: 60%.

Grade scale: 90-100 A; 80-89 B; 70-79 C; 60-69 D; < 60 F
**Americans with Disabilities Act (ADA):** 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 Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu.

**Academic Integrity:** For additional information please visit: http://aggiehonor.tamu.edu. Please pay close attention to guidelines on avoiding plagiarism: http://aggiehonor.tamu.edu/Descriptions/Plagiarism.aspx.

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**SUGGESTED TEXTBOOK READINGS**


**LECTURES**

1. Overview: Plant and Animal Physiology
2. Nutrition
3. Growth processes and Size
4. Temperature
5. Water
6. Effects of Global Change

**Take-home essay exam** due by email at 4 pm the day after lecture 6. *One letter grade will be deducted for each day past the deadline!*
EEBX 602 Population Ecology

Day: TR
Time: TBD (75 min.)

Location: TBD
Number of Credits: 01 Credit

Instructors:
(odd years)
Masami Fujiwara
Wildlife and Fisheries Sciences
Room 0012B, Nagle Hall
Phone: 979-845-9841
Email: fujiwara@tamu.edu
http://fujiwara.us
Office hours: by appointment

(even years)

E-mail will be the primary means of communication for the course. Check your email often and keep your mailbox below quotal Go to elearning.tamu.edu for course materials.

Course prerequisites: Graduate classification.

Course description: This second component of the Core Sequence in Ecology & Evolutionary Biology examines the fundamental concepts in population dynamics. The main focus of the course will be birth, death, immigration, and emigration processes, how these processes are affected by internal and external factors, and the ways they affect population abundance.

Course requirements:
- Attend all lectures. Absences for previously scheduled activities will only be excused if they are communicated well in advance. If you have not discussed an absence with the instructor ahead of time, it will be considered unexcused unless proper documentation is provided. See http://student-rules.tamu.edu/rule07.
- Read all required material.
- Participate actively in discussions.
- Complete the final take-home exam. Late exams will be downgraded a letter grade for each day late.

Course goals: The goal of this course is to provide the understanding of the fundamental concepts in population biology. By the end of this course, students are expected to be able to identify general causes of changes in birth, death, immigration, and death processes and to gain clear understanding of how these changes can affect the population abundance over time and space.

Grading: Letter grades will be assigned based as follows: active participation: 50%; short, take-home essay exam: 50%.

Grade scale: 90-100 A; 80-89 B; 70-79 C; 60-69 D; < 60 F
**Americans with Disabilities Act (ADA):** 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 Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu.

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**REQUIRED TEXTBOOK**

**SUGGESTED READING**

**LECTURES**
1. Fundamental theorem of population biology
2. Population structure: Age, size, and developmental stages
3. Temporal fluctuation: Environmental stochasticity, demographic stochasticity, and non-stochastic fluctuation
4. Density dependence: Compensation, over-compensation, and depensation
5. Spatial movement: Immigration, emigration, and invasion
6. Evolutionary population dynamics and evolutionary stable strategy

**Take-home essay exam** due by email at 4 pm the day after lecture 6. *One letter grade will be deducted for each day past the deadline!*
EEBX 603 Community Ecology

Day: TR
Time: TBD (75 min.)
Location: TBD
Number of Credits: 01 Credit

Instructors:
(odd years)
Micky Eubanks
Department of Entomology
Room 115, Biological Control Facility (BCC)
Phone: 979-862-7847
Email: m-eubanks@tamu.edu
http://eubankslab.tamu.edu
Office hours: by appointment

(even years)
Kirk Winemiller
Wildlife and Fisheries Sciences
Room 110D, Heep Labs
Phone: 979-862-4020
Email: kwinemiller@tamu.edu
http://aquaticecology.tamu.edu/
Office hours: by appointment

E-mail will be the primary means of communication for the course. Check your email often.

Course prerequisites: Graduate classification.

Course description: This third component of the Core Sequence in Ecology & Evolutionary Biology examines the fundamental concepts in community ecology. The main focus of the course will be conceptual development of the subdiscipline; spatial and temporal patterns of community structure; processes that determine community structure and dynamics; the interface of population, community and ecosystem ecology; and applications of community ecology for natural resource management, agriculture, and health.

Course requirements:
- Attend all lectures. Absences for previously scheduled activities will only be excused if they are communicated well in advance. If you have not discussed an absence with the instructor ahead of time, it will be considered unexcused unless proper documentation is provided. See http://student-rules.tamu.edu/rule07.
- Read all required material.
- Participate actively in discussions.
- Complete the final take-home exam. Late exams will be downgraded a letter grade for each day late.

Course goals: The goal of this course is for students to achieve a basic understanding of fundamental concepts and analytical methods in community ecology. By the end of this course, students are expected to know the basic vocabulary, concepts, and classic literature of community ecology; and be able to collect community-level data, perform quantitative analyses, and interpret findings in the context of current theories.

Grading: Letter grades will be assigned based as follows: active participation: 50%; short, take-home essay exam: 50%.

Grade scale: 90-100 A; 80-89 B; 70-79 C; 60-69 D; < 60 F
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Academic Integrity: For additional information please visit: http://aggiehonors.tamu.edu. Please pay close attention to guidelines on avoiding plagiarism:

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REQUIRED TEXTBOOK
There is no required textbook

SUGGESTED READING
The instructor will distribute reprinted articles for discussion. For additional information, students may consult the following textbooks that deal with community ecology: Community Ecology by Peter J. Morin; Population Ecology and Community Ecology: Processes, Models, and Applications edited by Herman A. Verhoeff and Peter J. Morin; and Community Ecology by Gary G. Mittelbach.

LECTURES
1. Historical Biogeography and Macroecology: speciation, extinction, energy, productivity, biomass, environmental gradients, species distribution models, island biogeography
2. Species Interactions: competition, niche overlap, diffuse competition, niche complementarity, predation/parasitism, plant defenses, mutualism, commensalism, coevolutionary mosaic
3. Metacommunities and Assembly Rules: neutral model, patch dynamics, species sorting, mass effects, intermediate disturbance, functional traits, life history strategies, supply-side ecology
4. Food Webs and Other Network Perspectives: food web concepts, food web dynamics, top-down and bottom-up controls, food web subsidies, stability-diversity-complexity-productivity relationships, network models, regime shifts
5. The Challenge of Integrating Perspectives: spatial scales, temporal scales, natural vs. anthropogenic disturbances, life history variation and population regulation, alternative modeling perspectives (equilibrium, non-equilibrium, quasi-equilibrium), hierarchy and complexity
6. Applications of Community Ecology: integrated pest management, epidemiology, invasive species and biotic homogenization, extinction vortex, fisheries, habitat fragmentation, biotic indices

Take-home essay exam due by email at 4 pm the day after lecture 6. One letter grade will be deducted for each day past the deadline!
EEBX 604 Ecosystem Ecology

Day: TR  
Time: TBD (75 min.)  
Location: TBD  
Number of Credits: 01 Credit

Instructors:
(even years)
Dr. Rusty A. Feagin  
Department of Ecosystem Science & Mgmt.  
221C Centeq  
Phone: 979-862-2612  
Email: feaginr@tamu.edu  
http://ssl.tamu.edu/people/r-feagin  
Office hours: by appointment

(odd years)
Dr. Brad Wilcox  
Department of Ecosystem Science & Mgmt.  
Room 207 Animal Industries  
Phone: 979-458-1899  
Email: bwilcox@tamu.edu  
http://agrilife.org/wilcox/  
Office hours: by appointment

E-mail will be the primary means of communication for the course. Go to ecampus.tamu.edu for course materials.

Course prerequisites: Graduate classification.

Course description: This final component of the fall semester portion of the Core Sequence in Ecology & Evolutionary Biology examines the flow of materials, energy, and information between ecosystems, and the geographic structure in which ecosystems are embedded globally. The major focus of the course will be the integrative nature of spatial and temporal processes acting across ecosystem units. Readings will be drawn from contemporary reviews and the primary literature.

Course requirements:
- Attend all lectures. Absences for previously scheduled activities will only be excused if they are communicated well in advance, and are a university-authorized excuse. If you have not discussed an absence with the instructor ahead of time, it will be considered unexcused unless proper documentation is provided. See the Graduate Student Handbook for more details on university-authorized excuses.
- Read all required material and participate actively in discussions. Each day, one or more students will be responsible for leading discussion on the day’s topic and should come prepared with pertinent points.
- A short, take-home, open-book exam to be submitted the day after the last lecture; answer four questions clearly and concisely in about 20 min each. Late exams will not be accepted.

Course goals: The goal of this course is to provide a sophisticated understanding of ecosystem flow and structure, from landscape to global scales.

Grading: Letter grades will be assigned based as follows: leading in-class discussion: 25%; active participation: 25%; short, take-home essay exam: 50%.

Grade scale: 90-100 A; 80-89 B; 70-79 C; 60-69 D; < 60 F
LECTURES AND REQUIRED READINGS

1. Biogeochemical Cycles: Water
   (Reading: Durack et al. 2012)
2. Biogeochemical Cycles: Carbon and Nitrogen
   (Reading: Trumper et al. 2009; Galloway et al. 2005)
3. Trophic Interactions
   (Reading: Estes et al. 2011)
4. Landscape Ecology
   (Reading: Forman 1995)
5. Macroecology and Biogeography
   (Reading: Rosenzweig 1995, Brown & Maurer 1989)
6. Global Ecology
   (Reading: Lovelock et al. 1973)

Take-home essay exam due by email at 4 pm the day after lecture 6.

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Academic Integrity: For additional information please visit: http://aggiehonors.tamu.edu and http://aggiehonors.tamu.edu/Descriptions/Plagiarism.aspx.

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Readings List:

Rosenzweig, M.L. Species diversity in space and time. Chapter 1. Cambridge U Press.
EEBX 605 Population and Quantitative Genetics

Day: TR
Time: TBD (75 min.)
Location: TBD
Number of Credits: 01 Credit

Instructors:
Dr. Michel Slotman
Dept of Entomology
Heep Center 413
Phone: 979 845 7556
Email: maslotman@tamu.edu
Office hours: by appointment

Dr. James Cai
Dept of Veterinary Integrative Biosciences
VRB 384
Phone: 458 5482
Email: jcai@tamu.edu
Office hours: by appointment

E-mail will be the primary means of communication for the course. Check your email often and keep your mailbox below quota! Go to elearning.tamu.edu for course materials.

Course prerequisites: Graduate classification.

Course description: This component of the Core Sequence in Ecology & Evolutionary Biology will provide a basic overview of the fields of population and quantitative genetics. The focus will be on fundamental concepts and their applications in the research of natural populations.

Course requirements:
- Attend all lectures. Absences for previously scheduled activities will only be excused if they are communicated well in advance. If you have not discussed an absence with the instructor ahead of time, it will be considered unexcused unless proper documentation is provided. See http://student-rules.tamu.edu/rule07.
- Read all required material (original papers, review papers, and textbook chapters).
- A take-home, open-book exam

Grading: Letter grades will be assigned based as follows: leading in-class discussion: 25%; active participation: 25%; short, take-home essay exam: 50%.

Grade scale: 90-100 A; 80-89 B; 70-79 C; 60-69 D; < 60 F

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REQUIRED TEXTBOOK


REQUIRED READINGS

Several research articles will be part of the required reading of this course. These articles will illustrate the application of current, widely used methodologies in the field of population and quantitative genetics. Readings remain to be determined.

LECTURES

1. Genetic Variation
2. The Causes of Evolution 1
3. The Causes of Evolution 2
4. Molecular Population Genetics 1
5. Molecular Population Genetics 2
6. Genetic Architecture of Complex Traits
EEBX 606 Phylogenetics and Comparative Biology

Day: TR
Time: TBD (75 min.)
Location: TBD
Number of Credits: 01 Credit

Instructors:

Dr. Thomas Olszewski
Department of Geology and Geophysics
Room 263, Halbouty Bldg.
Phone: 979-845-2465
Email: olszewski@geos.tamu.edu
http://geoweb.tamu.edu/profile/TOlszewski
Office hours: by appointment

Dr. Mariana Mateos
Department of Wildlife and Fisheries Sciences
Room 320B, Heep Laboratory Bldg. (Old Heep)
Phone: 979-847-9463
Email: mmateos@tamu.edu
http://people.tamu.edu/~mmateos
Office hours: by appointment

E-mail will be the primary means of communication for the course. Check your email often and keep your mailbox below quota! Go to elearning.tamu.edu for course materials.

Course prerequisites: Graduate classification.

Course description: This sixth component of the Core Sequence in Ecology & Evolutionary Biology examines Phylogenetics and Comparative Biology. Readings will be drawn from contemporary reviews and the primary literature.

Course requirements:

- Attend all lectures. Absences for previously scheduled activities will only be excused if they are communicated well in advance. If you have not discussed an absence with the instructor ahead of time, it will be considered unexcused unless proper documentation is provided. See http://student-rules.tamu.edu/rule07.
- Read all required material (original papers, review papers, and textbook chapters).
- Participate actively in discussions. Each day, one or more students will be responsible for leading discussion on the day’s topic and should come prepared with pertinent points.
- A short, take-home, open-book exam to be submitted the day after the last lecture; answer four questions clearly and concisely in about 20 min each. Late exams will be downgraded a letter grade for each day late.

Course goals: One of the major implications of evolution is that all living organisms are the cumulative product of variation and selection – i.e., life in the present day (and at any time in the history of Earth) is the result of evolutionary processes acting on what was available at earlier times. There are two main sources of information on this cumulative history of life: phylogenies (derived from the organisms themselves) and fossils (derived from the remains of ancient organisms). The goal of this course is to introduce students to the fundamental concepts that allow evolutionary biologists to pose and test evolutionary hypotheses and to use evolutionary and historical relationships to understand life in the present day.
Grading: Letter grades will be assigned based as follows: leading in-class discussion: 25%; active participation: 25%; short, take-home essay exam: 50%.

Grade scale: 90-100 A; 80-89 B; 70-79 C; 60-69 D; < 60 F

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Academic Integrity: For additional information please visit: http://aggiehonor.tamu.edu. Please pay close attention to guidelines on avoiding plagiarism: http://aggiehonor.tamu.edu/Descriptions/Plagiarism.aspx.

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REQUIRED TEXTBOOK
No required text. Required papers and chapters will be made available through eCampus.

SUGGESTED READINGS


LECTURES
1. Homology: the Central Concept in Comparative Biology
2. The Origin of Animals and the Radiation of Animal Phyla: Fossil Homologies and Stem Groups
3. Interpreting and Inferring Phylogenies
4. Microbes and the Three Domains of Life: Making Use of Phylogenies to Understand Metabolic Evolution
5. The Comparative Method
6. The Quaternary: Using the Comparative Method to Understand How Present-Day Organisms Reflect the World Their Ancestors Lived In

Take-home essay exam due by email at 4 pm the day after lecture 6. One letter grade will be deducted for each day past the deadline!
EEBX 607 Evolutionary Genomics

Day: TR
Time: TBD (75 min.)
Location: TBD
Number of Credits: 01 Credit

Instructors:
Dr. Adam Jones
Department of Biology
Room 118C, BSBE
Phone: 979-845-7774
Email: ajones@bio.tamu.edu
Office hours: by appointment

Dr. Bill Murphy
Dept. of Veterinary Integrative Biosciences
Room 103, VMRB Bldg.
Phone: 979-458-0906
Email: wmurphy@cvm.tamu.edu
Office hours: by appointment

E-mail will be the primary means of communication for the course. Check your email often and keep your mailbox below quota! Go to elearning.tamu.edu for course materials.

Course prerequisites: Graduate classification.

Course description: This seventh component of the Core Sequence in Ecology & Evolutionary Biology examines the field of evolutionary genomics. The students will be exposed to new techniques for generating large amounts of genetic data, including thousands of single-nucleotide polymorphisms and whole-genome sequence data. The course will then discuss how whole-genome data can transform the study of evolutionary biology and the interpretation of evolutionary phenomena. Main areas of focus include population genomics, the study of adaptation, phylogenomics and speciation.

Course requirements:
- Attend all lectures. Absences for previously scheduled activities will only be excused if they are communicated well in advance. If you have not discussed an absence with the instructor ahead of time, it will be considered unexcused unless proper documentation is provided. See http://student-rules.tamu.edu/rule07.
- Read all required material.
- Participate actively in discussions.
- A take-home exam to be submitted by email the day after the last lecture. Late exams will be downgraded a letter grade for each day late.

Course goals: The goal of this course is to provide an understanding of the application of next-generation sequencing approaches to the study of evolutionary phenomena. The students will be expected to understand the molecular techniques involved, the statistical issues associated with these large datasets, and the implications of these datasets with respect to the evolutionary process.

Grading: Letter grades will be assigned based as follows: active participation: 50%; take-home essay exam: 50%.
Grade scale: 90-100 A; 80-89 B; 70-79 C; 60-69 D; < 60 F
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Academic integrity: For additional information please visit: http://aggiehonor.tamu.edu. Please pay close attention to guidelines on avoiding plagiarism: http://aggiehonor.tamu.edu/Descriptions/Plagiarism.aspx.

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REQUIRED READINGS
Required readings will originate from the primary literature and will be assigned by email or during class.

LECTURES
1. Comparative genomics and methods.
4. Phylogenomics.
5. Genome structure and evolution.

Take-home essay exam due by email at 4 pm the day after lecture 6. One letter grade will be deducted for each day past the deadline!
EEBX 608 Integrative Animal Behavior

Day: TR  
Time: TBD (75 min.)  
Location: TBD  
Number of Credits: 01 Credit

Instructors:

*(odd years)*
Prof. Gil Rosenthal  
Department of Biology  
Room 203A, Butler Hall  
Phone: 979-255-6119 (cell)  
Email: grosenthal@bio.tamu.edu  
http://swordtail.tamu.edu  
Office hours: by appointment

*(even years)*
Prof. Gregory Sword  
Department of Entomology  
Room 114C, Entomology Research Lab  
Phone: 979- 862-1702  
Email: gasword@tamu.edu  
http://swordlab.tamu.edu  
Office hours: by appointment

E-mail will be the primary means of communication for the course. Check your email often and keep your mailbox below quota! Go to elearning.tamu.edu for course materials.

Course prerequisites: Graduate classification.

Course description: This final component of the Core Sequence in Ecology & Evolutionary Biology examines how behavior contributes to survival and reproduction, and in turn how evolutionary history and ecological circumstance interact to shape the expression of behavior. The major focus of the course will be the integrative nature of behavior: the interaction of evolutionary processes, mechanistic constraints, and ecological demands involved in selecting for a set of behavioral strategies.

Course requirements:

- Attend all lectures. Absences for previously scheduled activities will only be excused if they are communicated well in advance. If you have not discussed an absence with the instructor ahead of time, it will be considered unexcused unless proper documentation is provided. See http://student-rules.tamu.edu/rule07.
- Read all required material (original papers, review papers, and textbook chapters).
- Participate actively in discussions. Each day, one or more students will be responsible for leading discussion on the day’s topic and should come prepared with pertinent points.
- Complete two problem sets featuring short, quantitative questions related to the course material. A short, take-home, open-book exam to be submitted the day after the last lecture; answer four questions clearly and concisely in about 20 min each. Late exams will be downgraded a letter grade for each day late.

Course goals: The goal of this course is to provide a sophisticated understanding of animal behavior from both mechanistic and evolutionary perspectives, and more generally to encourage thinking about ecology and evolutionary biology as a conceptually unified discipline.

Grading: Letter grades will be assigned based as follows: leading in-class discussion: 25%; active participation: 15%; problem sets: 15% each; short, take-home essay exam: 30%.

Grade scale: 90-100 A; 80-89 B; 70-79 C; 60-69 D; < 60 F
Americans with Disabilities Act (ADA): 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 Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu.

Academic Integrity: For additional information please visit: http://aggiehonor.tamu.edu. Please pay close attention to guidelines on avoiding plagiarism: http://aggiehonor.tamu.edu/Descriptions/Plagiarism.aspx.

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

REQUIRED TEXTBOOK

SUGGESTED READINGS

LECTURES
2. Foraging and cognitive ecology. Readings: W&F chapters 8, 9, 11-13

Take-home essay exam due by email at 4 pm the day after lecture 6. One letter grade will be deducted for each day past the deadline!
EEBX 681. Colloquium

Day: W  Time: 4 pm (60 min.)  Location: TBD  Number of Credits: 01 Credit

Instructor: Dr. Raul Medina  Assistant Professor  Department of Entomology  Phone: 979-845-8304  Email: rfmedina@tamu.edu

insects.tamu.edu/medinalab  Office hours: by appointment

E-mail will be the primary means of communication for the course. Check your email often and keep your mailbox below quota! Go to elearning.tamu.edu for course materials.

Course prerequisites: Graduate classification.

Course description: Students attend and actively participate in the weekly EEB colloquium, featuring guest speakers invited by students and faculty.

Course requirements:
- Attend all lectures. Absences for previously scheduled activities will only be excused if they are communicated well in advance. If you have not discussed an absence with instructor ahead of time, it will be considered unexcused unless proper documentation is provided. See http://student-rules.tamu.edu/rule07.
- Familiarize yourself with the speaker's recent papers in advance of the seminar.
- Ask pertinent questions.

Course goals: The goal of this course is to keep students current with contemporary research in EEB being conducted regionally, nationally, and internationally, and to enhance professionalization via collegial interactions with colleagues at other institutions.

Grading: Pass/fail based on attendance. Three or more unexcused absences will be grounds for failure.

Americans with Disabilities Act (ADA): 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 Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu.

Academic Integrity: For additional information please visit: http://aggiehonor.tamu.edu. Please pay close attention to guidelines on avoiding plagiarism: http://aggiehonor.tamu.edu/Descriptions/Plagiarism.aspx.

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

Lecture schedule to be determined by the start of each semester.
EEBX 690. First-year graduate seminar

Day: W, Time: 6:30 pm (60 min.), Location: TBD, Number of Credits: 01 Credit

Instructors:
(odd years) Dr. Sarah Hamer
Department of Veterinary Integrative Biosciences
Phone: 979-847-5693
Email: shamer@cvm.tamu.edu
http://vetmed.tamu.edu/faculty/hamer-lab
Office hours: by appointment

(even years) Dr. Jessica Light
Department of Wildlife & Fisheries Science
210 Nagle Hall
Phone: 979-458-4357
Email: jlight2@tamu.edu
http://people.tamu.edu/~jlight2/People.html
Office hours: by appointment

E-mail will be the primary means of communication for the course. Check your email often and keep your mailbox below quota! Go to elearning.tamu.edu for course materials.

Course prerequisites: Graduate classification.

Course description: Students attend and actively participate in a weekly dinnertime conversation on doing a PhD and career planning with EEB core faculty and others. EEB faculty and colleagues provide feedback on applications for fellowship support (e.g. NSG-GRFP

Course requirements:
- Attend all sessions. Absences for previously scheduled activities will only be excused if they are communicated well in advance. If you have not discussed an absence with instructor ahead of time, it will be considered unexcused unless proper documentation is provided. See http://student-rules.tamu.edu/rule07.
- Participate actively in discussions among students and discussion leaders.
- Prepare an NSF-GRFP, EPA-STAR or comparable proposal for critique by your faculty sponsor and other colleagues.

Course goals: The goal of this course is to familiarize students with procedures and expectations for graduate school and with the opportunities available to them for research, education, and collegial interactions at TAMU; to foster collegial interaction among EEB students and faculty campus-wide; and to advise and inform students on career options, career strategies, and funding opportunities. This course will also facilitate and require preparation of competitive extramural fellowship applications like NSF-GRFPs.

Grading: Pass/fail based on attendance and proposal submission. Three or more unexcused absences or failure to submit a timely proposal to faculty sponsor will be grounds for failure.

Americans with Disabilities Act (ADA): 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 Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu.
**Academic Integrity:** For additional information please visit: http://aggiehonor.tamu.edu. Please pay close attention to guidelines on avoiding plagiarism:

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

**Weekly schedule**

**Part 1: Welcome to Aggieland**

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<td>Lecture 4</td>
<td>Armitage</td>
<td>TAMU@Galveston and exchange opportunities</td>
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**Part 2: Navigating graduate school**

| Lecture 5 | University staff | Library resources and University Writing Center       |
| Lecture 6 | Slotman          | Grant opportunities and how to write grants           |
| Lecture 7 | Light            | Plagiarism; work-life balance                         |
| Lecture 8 | Medina           | International collaborations; maximizing efficiency    |
| Lecture 9 | Conway           | Collections-based research                            |
| Lecture 10| Wicksten         | Procedural issues (IACUC, permits, lab safety)        |

**Part 3: Career options and career planning**

| Lecture 11 | Raymond         | Academic/research careers                            |
| Lecture 12 | Peterson        | Government agency careers                            |
| Lecture 13 | Fitzgerald      | ABS program and conservation careers                 |
| Lecture 14 | Campbell        | Scientific publishing and reviewing                  |
Appendix IV.B.
Curricula Vitae for Core Faculty

The 903 pages of full curricula vitae for core faculty, as requested by the Coordinating Board, are omitted from this draft of the proposal. The full list of core faculty is presented in the main body of the proposal; links to curricula vitae are available at http://eeb.tamu.edu/faculty/core_faculty.cfm.

Appendix IV.C.
Curricula Vitae for Support Faculty

With 44 core faculty, the EEB faculty is already the second-largest in the nation after Michigan State University. An additional 42 faculty are associated with the current interdisciplinary research faculty in EEB; a full list with links to curricula vitae is available at http://eeb.tamu.edu/faculty/.

Appendix IV.D.
Five-Year Faculty Recruitment Plan/Hiring Schedule

Hiring is done within individual departments. As indicated in Appendix B, all the participating departments have a vigorous commitment to EEB. This commitment is perhaps best demonstrated by the fact that of the 44 core faculty in EEB, 34 have come to TAMU within the past ten years. Among the participating departments with more than a handful of faculty, all have made significant hires within EEB over the past few years.
Appendix IV.E.
Institution’s Policy on Faculty Teaching Load
UNIVERSITY RULE

12.03.99.M1 Faculty Teaching Workload Reporting
Approved July 31, 2006
Supplements System Policy 12.03

1. GENERAL

Faculty workload reporting is required for any individual assigned to teach a course for resident credit, or any individual whose salary is paid in full or part from Faculty Salaries.

2. DEFINITION OF TERMS

2.1 FACULTY SALARIES

Faculty Salaries are defined as salaries or wages of those engaged in the teaching function. Those paid from faculty salaries include heads of teaching departments and faculty.

2.2 WORKLOAD DEFINITION

Individuals paid from faculty salaries receive faculty workload credit from two areas: Classroom Teaching Credit and Equivalent Teaching Credits.

2.2.1 Classroom Teaching Credit: Classroom Teaching Credits are generally assigned to resident-credit courses. To ensure accuracy in workload reporting, each course should be assigned to the person primarily responsible for course instruction. For team taught courses, the teaching credit may be proportioned to the faculty members teaching the course.

2.2.2 Equivalent Teaching Credits: Certain non-classroom academic duties performed by faculty that enhance the teaching/learning process may be funded from Faculty Salaries. Equivalent teaching credits may be assigned for these duties. Once the faculty member is in compliance, no further assignment or equivalent credits is required. The listing of allowable equivalent teaching credits for direct instructional or administrative activities is included in the “Faculty Workload Policy Statement – Texas A&M University” which is available at: http://www.tamu.edu/opir/workload_policy.pdf.

3. MINIMUM WORKLOAD REQUIREMENT
3.1 The minimum workload requirement for faculty members paid 100% from Faculty Salaries is nine (9) teaching credits, counting classroom and equivalent teaching credits.

3.2 For Graduate Assistant appointments that are reported in the faculty workload report the minimum workload standard is set by the academic unit reporting the workload.

3.3 For faculty members with less than full-time appointments, the minimum workload standard is proportionately less.

4. REPORTING

Every semester each academic department must prepare a Faculty Workload Compliance Report. The report must include each individual who:

4.1 is primarily responsible for course instruction for resident credit; or

4.2 is paid any part of his or her salary from FACULTY SALARIES (see definition above).

5. SPECIAL CONDITIONS REGARDING COMPLIANCE

5.1 Payment of FACULTY SALARIES to exhaust accumulated leave time: Faculty members fall into this category if they terminate employment, become ill, or die during any part of the year and the payment of salary to exhaust accumulated leave carries them into a fall or spring semester. These faculty members cannot be assigned teaching responsibilities and therefore cannot be in compliance with the minimum workload requirement. The department head must provide a written explanation to the dean of the college for each faculty member not in compliance.

5.2 Faculty who are unable to complete teaching assignment during a long semester: Faculty members fall into this category if they terminate employment, become ill, or die during a long semester and their courses are reassigned to other faculty members in the department. The compliance status of the faculty member will be the same as their compliance status before the disabling condition or termination took place.

5.3 Other reason for non-compliance: Occasionally faculty members may be non-compliant for reasons not covered in 5.1 or 5.2 above. For example, a faculty member may have been placed on administrative leave...
or there may have been another circumstance that prevents a faculty member from teaching courses in a given semester.

5.4 **Faculty members not in compliance:** The reason for any faculty member not being in compliance with the minimum teaching requirement must be explained. For regular faculty (those not covered by 5.1 or 5.2 above) who are not in compliance, the department head must initiate an appropriate Employee Payroll Action Form to adjust the individual’s teaching salary percentage.

6. **RESPONSIBILITY FOR MONITORING WORKLOAD**

6.1 **Department Head**

6.1.1 Assigns and monitors the workloads of individuals within his or her department to ensure compliance with the workload requirement.

6.1.2 Approves equivalent teaching credits based on direct instruction or administrative activities as listed in the “Faculty Workload Policy Statement – Texas A&M University” (http://www.tamu.edu/opir/workload_policy.pdf.)

6.1.3 Ensures that other academic duties are assigned equitably within the department.

6.1.4 Provides notice to the college dean of all faculty members not in compliance.

6.2 **College Dean**

The college dean is responsible for monitoring the workload of individual faculty in his or her college as reported by the department head.

6.3 **University Administration**

The Office of Institutional Studies and Planning (OISP) will consolidate the reports from the colleges to generate the final Faculty Workload Compliance Report and shall prepare a list of faculty not in compliance with the minimum workload requirement. This report shall be sent to the Provost and Executive Vice President for Academics for review and approval prior to submission to the President.

The President is responsible for verifying institutional compliance with the minimum workload requirement and for reporting this information through the Chancellor, to the Board of Regents.
7. INSTRUCTIONS FOR COMPLETING FACULTY WORKLOAD COMPLIANCE REPORT

Each department head and dean will be notified by the OISP when the Faculty Workload Report has been placed on the web for updating and correcting.

OFFICE OF RESPONSIBILITY: Dean of Faculties
Appendix IV.F.
Itemized List of Capital Equipment Purchases during the past five years
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Appendix IV.G.
Librarian’s Statement of Adequate Resources
July 27, 2011

MEMORANDUM

TO: Gil G. Rosenthal  
Chair, Ecology and Evolutionary Biology  
Department of Biology

FROM: Charles L. Gilreath  
Interim Dean  
University Libraries  

SUBJECT: Library support for new PhD degree in Ecology and Evolutionary Biology

University Libraries can support the new proposed PhD degree in Ecology and Evolutionary Biology. The classes and researchers are already being supported by the collection. The new classes proposed should not require additional materials. Areas of interest are collected at a research level. The Libraries will continue to collect in these areas and enhance the collection as money allows. We support InterLibrary Loan for articles not available in the TAMU Libraries.
Appendix V.A.
Letters of Support
April 18, 2013

Dr. Gil Rosenthal  
Chair, Faculty of Ecology and Evolutionary Biology  
3258 TAMU  
College Station, TX 77843-3258

Dear Dr. Rosenthal:

The College of Agriculture and Life Sciences is pleased to support the proposal to establish a new doctoral degree program in Ecology and Evolutionary Biology (EEB). It is an established degree program at our peer institutions and recognized by the National Science Foundation. EEB is a degree program for which the highest quality students look when selecting a university for graduate study. It is also a degree program that many funding organizations, including the NSF, look for when determining the credibility of an organization and when awarding certain fellowship funding. Thus, we feel this new program will allow us to better compete for the best graduate students and will give us access to a larger and broader range of graduate funding opportunities. This will draw these top students and their funding to the State of Texas to better meet its needs.

We have studied and discussed this concept over the past two years with interested faculty, their department heads and our College administrative team. We have devised a plan which capitalizes on leverage from our existing courses and faculty while providing an EEB program that will be among the top in the nation. Through coordination with existing programs this plan will minimize potential negative impact on our current programs. Having an EEB degree program will strengthen the interdisciplinary ties existing from research collaborations and extend that interdisciplinary research into the classroom and training laboratories.

Our College endorses the creation of this new doctoral degree program and will support it as needed.

[Signature]

Alan Sams  
Executive Associate Dean
April 15, 2013

Dr. Gil Rosenthal
Chair, Faculty of Ecology and Evolutionary Biology
3258 TAMU
College Station, TX 77843-3258

Dear Dr. Rosenthal:

The College of Science is eager to promote the establishment of a new doctoral degree program in Ecology and Evolutionary Biology (EEB) at Texas A&M University. The adoption of this program would greatly benefit the College, Texas A&M University, the State of Texas, and the nation.

The interdisciplinary design of this program will bring together high quality laboratory facilities, faculty, and students from the College of Science and other colleges involved in the broad EEB area to enable research and education in a wide variety of areas. To further the advancement of these materials, the most recent cutting-edge interdisciplinary approaches will be needed; and the success of these efforts will critically impact industry competitiveness in the state and the country in the coming decades.

The College of Science is committed to providing educational opportunities for the residents of Texas, and this program will provide a new opportunity to recruit Texas students to remain in Texas for graduate school. In addition, by bringing more well-qualified students from other states and internationally to Texas, the proposed program will provide industry in the state with a larger materials workforce.

In conclusion, the College of Science would like to whole-heartedly encourage the adoption of the new graduate degree program. The College is committed to the new program and will help to provide the resources and support needed to launch and establish the program. If I can be of any further assistance, please do not hesitate to contact me.

Sincerely,

H. Joseph Newton, Dean
College of Science
Dr. Gil Rosenthal  
Chairperson, Faculty of Ecology and Evolutionary Biology 
Texas A&M University 
3258 TAMU 
College Station, TX 77843-3258 

Dear Dr. Rosenthal: 

The College of Veterinary Medicine and Biomedical Sciences [CVM] is supportive of the establishment of a new doctoral degree-granting program in Ecology and Evolutionary Biology [EEB]. The creation of this program is vital to the success of a large number of faculty within the CVM and across campus in obtaining NSF graduate fellowships, while further enabling our program to recruit high-caliber graduate students from Texas and across the country. We recognize that the establishment of an EEB doctoral program will broaden the national visibility of Texas A&M University’s research programs in these critical life science areas, and further increase our competitiveness with peer institutions in Texas and nationwide. 

In summary, our College endorses the establishment of an Ecology and Evolutionary Biology doctoral program at Texas A&M University and pledges to support this academic initiative for the purpose of enhancing educational and research opportunities for our faculty and students. 

Sincerely, 

Eleanor M. Green, DVM, DACVIM, DABVP 
The Carl B. King Dean of Veterinary Medicine
20 November 2012

To: Gil Rosenthal

From: David Ragsdale
Professor and Head
Department of Entomology

Re: Ecology and Evolutionary Biology (EEB) PhD degree

This letter confirms that the Department of Entomology is supportive of the development of the Ecology and Evolutionary Biology (EEB) PhD degree program. Entomology faculty who are active members of the current EEB Interdisciplinary Research Program met in July 2012 to discuss the creation of a PhD degree in EEB and any ramifications it would have on the Entomology graduate degree programs. There are a number of faculty members in Entomology who have been actively involved in the EEB Interdisciplinary Research Program for many years and several faculty have served or are currently serving on the EEB Executive Committee. To move from the current Interdisciplinary Research Program to an Interdisciplinary Degree program (IDP) in EEB implies an even higher level of commitment from faculty. Such commitments may include teaching additional courses under an EEB course designator, yet it was agreed that Entomology faculty will maintaining their full complement of teaching in the Entomology program. In addition to a small increase in their teaching effort, perhaps no more than 1 credit every 2 years, EEB faculty will need to take on additional service roles. Examples would be serving on an EEB admission committee or other committees created by the EEB Executive Committee, and advising graduate students seeking an EEB degree. The Entomology faculty unanimously agreed to maintain a strong commitment to the Entomology MS/PhD degree program.

If asked the Department of Entomology will serve as the lead department for the EEB program. This commitment will allow students to be administratively located in a single department when they are initially admitted to the EEB program. This greatly aids a student who is perhaps unfamiliar with Texas A&M to have a departmental home while they file their degree program (due before the end of the first semester) and complete other such administrative tasks. Once their degree program is approved, their records and administrative functions will transfer to their advisor’s home department. It is my understanding that the EEB program will hire their own staff person from funds allocated to IDPs and that this staff person will help with all aspects of the EEB program which includes tasks such as admission, report generation, weave online for EEB courses, maintenance of websites and other such tasks. Entomology is highly supportive of faculty effort to create the IDP in EEB however, the EEB program is expected to cover any costs incurred for program administration.

I look forward to working with you and the EEB faculty in the future to help you in any way we can to launch what I know will be a very successful EEB PhD degree granting interdisciplinary degree program.

Minnie Belle Heep
2475 TAMU
College Station, TX 77843-2475

Tel. 979.845.2516 Fax 979.845.6305
entomain@ag.tamu.edu
http://insects.tamu.edu
December 6, 2012

Memorandum

TO: Gil Rosenthal
   Associate Professor
   Department of Biology

FROM: David Baltensperger
       Professor and Interim Department Head
       Department of Ecosystem Science and Management

RE: Ecology and Evolutionary Biology (EEB) PhD Degree

This letter confirms that the Department of Ecosystem Science and Management (ESSM) is supportive of the development of the Ecology and Evolutionary Biology (EEB) PhD degree program. EEB students sponsored by faculty in ESSM will file a degree plan, within their first semester in the program, listing ESSM as their home department and designating their sponsor as their committee chair. Students will register for research hours in ESSM, have access to departmental resources and be administratively housed in ESSM.

There are a number of faculty members in ESSM who have been actively involved in the EEB Interdisciplinary Research Program for many years and faculty members have served or are currently serving on the EEB Executive Committee. To move from the current Interdisciplinary Research Program to an Interdisciplinary Degree program (IDP) in EEB implies an even higher level of commitment from faculty. Such commitments may include teaching additional courses under an EEB course designator, yet it was agreed that ESSM faculty will maintain their full complement of teaching in the ESSM program. In addition to a small increase in their teaching effort, perhaps no more than 1 three-credit course every 2 years, EEB faculty will need to take on additional service roles. Examples would be serving on an EEB admission committee or other committees created by the EEB Executive Committee, and advising graduate students seeking an EEB degree. The ESSM faculty agreed to maintain a strong commitment to the ESSM MS/PhD degree program.

If asked the Department of Ecosystem Science and Management will serve as the lead department for the EEB program. This commitment will allow students to be administratively located in a single department when they are initially admitted to the EEB program. This greatly aids a student who is perhaps unfamiliar with Texas A&M University to have a departmental home while they file their degree program (due before the end of the first semester) and complete other such administrative tasks. Once their degree program is approved, then their records and administrative functions will transfer to their advisor’s home department. It is my understanding that the EEB program will hire their own staff person from funds allocated to IDPs and that this staff person will help with all aspects of the EEB program which includes tasks such as admission, report generation, WEA online for EEB courses, maintenance of websites and other such tasks. ESSM is highly supportive of faculty effort to create the IDP in EEB however, the program is expected to cover any costs incurred for program administration.

I look forward to working with you and the EEB faculty in the future to help you in any way we can to launch what I know will be a very successful EEB PhD degree granting interdisciplinary degree.

xc: Dr. Alan Sams
305 Horticulture/Forest Science Building
2138 TAMU
College Station, Texas 77843-2138
Tel. 979.845.5033
Fax. 979.845.6049
http://essm.tamu.edu
MEMORANDUM

TO: Dr. Gil G. Rosenthal  
Texas A&M University  
College of Science  
Department of Biology  
College Station, Texas 77843-3258

FROM: John R. Giardino  
Professor and Department Head  
Department of Geology and Geophysics

SUBJECT: Ecology and Evolutionary Biology (EEB) PhD Degree

The Department of Geology and Geophysics offers our strong support for the development of the Ecology and Evolutionary Biology (EEB) PhD degree program.

Department faculty members believe that this would be an excellent vehicle to formalize both student and faculty associations with the bio-oriented side of faculty in the Department of Geology and Geophysics.

I am, personally, a big supporter of the interdisciplinary degrees; I especially offer my personal endorsement for the degree in Ecology and Evolutionary Biology. I look forward to working with you and EEB faculty to make this a successful degree program. Please do not hesitate to contact me if you believe that I might be of assistance in the future, as you move forward with your proposal for the degree program.
28 March 2013

Dear Dr. Rosenthal,

Department of Oceanography support for an EEB graduate program

The Department of Oceanography supports the development of an Ecology and Evolutionary Biology (EEB) graduate degree program. Several faculty in the Department of Oceanography have been active in EEB since its inception. The EEB helps to integrate ecological and evolutionary research on campus, which is currently located in many different Departments across Texas A&M University. The EEB is playing an important role in facilitating collaborations between researchers in this field.

Given the expertise in ecology and evolutionary biology on campus, we believe that the EEB graduate program has the potential to be a high-quality and high-profile interdisciplinary program. It is very likely that the proposed EEB Ph.D. program will attract high-quality students to the university who may not have otherwise selected Texas A&M University for their graduate studies. We do not see the EEB program as competition for our existing graduate programs in Oceanography and Marine Biology.

Yours Sincerely,

[Signature]

Piers Chapman,
Head of Department,
Department of Oceanography.
March 28, 2013

To: Dr. Gil Rosenthal

From: Dr. John Schwarz
Regents Professor and Head
Department of Marine Biology

Subject: Ecology and Evolutionary Biology (EEB) Ph.D. program

This memo serves to confirm that the Department of Marine Biology (MARB) supports the development of the Ecology and Evolutionary Biology (EEB) Ph.D. Interdisciplinary degree program (IDP). Five MARB faculty members, Jaime Alvarado-Bremer, Anna Armitage, Christopher Marshall, Antonietta Quigg, and Anja Schulze, have been actively involved in the formation of the EEB program. MARB faculty perceive the interdisciplinary EEB program as an opportunity to attract high quality graduate students and develop formal interactions with colleagues in other Departments and Colleges.

MARB faculty have discussed the EEB program and its implications to our own programs and unanimously agree that the EEB program will not adversely impact their departmental teaching efforts or our Ph.D. degree programs. EEB students with a major professor in MARB will have access to departmental physical resources, and they will be housed within the laboratory and office space assigned to their major professor. EEB doctoral students will be eligible for departmental teaching assistantships.

The MARB department has a strong history of working with interdisciplinary degree programs, and is looking forward to working with the EEB Executive Committee to make this another successful IDP.
May 7, 2013

Dr. Gil Rosenthal
Chair, Faculty of Ecology and Evolutionary Biology
MS 3258 TAMU
College Station, Texas 77843-3258

Dear Dr. Rosenthal:

The College of Geosciences strongly supports the proposal to establish a doctoral program in Ecology and Evolutionary Biology (EEB). Texas A&M University will benefit from the development of a high quality and prominent program in this exciting and important area of research by attracting the very best students seeking a strong interdisciplinary degree; by positioning us better with external funding entities such as the National Science Foundation and industry; and by capitalizing on existing resources and facilities.

The College of Geosciences will benefit directly by connecting the bio-geoscientists in the Departments of Geology and Geophysics, Geography, and Oceanography with the broader campus community with similar research and education interests. It will be an important vehicle to break the isolation our bio-oriented faculty and students feel, to attract excellent students, to strengthen cross-campus linkages, and to leverage expertise and resources.

The College of Geosciences is enthusiastic in its support of this most worthwhile degree program.

Best Regards,

Kate C. Miller
Dean and Professor of Geology and Geophysics