Texas A&M University

Departmental Request for a New Course

Undergraduate • Graduate • Professional

Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Agricultural Leadership, Education, and Communications

2. Course prefix, number and complete title: ALEC 603 • Experiential Learning

3. Course description (not more than 50 words): Theory and practice in facilitating learning from experiences in formal, informal, and non-formal settings; Experiential learning in classroom/laboratory settings, guided inquiry, internships/externships, service learning, project-based learning, and outdoor/adventure learning.

4. Prerequisite(s): Graduate classification or approval of department head. Cross-listed 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 the course be repeated within the same semester/term? □ Yes □ No

7. Has this course been taught as a 489/689? □ Yes □ No If yes, how many times? ______ Indicate the number of students enrolled for each academic period it was taught. 05a - 5 students; 06a - 16 students

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
   
   none

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

   MEd, MAg, EdD, and PhD in ALEC and other interested graduate students from other departments

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

10. Prefix | Course # | Title (exclude punctuation) | Lec. | Lab | SCH | Subject Matter Content Code | Admin. Unit | Acad. Year | FICE Code | Level |

   ALEC 603 Experiential Learning | 0 3 0 0 0 3 0 1 0 1 0 3 0 0 0 5 0 1 4 0 0 7 - 0 8 | 0 0 3 6 3 2 |

   Do not complete shaded area.

Approval recommended by:

Head of Department: Christine D. Townsend 4/19/06

Chair, College Review Committee: Candace Reed 5/10/06

Dean of College: 5-12-06

Submitted to Coordinating Board by:

Dean of College: 5-12-06

Director of Academic Support Services: 6-27-06

Effective Date: 8-8-06

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.

DAR/AS-594
Instructor: Dr. Grady Roberts
Assistant Professor
104A Scoates Hall, 2116 TAMU
College Station, TX 77843-2116
Phone: 979-862-3707
Email: groberts@tamu.edu

Office Hours: By Appointment

Description: This course focuses on theory and practice in facilitating learning from experiences in formal, informal, and non-formal settings. Topics covered include experiential learning in classroom/laboratory settings, guided inquiry, internships/externships, service learning, project-based learning, and outdoor/adventure learning.

Prerequisite: Graduate student classification or approval of department head.

Class Meetings: Mondays, 1:30 – 4:30 SCTS 101

Objectives: Students enrolled in Experiential Learning will:
- Interpret experiential learning theories
- Exhibit an understanding of using facilitation and reflection in an educational setting
- Develop and write a personal philosophy on using experiences as the basis of learning
- Develop a plan for utilizing experiential based strategies in a lesson or project
- Apply experiential learning theory through classroom based lessons, project-based learning, service learning, guided inquiry, internships/externships, and outdoor/adventure learning
- Evaluate experiential learning activities
Required Texts


Optional Texts


Readings


## Class Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
<th>Assignments Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/21</td>
<td>Course Introduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/4</td>
<td>The Role of Reflection (Dr. Stedman – Guest Lecturer)</td>
<td>Knapp (1992); Peterson et al. (2001)</td>
<td></td>
</tr>
<tr>
<td>2/11</td>
<td>Facilitation</td>
<td>Dewey (1938); Hickcox (2002); Roberts (2003)</td>
<td></td>
</tr>
<tr>
<td>2/18</td>
<td>EL in classrooms and Labs</td>
<td>DeLay (1996); Roberts (2002)</td>
<td></td>
</tr>
<tr>
<td>2/25</td>
<td>Project-Based Learning</td>
<td>Kirkpatrick (1918); Stinson (1920) Ch 3</td>
<td></td>
</tr>
<tr>
<td>3/11</td>
<td>Service Learning (LAB)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/18</td>
<td>No Class – Spring Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/25</td>
<td>No Class – Reading Day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/1</td>
<td>Guided Inquiry/Problem Solving</td>
<td>Sandoval &amp; Reiser (2004); Wee et al. (2004)</td>
<td>Lesson/Project Proposal</td>
</tr>
<tr>
<td>4/15</td>
<td>Outdoor/Adventure Learning</td>
<td>King (1988); Knapp (1994)</td>
<td></td>
</tr>
<tr>
<td>4/22</td>
<td>Outdoor/Adventure Learning (LAB)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/3</td>
<td>Project Presentations</td>
<td></td>
<td>Lesson/Project Plan</td>
</tr>
<tr>
<td></td>
<td>Take Home Exam Distributed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/9</td>
<td>No Class</td>
<td></td>
<td>Reflection Journal &amp; Summary</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Take Home - Exam</td>
</tr>
</tbody>
</table>
## Assignments

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Due Date</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiential Learning Philosophy Paper</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Experiential Learning Lesson/Project</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Reflection Journal and Summary</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Participation</td>
<td>Throughout</td>
<td>50</td>
</tr>
<tr>
<td>Exam</td>
<td></td>
<td>150</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>500</td>
</tr>
</tbody>
</table>

**Late Assignments will be penalized 10% per business day.**

## Grading

### Grading Scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&gt; 450</td>
</tr>
<tr>
<td>B</td>
<td>400 to 449</td>
</tr>
<tr>
<td>C</td>
<td>350 to 399</td>
</tr>
<tr>
<td>D</td>
<td>300 to 349</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 300</td>
</tr>
</tbody>
</table>

## Assignment Descriptions

**Experiential Learning Philosophy Paper (100 points)**
Based on readings and discussions inside and outside of class, what is your philosophy of learning from experience? Which theory(ies) appeal to you? How does this relate to other educational theories? What are the most effective ways of learning from experience? Based on your future plans, how can you use experiential learning?

It is expected that you will produce a paper that is worthy of publication in a scholarly journal and include current references from scholarly sources. Utilize APA 5th edition style. It is expected that a minimum of 8 pages (double spaced, 12 pt Times New Roman, and 1 inch margins) is necessary to adequately present your philosophy.

**Experiential Learning Project/Lesson Plan (100 points)**
Based on your future career plans, develop a plan for a topic or project that would be appropriately 'taught' using experiential learning. This assignment has three parts: a one page proposal submitted to the instructor (5 points); the project/lesson plan (75 points), and a 5 – 10 minute presentation to class outlining your plan (20 points).
Reflection Journal and Summary (100 Points)
Each week, keep a journal of your reflections of your experiences in class, the readings, and assignments. Based on your journal entries, write a 2 to 3 page summary of your reflections of experiential learning, and the course.

Participation (50 points)
Truly 'experiencing' a course in experiential learning is critical to grasping the concepts. It is expected that you will be in attendance and actively participate in every class session.

Exam (150 points)
A comprehensive take home exam will be given to evaluate your knowledge of information presented in class and readings, along with your ability to apply that knowledge.

Academic Integrity
(http://www.tamu.edu/aggiehonor/)

AN AGGIE DOES NOT LIE, CHEAT OR STEAL OR TOLERATE THOSE WHO DO.

Copyright
"Please note that all handouts and supplements used in this course are copyrighted. This includes all materials generated for this class, including but not limited to syllabi, exams, in-class materials, review sheets, and lecture outlines. Materials may be downloaded or photocopied for personal use only, and may not be given or sold to other individuals."

Plagiarism
"As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you have the permission of that 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 latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.” You are also encouraged to discuss specific questions about whether a particular practice is plagiarism or not with your instructor.

**Provisions For Students With Disabilities**

“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 a reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Director of Counseling and each of your course instructors.”
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional

Submit original form and 25 copies. Attach a course syllabus to each.*

1. This request is submitted by the Department of Agricultural Education

2. Course prefix, number and complete title ALEC 609, Learning Organizations

3. Course description (not more than 50 words) Theory of instruction to support education in social systems language and archetypes; systems thinking theory including mental models; mastery, team learning, concept models of human organizations.

4. Prerequisite(s) ALED 340; Graduate Classification Cross-listed with Cross-listed courses require the signatures 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 489/689? □ Yes □ No If yes, how many times? _____ time Indicate the number of students enrolled for each academic period it was taught. 06C. Previously graduate students took ADEV 342

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)
      M.S., Ph.D. in agricultural education; M. Ag. in agricultural development

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

10. Prefix Course # Title (exclude punctuation) ALEC 609 Learning Organizations

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
<th>SCH</th>
<th>Subject Matter Content Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>FICE Code</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3</td>
<td>0</td>
<td>031.1301.0005</td>
<td>015007-08</td>
<td>010366</td>
<td>00000000</td>
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Do not complete shaded area.

Approval recommended by:
Kim E. Dooley 6/5/06

Chair, College Review Committee 5/7/06

Dean of College 5-9-06

Submitted to Coordinating Board by:

Director of Academic Support Services

Date Effective Date

* Attach a syllabus according to the guidelines on the Internet site www.tamu.edu/admissions/oaras. To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.

OAR/AS-1099
Learning Organizations

ALEC 609

Schedule:

Location:

Instructor: Dr. Chris Townsend, 107 Scoates Hall
leader@tamu.edu, Office hours by appt. 458-3705 or 862-3003

Text and materials: Good to Great, Jim Collins, HarperCollins Publisher, 2001
*Course website: www.aged.tamu.edu/classes/609
1 packet of 3 x 5 index cards, Neo account, 3 scantron forms (see outline)

Course objectives: In this course, students will:
1. build a working knowledge of a learning organization’s five disciplines
2. develop the vocabulary of the five disciplines
3. apply learning org. concepts within a learning community
4. facilitate learning, demonstrate knowledge acquisition, and apply concepts
to applied contexts
5. lead an undergraduate learning community
6. evaluate undergraduate progress

Application Assignments and Evaluation:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.A.C. cards (6 @ 10 pts each)</td>
<td>60 points</td>
</tr>
<tr>
<td>Learning Community Teacher Evaluation (4@25)</td>
<td>100 points</td>
</tr>
<tr>
<td>Learning Community Reflection</td>
<td>90 points</td>
</tr>
<tr>
<td>Exam #1</td>
<td>250 points</td>
</tr>
<tr>
<td>Exam #2</td>
<td>250 points</td>
</tr>
<tr>
<td>Application Evaluations (10@25)</td>
<td>250 points</td>
</tr>
<tr>
<td>Learning Organizations Teaching Portfolio</td>
<td>250 points</td>
</tr>
<tr>
<td>Total</td>
<td>1250 points</td>
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</tbody>
</table>

Course grades will be assigned according to points earned:

<table>
<thead>
<tr>
<th>Points</th>
<th>Grade</th>
</tr>
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<tbody>
<tr>
<td>1119 - 1250</td>
<td>A</td>
</tr>
<tr>
<td>994 - 1118</td>
<td>B</td>
</tr>
<tr>
<td>869 - 993</td>
<td>C</td>
</tr>
<tr>
<td>744 - 868</td>
<td>D</td>
</tr>
<tr>
<td>below 744</td>
<td>F</td>
</tr>
</tbody>
</table>

Class expectations:
This class is a graduate-level learning experience and students are expected to participate in a manner that allows them to master
the content and study the theory of teaching techniques. Class time will be spent to allow students synthesis of new concepts
presented in the theory of learning organizations. Your role will be to direct a learning community studying one discipline of
learning organizations.

All assignments are due by the date listed in the syllabus and course outline. Following an excused absence (see the student rule
handbook for a complete description), students may turn in late work according to the university policy. For non-university excused
absences, late work will be accepted up to 3 class days past the due date and will be penalized 10%/day.
### Course Outline

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>week 1</td>
<td>Introductions, creating a learning environment, review of syllabus, expectations, assignments, evaluation. Why learning organizations? Summary of “5 Disciplines” Creating learning communities</td>
<td>Assign groups Application 1 – Profile.pdf</td>
</tr>
</tbody>
</table>

**READ CHAPTER 1: Good is the Enemy of Great**

| week 2 | Managing change and organizational leadership Learning communities discussion of Personal Practices Profiles Application 1 Systems view of organizations Application 2 – Leader.pdf | |

**READ CHAPTER 2: Level 5 Leadership**

| week 3 | Systems and archetypes Learning Community discussion of leadership Application 2 8:00am - Learning Community Leaders’ Meeting 8:30am - Personal mastery: Values | S.A.C. DUE: WK 1 & 2 “A” Leaders meet (Personal Mastery) Whole class meets |

**week 4**

| Personal mastery: Tensions and vision blocks Personal mastery: Barriers to telling the truth Application 3 – Boss.pdf; Questions.pdf |

**READ CHAPTER 3: First Who...Then What**

| week 5 | Learning Community Leaders teach: Personal Mastery and Chapters 1 & 2 Learning Community discussion of “the Boss” (vision blocks) Application 3 8:00am - Learning Community Leaders’ Meeting 8:30am - Shared vision: Review of vision definitions | “A”s” Teach S.A.C. DUE: WK 3 & 4 “B” Leaders meet (Shared Vision) Whole class meets DUE: “A” Leader Eval. |

**week 6**

| Shared vision: Core values & success factors Commitment vs. compliance, stages of leadership Application 4 – Vision.pdf | |
week 7

Learning Community Leaders teach:
Shared Vision and Chapters 3 & 4
Learning Community discussion of “real visions”
Application 4

READ CHAPTER 5: The Hedgehog Concept

Review for Exam #1
Application 5 – Good to Great Rev 1.pdf

"B's" Teach
S.A.C. DUE: WK 5 & 6

week 8

Exam #1 - bring scantron 0-101607-TAMU
Material covered includes: all readings, lectures, activities, and hand-outs through Shared Vision
8:00am - Learning Community Leaders’ Meeting

8:30am – Mental Models
Practicing left/right hand columns
Balancing inquiry & advocacy

"C" Leaders meet
(Mental Models)
Whole class meets

week 9

Ladder of inference
Conversation protocols
Application 6 – Protocols.pdf

S.A.C. DUE: WK 7 & 8
for 11/1 class

week 10

Learning Community Leaders teach:
Mental Models and Chapter 5
Learning Community discussion of conversation
Application 6
8:00am - Learning Community Leaders’ Meeting

8:30am - Team Learning: time management

"C's" Teach

"D" Leaders meet
(Team Learning)
Whole class meets
DUE: "C" Leader Eval.

week 11

Team Learning: sense of teamwork
Team learning: dialog protocol

Application 7 – Flext ime.pdf

S.A.C. DUE: WK 9 & 10
DUE: Learning Community Reflection

READ CHAPTERS 7, 8: Technology Accelerators,
The Flywheel and the Doom Loop
**week 12**

Learning Community Leaders teach:
- Team Learning and Chapter 6
- Learning Community discussion of Flextime dilemma
- Application 7

8:00am - Learning Community Leaders' Meeting

8:30am – Review for Exam #2

**Application 8 – Good to Great Rev 2.pdf**

“D’s” Teach

“E” Leaders meet
(Systems Thinking)
Whole class meets
DUE: “D” Leader Eval.
Exam #2 review

**week 13**

Exam # 2, - bring scantron 0-101607-TAMU
Material covered includes lectures, readings, activities and hand-outs through Team Learning

S.A.C. DUE: WK 11 & 12

**week 14**

Systems Thinking: introduction
- Balancing loops
- Reinforcing loops and delays

**Application 9 – Loops.pdf**

READ CHAPTER 9: From Good to Great to Build to Last

**week 15**

Learning Community Leaders teach:
- Systems Thinking and Chapters 7 & 8

**Application 10 – Learning Organizations reading**

“E’s” Teach

**FINAL EX**

(Final Exam Period)

Portfolio due
“E” Leader Eval.
Explanation of Assignments

S.A.C. Cards:
At the beginning of designated weeks (on Monday mornings), you will write a one sentence SYNTHESIS, ANALYSIS, OR CRITIQUE (S.A.C.) of the material covered during the previous week. The statements must be turned in on a 3x5 index card, and dated with your name clearly printed in the upper right hand corner. S.A.C. cards will be collected at 8:00am and may not be turned in after that time. In the case of a university excused absence you are responsible to turn in a S.A.C. card according to the university policy for make-up work. 6 cards @ 10 points each = 60 points

Learning Community Teacher Evaluation:
To apply the concepts generated in this course, small, 5-person learning communities are utilized. Each member of the learning community will facilitate the discussion linking one of the 5 Learning Organization Disciplines with a selected chapter(s) from Good to Great (our text). After each of the Learning Community Lessons, you will evaluate the instructor. 4 evaluations @ 25 points each = 100 points

Learning Community Reflection:
How has the learning community enhanced your learning? For this assignment, you evaluate the concepts, ideas, and activities used by the facilitators to benefit your learning. Your reflection addresses issues such as: what are the positive outcomes from utilizing a learning community? and how do learning communities benefit organizations? 90 points

Application Accountability:
10 times during the semester you will complete "homework" in preparation for future class discussion. Your accountability is rewarded by points added to your total course score. Not only will you receive points for completing the 10 assignments, you will be prepared for class discussion. 10 application activities @ 25 points each = 250 points

Tests:
Two traditional exams are included to evaluate students' recall and assimilation of learning organization principles. The exam formats are varied to allow for as many learning styles as possible. Both objective (multiple choice) and subjective (short answer) questions are included. 2 Exams @ 250 points each = 500 points

Final Portfolio:
Create a collection of the notes from the class. Include theory and teaching practice so that you may use this portfolio in future teaching or training experiences. Total = 250 points

Additional Information

"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. For further information please visit http://www.tamu.edu/aggiehonor.

Please note that all handouts and supplements used in this course are copyrighted (all materials generated for this class, including but not limited to syllabi, in-class materials, and lecture outlines). Materials may be photocopied for personal use only.

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 accommodation, please contact Disabilities Services, Cain Hall, Room B118, 1224 TAMU, 845-1637.
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional

Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Biochemistry and Biophysics.

2. Course prefix, number and complete title: BICH 655 Crystallography Methods

3. Course description (not more than 50 words): The practice of x-ray diffraction in the study of biomolecules; solving protein crystal structures.

4. Prerequisite(s) Graduate Classification

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

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

7. Has this course been taught as a 489/689? □ Yes ☐ No. If yes, how many times? ___ Indicate the number of students enrolled for each academic period it was taught. 7/2003A

8. 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)
      Ph.D. in Biochemistry, Ph.D. in Genetics

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

10. Prefix Course # Title (exclude punctuation) Cross-listed with
    BICH 655 CRYSTALLOGRAPHY METHODS

    | Lect. | Lab | SCH | Subject Matter Content Code | Admin. Unit | Acad. Year | FICE Code |
    |-------|-----|-----|-----------------------------|-------------|-----------|-----------|
    | 0     | 2   | 0   | 3                           | 0           | 2         | 0         |
    | 0     | 3   | 0   | 0                           | 2           | 2         | 0         |
    | 0     | 2   | 0   | 2                           | 0           | 0         | 0         |
    | 0     | 2   | 0   | 2                           | 0           | 0         | 0         |
    | 0     | 3   | 0   | 3                           | 0           | 3         | 0         |

   Do not complete shaded area.

Approval recommended by:

Head of Department  Date

Chair, College Review Committee  Date

Dean of College  Date

Submitted to Coordinating Board by:

Director of Academic Support Services  Date

Effective Date

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.
OAKAS 504
Departmental Request for a Special Topics in ... Course
Submit original form and 2 copies. Attach a course syllabus to the original.*

To: Dean of College of Agriculture and Life Sciences (for undergraduate)
Office of Graduate Studies (for graduate) 302 Jack K. Williams Admin. Bldg., Mail Stop 1113

I request approval of the following Special Topics course for the Spring 2006 term in the
Department of Biochemistry and Biophysics Course: BICH 689 601

Title: Special Topics in Crystallography Methods

Please give a suggested 24 character abbreviation (including spaces): SP TP Crystallography Methods

Subtitle Code ........................................ (for office use only)

Number of hours a week: Lecture: 2 .... Laboratory: 3 .... Credit: 3 ....

Description of course (no more than 50 words): The practice of x-ray diffraction in the study of biomolecules; solving protein crystal structures.

Prerequisite(s): Graduate classification

Instructor: James Sacchetti
Instructor ID #: 202 00 7503

Has this Special Topics course been taught before? Yes ........... If yes, how many times? 1 ..........
Indicate the number of students enrolled .......................... and each academic period taught: 2003...

If a similar course is offered at the University, identify it by prefix and course number: ............................................

If this course has been approved as a new course, give prefix and course number: ............................................

Should this course be considered for approval within any category of the University Core Curriculum? No ............
If yes, see below.

Additional comments (cross-listing, satisfactory/unsatisfactory, distance education, etc.): ............................................

*Attach a syllabus with a course outline of sufficient detail to permit an accurate evaluation of the course content. Indicate the lecture and laboratory periods. In one hour increments, that will be required to present the proposed subject matter. Include a list of books (indicate author), titles of scientific journals or other resource materials. Also include the method by which students will be evaluated.

Department Head ........................................ Date

Dean of College ........................................ Date

Office of Graduate Studies (for 689s only) ........................................ Date

To be included in the Schedule of Classes, a separate departmental request, using this form, must be submitted to the Dean’s Office (for 289s/489s) or the Office of Graduate Studies (for 689s) for each semester or summer term that a special topics course is to be taught. An approved copy of this form will be sent to the Department and the Registration Office by the Dean’s Office (for 289s/489s) or the Office of Graduate Studies (for 689s).

An approved copy has been sent to the Department and the Registration Office by the Dean’s Office/Office of Graduate Studies.

Date ........................................

To be included in the Core Curriculum, a separate departmental request, using this form, and a Request for Addition to the Core Curriculum form must be submitted to the Core Curriculum Council for each semester or summer term that a special topics course is to be taught (before August 1 for spring offerings; before January 15 for summer and fall offerings). An approved copy of the forms will be sent to the Department and the Office of the Registrar by the Faculty Senate.

An approved copy has been sent to the Registration Office by the Core Curriculum Council/Faculty Senate.

Date ........................................
BICH 655

CRYSTALLOGRAPHY METHODS

James C. Sacchettini

3 Credits – 8 week course

Prerequisites: Approval of instructor

Text: None

Time: Tuesday, Thursday, Friday – 9:00 – 10:30 am

Additional times TBA

Location: Bio/Bio room 106

This course will use a lecture format to teach students about the practice of x-ray diffraction in the study of biomolecules. The students will then be required to participate in a weekly lab session where they will gain hands-on experience in solving protein crystal structures. Researchers in the area of x-ray crystallography will also present seminars that demonstrate the application of lecture materials. The students will be evaluated through regular assignments, class participation and a final exam.

Tentative Dates

02/10/06  Crystallization of macromolecules
02/12/06  Properties of x-rays
02/13/06  Lab
02/17/06  Diffraction of x-rays by crystals
02/19/06  Diffraction of x-rays by crystals
02/20/06  Lab
02/24/06  Bragg’s Law
02/26/06  Space group symmetry
02/27/06  Lab
03/02/06  Space group symmetry
03/04/06  3D Fourier transform
03/05/06  Lab
03/09/06  3D Fourier transform
03/11/06  Phasing methods
03/12/06  Lab
03/16/06  Location of HA’s
03/18-19/06  Spring Break
03/23/06  Location of HA’s
03/25/06  Phase calculation
03/26/06  Lab
03/30/06  Phase calculation
04/01/06  Anomalous dispersion
04/06/06  Final

Grading
Tests – 50%
Lab Work – 40%
Participation – 10%

STATEMENT ON DISABILITIES

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 a reasonable accommodation for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Office of Support Services for Students with Disabilities in Room B118 in Cain Hall. The telephone number is 845-1637.

Academic dishonesty in any form is a serious offense and cannot be tolerated in an academic community. Dishonesty, in any form, including cheating, plagiarism, deception of effort, or unauthorized assistance, may result in a failing grade in the course.

WE DO EXPECT STUDENTS TO FOLLOW THE
"AGGIE CODE OF HONOR"
"An Aggie does not lie, cheat or steal or tolerate those who do."
www.tamu.edu/aggiehonor
Academic Integrity Statement
All syllabi shall contain a section that states the Aggie Honor Code and refers the student to the Honor Council Rules and Procedures on the web.

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/
On all course work, assignments, and examinations at Texas A&M University, the following Honor Pledge shall be preprinted and signed by the student:
“On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work.”
09/05
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and 25 copies. Attach a course syllabus to each.*

1. This request is submitted by the Department of Biology.

2. Course prefix, number and complete title: BIOL 652, Epigenetic Mechanisms

3. Course description (not more than 50 words): Lectures and discussion of current research in epigenetic inheritance and its mechanisms in a variety of organisms. Structure of the course includes paper discussion and presentation, grant-writing, and grant-review.

4. Prerequisite(s): Biochemical Genetics (BICH 631)

Cross-listed with: 

Cross-listed courses require the signatures 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 489/689? ☐ Yes ☐ No If yes, how many times? 2 Indicate the number of students enrolled for each academic period it was taught. 2003A: 8 ; 2005C: 7

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)

M.S. in Biology, Ph.D. in Biology

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

10. Prefix | Course # | Title (exclude punctuation)
    
    BIOL 652EPIGENETIC MECHANISMS

<table>
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Approval recommended by: J. Smith 4.27.06

Head of Department Date
Chair, College Review Committee Date
Dean of College Date

Submitted to Coordinating Board by: D. Johnson

Director of Academic Support Services Date Effective Date

* Attach a syllabus according to the guidelines on the Internet site www.tamu.edu/admissions/oaras. To have this form reviewed, please send to Linda F. Lacey, Mall Stop 1265 or fax to 847-8737.
Epigenetic Inheritance

BIOL 652 — Fall 2007

Course Meeting

Class Day: Wednesdays, weekly
Class Time: 10 am – 1 pm
Location: Heldenfels 117 (HELD 117)
Number of Credits: 03
Course web page: http://web.mac.com/kmaggert/iWeb/Teaching/Welcome.html

Personnel

Instructor

Dr. Keith A. Maggert
Office: BSBW 354
Phone: 979-845-6610
E-mail: kmaggert@tamu.edu
Office Hours: Mondays 2:30 – 3:30 pm, Tuesdays 2:30 – 3:30 pm

Course Description

Epigenetic Inheritance is an advanced graduate level course whose purpose is to provide a comprehensive understanding of epigenetic topics. The course will emphasize classically- and currently-described violations of Mendelian inheritance: their phenomenology, molecular underpinnings, and evolutionary implications. Case studies will be taken from eukaryotes of all sizes, including fungi, plants, and animals. The course discussions will rely on literature reviews and primary research articles.

During this course, students will develop and prepare NIH-style grant proposals. Preparation of these proposals will be accompanied by lectures discussing grant preparation and review. Students will review funded grants, rejected grants, and peer grants. It is our hope that, by the end of the course, each student will have a proposal that is acceptable for submission for review.

Course Prerequisites

This course assumes that the student has a thorough understanding of microbiology, molecular biology, and genetics. Students must have been exposed to at least one undergraduate level molecular genetics course (e.g., BICH431). It is required that students take Biochemical Genetics (BICH631), before taking this course.

Course Requirements
Attendance:
1. All students are required to attend lectures.
2. All students are required to arrive to lectures on time and remain for their duration.
3. Only students having officially recognized absences are excused from attending lectures (see Student Rules, Academic Rules, Part I, Paragraph 7).
4. Students are required to participate in class discussions.

Reading and Supplements:
1. All students are required to read in detail the assigned reading for each lecture.
2. All students are required to watch the video presentation entitled “Inside the NIH Grant Review Process.”

Executive Summary:
1. All students are required to write a 1-page Executive Summary in the style of a NIH Specific Aims section (examples will be provided).
2. All students are required to peer-review Executive Summaries and provide written feedback.
3. All students are required to rewrite Executive Summaries.

Grant Proposal:
1. Students are required to write a 7-10 page NIH-style grant proposal
   - NIH-style proposals include Specific Aims (only one Specific Aim is required for purposes of this course), Background and Significance, Preliminary Results, and Research Design and Method.
   - Recommendations are: Specific Aims/Executive Summaries (1 page), Background and Significance (3 pages), Preliminary Results (2 pages), Research Design and Method (3 pages), References (1 page).
   - In lieu of preliminary data, students may discuss what experiments would be needed (and relevant experimental design) prior to Grant submission.
   - Examples of Grant proposals will be provided.
2. All students are required to participate in peer-review of Grant Proposals by reading all proposals and writing a 1-2 page Summary Statement for each of two Proposals.
   - NIH-style Summary Statements include analyses of Significance, Approach, Innovation, and Overall Evaluation.
   - Examples of Summary Statements will be provided.
3. All students are required to present Summary Statements of two Grant Proposals that they have reviewed to the class.
4. All students are required to participate in group discussion of all Grant Proposals.
Students that fail to comply with any of these requirements will lose points in their evaluation.

**Grading**

Letter graded. Grades will be based on attendance, preparation for each lecture, participation in discussions, executive summaries, quality and feasibility of the grant proposal, and peer-evaluation of the grant proposal. There will be no opportunity to earn extra credit by doing extra work. Assignments will not be accepted late.

- If you want an “A” in this course, you must complete all required assignments, as detailed above, read all assignments prior to class, take an active part in class discussions, and develop a competitive grant proposal.
- If you want a “B” in this course, you must complete all required assignments, as detailed above.
- If you want a “C” in this course, you must attend 80% of class meetings, complete the executive summary, and submit the grant proposal.
- If you do less than those requirements, you will not pass this course.

**Course Organization**

Each class meeting will be 3 hours, except as noted below. The class will meet once per week (see schedule below). The penultimate class session will be brief or may be replaced by email submission of the grant proposal. The final class session will be extended so as to accommodate an NIH-style Study Section discussion of all grants.

Some class meetings will consist of either lectures by the instructor, discussions led by either the instructor or selected students, or discussion of grantsmanship.

We may interrupt the schedule if appropriate speakers or visiting scientists are available to join our class. If this happens, we will assign papers relevant to that visitor’s research and class will consist of discussion of his or her research.

During class, students will select topics for proposals. Students will submit three copies of a 1-page Executive Summary that consists of a brief introduction to a research plan investigating an epigenetic phenomenon of the student’s choice (provided instructor approval), topical relevance (e.g., to disease, evolution, pharmacology, etc.), and proposed research plan that includes one specific aim for research. Two copies will be given to other students for peer-review. In a subsequent class meeting, approximately one-half of the class time will be dedicated to interaction between students to discuss and evaluate Executive Summaries. Rewrites of the Executive Summaries are due at the beginning of the next class. Students will turn in two copies of an outline of the full-length grant proposal, as well as a reference list. Students will work in pairs to discuss particulars about the grant proposals. Final grant proposals should be 7-10 pages, in NIH-style format. Sufficient copies are required for all students and both instructors. This class may be supplanted by email-submission. Prior to the final class meeting, all students are required to read all grants, and write 1-2 page Summary Statements for two, as assigned by the course instructors. The final class meeting will be an extended
course meeting and thus may need to be rescheduled to accommodate room availability, the entire class will meet to discuss all the grants, assign scores, and develop a ranking.

**Course Schedule**

<table>
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<tr>
<th>#</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
<th>Due</th>
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<tbody>
<tr>
<td>1</td>
<td></td>
<td>Administrative, Course Overview</td>
<td>DNA Methylation</td>
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<td>2</td>
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<td>DNA Methylation</td>
<td>Genomic Imprinting</td>
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<td>3</td>
<td></td>
<td>DNA Methylation and Genomic Imprinting</td>
<td>Histone Modifications and Variants</td>
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<tr>
<td>4</td>
<td></td>
<td>Histone Modification</td>
<td>Centromeres</td>
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<td>5</td>
<td></td>
<td>Histone Variants and Centromeres</td>
<td>Executive Summaries</td>
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<td>6</td>
<td></td>
<td>Grantsmanship I: Executive Summaries</td>
<td>RNA Silencing</td>
<td>Proposal Topics</td>
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<td>7</td>
<td></td>
<td>RNA Silencing</td>
<td>Meiotic Silencing</td>
<td>Executive Summaries</td>
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<td>8</td>
<td></td>
<td>RNA Silencing, Meiotic Silencing; Peer-Editing of Executive Summaries</td>
<td>Smeltzer grant</td>
<td>Executive Summary comments</td>
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<td>9</td>
<td></td>
<td>Grantsmanship II: Grant Proposals</td>
<td>Maggert grant</td>
<td>Executive Summary rewrites</td>
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<td>10</td>
<td></td>
<td>Group Discussion: strong/weak grants</td>
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<td>Proposal Outline and References</td>
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<td>11</td>
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<td>Grantsmanship III: Study Section/Review</td>
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<td>Proposal Introduction</td>
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<td>12</td>
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<td>Discussion and Peer-Editing</td>
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<td>Proposal Experimental Design</td>
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<td>13</td>
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<td>(brief class session, or via email)</td>
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<td>Complete Proposal</td>
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<td>14</td>
<td></td>
<td>Grant Proposal Study Section/Discussion</td>
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<td>Summary Statements</td>
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<td>(extended class session)</td>
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Please read the following information; you are responsible for knowing it.

Student Rights and Responsibilities:

Texas A&M University has codified the rights and responsibilities of its students. If you have any questions about what these rights and responsibilities entail, please consult the latest issue of the TAMU Student Rules at http://student-rules.tamu.edu. Texas A&M has established an office and procedure for the adjudication of student misconduct, grievances, and academic dishonesty. These policies can be found at the Office of the Agiators in an attempt to resolve the problem. If the results are unsatisfactory, you should next contact the Department’s Student Advisor, or Dr. Vincent Cassone, the Department Head.

Grievances:

If at any time you have questions concerning this course, the Department, or other issues that are not answered in the lectures or readings PLEASE arrange to see the instructors outside of class – we have indicated office hours during which time we are available to address your questions. Alternatively, you may contact us for an appointment. If you have an unresolved conflict concerning the instructors or the class, you should first contact the instructors in an attempt to resolve the problem. If the results are unsatisfactory, you should next contact the Department’s Student Advisor, or Dr. Vincent Cassone, the Department Head.

Make-up Attendance Policies:

If you miss a day of class without a legitimate excuse, you will be assigned a zero for that day. Legitimate excuses for missing class are defined in the TAMU Regulations (http://student-rules.tamu.edu/rule7.htm). If your reason for missing class fulfills one of the conditions listed in the regulations, you should notify me as soon as possible and then provide documentation for your excuse by the end of the next working day after your absence. You will then be allowed to make-up any missed activity within 30 days from your last date of absence.

Americans with Disabilities Act (ADA) Policy Statement:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Cain Hall or call 845-1637.
Texas A&M University  
Departmental Request for a New Course  
Undergraduate • Graduate • Professional  
Submit original form and 2 copies. Attach a course syllabus to each.  

1. This request is submitted by the Department of **Bush School**  
2. Course prefix, number and complete title **BUSH 603 American Diplomacy**  

3. Course description (not more than 50 words)  
Explores cases in American Foreign policy between 1975-2005 related to Central and Eastern Europe and the former Soviet Union. Examines the responses of American foreign policy practitioners to the unraveling of the U.S.-Soviet detente, the collapse of communism in Central Europe and the former Soviet Union and the post-communist transitional period  

4. Prerequisite(s) **Graduate classification**  
Cross-listed with  
Cross-listed courses require the signatures 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 489/689? ☐ Yes ☐ No If yes, how many times? ___ 2 ___ Indicate the number of students enrolled for each academic period it was taught. Fall 05 - 17, Spring 06 - 10  

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)  
**Bush MPIA, MPSA or CAIA**  

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

10. Prefix | Course # | Title (exclude punctuation)  
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BUSH | 603 | American Diplomacy  

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**Approval recommended by:**  
Head of Department  
Date  
Chair, College Review Committee  
Date  
Dean of College  
Date  
Head of Department (if cross-listed course)  
Date  
Dean of College  
Date  
Submitted to Coordinating Board by:  

Director of Academic Support Services  
Date  
Effective Date  

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.  
OAR/AS-5/04
American Diplomacy (1975-2005)
Selected Case Histories in Foreign Policy Decision-Making
Bush School 605
Fall 2006 (Mondays, 9:00-11:50 a.m., Room 1107)

Ambassador and Senior Lecturer Larry C. Napper
Office 1091
Telephone 979-845-6897; e-mail: lnapper@bushschool.tamu.edu
Office Hours: Wednesdays 9:00 to 12:00

Seminar Description and Purpose

This seminar explores selected cases in American foreign policy between 1975 and 2005 with a focus on events in Central and Eastern Europe, the former Soviet Union, and Southern Africa in which the instructor was a first-hand participant. The seminar will examine how American foreign policy practitioners, in Washington and in U.S. embassies, responded to and attempted to shape events during three periods: the unraveling of U.S.-Soviet détente, the collapse of communism in Central Europe and the former Soviet Union, and the post-communist transitional period still underway. In addition, the seminar will examine the uses of history in decision making by foreign policy practitioners, including the specific methods suggested by Richard E. Neustadt and Ernest R. May in their book, Thinking in Time: the Uses of History for Decision Makers.

Course Requirements

In addition to reading and written assignments, seminar participants will participate in a number of simulations. Active participation is central to the seminar and will represent a major component of the course grade. Written assignments must be submitted on time. **Assignments submitted late without the advance permission of the instructor will be assessed a 1.0 penalty, equivalent to a letter grade.**

**Book Review:** Seminar participants will prepare a book review (3-5 pages) of a work of fiction or non-fiction (not previously read) that seeks to capture the spirit of the era. For example, participants may review a contemporary account of summity during the Presidency of either George H.W. Bush (At the Highest Levels) or the Presidency of Bill Clinton (The Russia Hand). Other options for the book review are encouraged but must be agreed with the instructor by the third week of the term (September 13). **Book reviews are due at week seven of the seminar (October 11).** The book review will count 20% of the course grade.

**Simulations in the Uses of History for Practitioners:** During the first twelve weeks of the seminar, seminar participants will engage in a series of simulations employing the techniques suggested by Neustadt and May in Thinking in Time applied to specific cases in American foreign policy since during 1975-2005. Participants will work in teams to prepare written and oral presentations for decision-makers. Each team will receive a grade for each simulation and each member of the team will receive the same grade for
that simulation. Each participant’s grades for these simulations will be averaged, and that average grade will count 20% of the final course grade.

"Failing State" Simulation Preparation: During the second half of the seminar, participants will prepare and conduct a simulated NSC meeting in which the President and his advisors consider whether and how to act in a scenario of imminent failure and potential collapse of the state in a country of critical interest to the United States. Each seminar participant will write an action memo (2-3 pages) to the President with recommendations for U.S. policy and allocation of resources. The action memo will count 20% of the course grade. The Action Memorandum is due at week thirteen of the seminar (November 22).

Conduct of the “Failing State” Simulation: Each participant in the NSC meeting will have the opportunity to brief the President and then participate in discussion of options. The President will react to presentations, ask questions, and may direct follow-up work. Participation in the simulation will count 20% of the course grade. The “Failing State” simulation will take place during the seminar on week fourteen (November 29).

Research Paper: In his evaluation of Mikhail Gorbachev’s leadership of the Soviet Union, George Breslauer suggests that Gorbachev was “an event making man whose uncommon personal traits led to outcomes that would not have taken place in the absence of the leadership he provided”. Seminar participants will select an American or foreign leader from the period 1975-2005 and will submit a research paper (7-10 pages) making the case for that individual as “an event making person.” Seminar participants should reach agreement with the instructor on the subject of this research paper by week four of the seminar. The research paper will count 20% of the course grade. The research paper is due at week fifteen of the seminar (December 6).

Grades for written work and seminar participation will be assessed on a rising scale from 1-7 points. The average point total for the entire seminar will be used to calculate final grades as follows:

- Average Point Total of 6.25 or higher  A
- Average Point Total of 5.75 or higher  B
- Average Point Total of 5.25 or higher  C
- Average Point Total of 4.25 or higher  D
- Average Point Total Less than 4.25  F

Academic Honesty: Students who engage in plagiarism or other forms of academic dishonesty are subject to disciplinary penalties, including failure in the course and possible dismissal from the university. Please consult the latest issue of the Texas A&M Student Rules, especially the section on Scholastic Dishonesty.

Americans with Disability 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 for their disabilities. If you believe that you have a disability requiring accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Room 126, Koldus Building (Phone 845-1637).

**Reading:** The seminar will require reading from a variety of sources, including the following:


**Course Outline and Reading**

**Week One (August 30): Seminar Orientation and Overview.**

Neustadt and May, *Thinking in Time*, pp. 1-33 and 247-270.

**Unit One: The Cold War – Détente to Glasnost**

**Week Two (September 6): “Détente and Its Discontents” – Moscow (1976)**


**Week Three (September 13): “Evil Empire” at the Crossroads – Afghanistan and Poland (1980)**
Ulam, *Dangerous Relations*, pp. 255-316.
Neustadt and May, *Thinking in Time*, pp. 91-96 and 111-133.

*Selection of book to be reviewed*

**Week Four (September 20):** *Death Watch to Gorbachev and Glasnost – Moscow* (1984)


*Selection of research paper topic*

**Week Five (September 27):** *The Shoving Match – Southern Africa* (1988)


**Unit Two: Collapse – Disintegration of the Warsaw Pact and the Soviet Union**

**Week Six (October 4):** *When Did the Cold War End?*

Matlock, "The End of the Cold War"

**Week Seven (October 11):** *Gotterdammerung - Bucharest* (1989)


*Book Review Due*

**Week Eight (October 18):** *Bush '41 and the Collapse of the Soviet Union* (1992)

Goldgeier and McFaul, *Power and Purpose*, pp. 18-86.

**Week Nine (October 25):** "The Russia Hand" and the Crisis of Russian Reform (1993)

Neustadt and May, *Thinking in Time*, pp. 196-211.
Week Ten (November 1): The Prospects and Perils of Transformation

Lynch, *How Russia is Not Ruled*, pp. 239-255.

Unit Three — “War in a Time of Peace”


Asmus, *Opening NATO’s Door*, pp. 175-250.

Week Twelve (November 15): Kosovo and Nation Building – Balkans (2000)

Dobbins et al., *America’s Role in Nation Building*, pp.111-128 and 149-166.
“In the Wake of War: Improving U.S. Post-Conflict Capabilities”

Week Thirteen (November 22): 9/11, GWOT, and Central Asia – Almaty (2001)

Davis and Sweeney, *Central Asia in U.S. Strategy*, Executive Summary and pp. 1-75.

*Action Memorandum for “Failing State” Simulation Due*

Week Fourteen (November 29): Looking Forward

Crocker, “A Dubious Template for U.S. Foreign Policy”

*Conduct of “Failing State” Simulation*

Week Fifteen (December 6)


* Research Paper Due
MEMO

TO: Chuck Hermann, Bush School
FROM: Patricia A. Hurley, Head
RE: Proposed new Bush School Courses
DATE: April 19, 2006

Various members of the Department of Political Science have reviewed the syllabi for the Bush School’s proposed new courses “Politics of the Contemporary Middle East” and “American Diplomacy.” The Department of Political Science has no objection to these particular courses. We have no graduate offerings specifically on the Middle East and have no plans to hire an area studies expert specializing in this region. We have just hired a game theorist who specializes in diplomacy, but the diplomacy course proposed is unlikely to overlap the graduate offerings we will have in this area for our Ph.D. students.

It is unlikely that any Ph.D. students in political science would enroll in these particular courses. The work loads and the character of the readings do not mesh well with the expectations we have for Ph.D. students in political science. The Political Science faculty see the courses as appropriate for the professional degree students enrolled in the Bush School.
Texas A&M University

Departmental Request for a New Course
Undergraduate • Graduate • Professional

Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of [Bush School]

2. Course prefix, number and complete title: [604 Politics of the Contemporary Middle East]

3. Course description (not more than 50 words): Learn factors influencing the political course of the Middle East, what makes the region seemingly "impervious" to worldwide trends, topics include regime types, influential political trends, the role of kinship, religion and tribe in opposition and regime politics, regional oil economy, democratic liberalization, growth of civil society.

4. Prerequisite(s): [Graduate classification]

5. Is this a variable credit course? [No] If yes, from ______ to ______.

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

7. Has this course been taught as a 489/689? [Yes] [No] If yes, how many times? [2] Indicate the number of students enrolled for each academic period it was taught. Fall 05 - 12, Spring 06 - 8

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)

   Bush MPIA, MPSA or CAIA

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

10. Prefix | Course # | Title (exclude punctuation)
    BUSH   | 604 | Politics of the Contemporary Middle East

    Lect. | Lab | SCH | Subject Matter Content Code | Admin. Unit | Acad. Year | FICE Code
    00     | 00  | 00  | -                            | 0            | 3           | 6 3 2

Do not complete shaded area.

Approval recommended by:

Head of Department [Signature] Date

Head of Department (if cross-listed course) [Signature] Date

Chair, College Review Committee [Signature] Date

Dean of College [Signature] Date

Submitted to Coordinating Board by:

Director of Academic Support Services [Signature] Date

Dean of College [Signature] Date

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.

OAR/AS-5/04
Bush School of Government and Public Service  
Texas A&M University  
Fall 2006

Bush 604: Politics of the Contemporary Middle East  
Instructor: Rola el-Husseini, Ph.D.  
Office 1095, Bush School  
Office Hours: Wednesday 2-4 PM or by appointment  
Email: rhusseini@bushschool.tamu.edu  
Tel: 979-845-6591

COURSE OBJECTIVES:
This is a survey course putting the Middle East in comparative perspective, using social scientific categories to analyze the region. Students will learn the most important factors influencing the political course of the Middle East today, especially what makes the region seemingly "impervious" to worldwide trends. Topics will include: regime types, their bases and causes; influential political trends such as Arab nationalism, Ba'thism, and political Islam; the role of kinship, religion, and tribe in opposition and regime politics; the regional oil economy and economic crisis; democratic liberalization; and the growth of civil society.

COURSE MATERIALS:
Textbooks:
Gerner, Deborah J., and Jillian Schwedler, eds. Understanding the Contemporary Middle East.  

William Cleveland, History of the Modern Middle East (2nd Edition) 2000

COURSE REQUIREMENTS:
This course will be conducted as a seminar and is very demanding. The student is expected to attend, to participate actively in the classroom through reports on readings. There will be a take-home midterm exam and a research paper assignment. The student is also expected to attend the film screenings (to be announced). The screening of these (mainly) feature films aims at giving a broader socio-cultural understanding of the region, beyond the historical/political approach of the course. The film screenings are also open to all the students and faculty of the Bush School.

Failure to fulfill any of the class expectations or graded components will result in a course grade of 'F'.

Students are highly encouraged to read major daily US newspapers such as the New York Times, the Washington Post, in addition to Arab news on the web at least once or twice a week.
www.dailystar.com.lb (a daily newspaper from Lebanon)  
www.jordantimes.com (a daily newspaper from Jordan)  
http://weekly.ahram.org.eg (a weekly from Egypt)  
www.mafhoum.com (a press review with articles on the MENA region in English, French and Arabic)

Other helpful websites include the BBC news website (http://news.bbc.co.uk) and the English version of the Monde Diplomatique (http://mondediplomatie.com) where back issues are available for free. On the French site of the Monde Diplomatique you will find good "Cahiers" (files) on two crucial Middle Eastern issues:
http://www.monde-diplomatique.fr/cahier/proche-orient/ (on the Arab-Israeli conflict)
http://www.monde-diplomatique.fr/cahier/irak/ (on the preparation for the Iraq war)
The Arab-Israeli conflict file has an excellent section entitled "Textes Fondamentaux" or "Fundamental Texts" with an English version of important documents (e.g., The Balfour declaration or the different UN resolutions)

READING REPORTS
As a seminar, this course will approach its subject material primarily through discussion. This means that each student is responsible for the upkeep and the success of the class. Therefore, presence, preparation, and participation are essential.
To ensure preparation and participation, students will be asked to write weekly reports on the required readings. As we are a big group, the class will be divided into 2 groups: every week, one of the groups will turn in their reports by email to the instructor. Reading reports are due on Tuesdays at 8:00 PM. In class, students will be called upon to summarize/criticize/analyze the readings they had to prepare.
The reading reports and class presentations will be graded and the grade counts as class participation.

MIDTERM AND RESEARCH PAPER
The final paper is a 30-35 double-spaced pages research paper on a topic agreed upon with the instructor.
For the midterm, you will be asked to start preliminary research on your paper and formulate the outline. In the outline, you should include the following:
- The question/issue you are analyzing, your argument and working hypothesis, a summary of what other authors say about the topic (Literature review), in addition to the sources you plan to draw on.
- You will also be expected to submit an annotated bibliography of 2-3 pages. You are asked to write a couple of line on each work you plan to use, summarizing the main argument and possibly highlighting omissions or criticizing flaws in the argument.

The final paper will draw on the work done for the midterm. Both the midterm and the final have to be emailed to the instructor by 5:00 PM on the due date.

GRADE DISTRIBUTION
Reading Responses: 30%
Mid-term exam: 30%
Research Paper: 40%

EXAMINATION DUE DATES
Reading reports: weekly
Midterm: 10/07/2005
Research paper: 12/09/2005

AMERICAN DISABILITY ACT
The Americans with Disability 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 accommodation, please advise the instructor.

PLAGIARISM
As commonly defined, plagiarism consists of passing off as one's own ideas, the words, writings, music, graphs/charts, etc that were created by another. In accordance with this definition, you
are committing plagiarism if you copy the work of another person and turn it in as your own, even if you have the permission of that person. It does not matter from where the material is borrowed—a book, article, material off the web, another student's paper—all constitute plagiarism unless the source of the work is fully identified and credited. Plagiarism is cheating and a violation of academic and personal integrity and will not be tolerated. It carries extremely serious consequences.

To avoid plagiarism it is necessary when using a phrase, a distinctive idea, concept or sentence from another source to reference that source in your text, a footnote, or endnote.

For further definition of the different forms of academic misconduct, please check

http://www.tamu.edu/aggiehonor/acadmisconduct.htm

And remember,

**AN AGGIE DOES NOT LIE, CHEAT OR STEAL, OR TOLERATE THOSE WHO DO.**

**APSR STYLE GUIDE**
The Bush School faculty agreed that in all written assignments prepared for courses in the Bush School, the American Political Science Association Style Guide would be the default standard for citations, endnotes and references.
**Week I- Introduction: Where/What is the Middle East?**


**Week II- State-Building and the End of Empire**

*Required Readings:*
Gerner and Schwedler, pp. 54-67.


*Recommended readings:*

**Week III- Varieties of States**

*Required Readings:*
Gerner and Schwedler, pp. 87-126.

Cleveland, pp. 175-237


Richards, Alan, and John Waterbury. *A Political Economy of the Middle East: State, Class and Economic Development*. San Francisco: Westview Press, 1990. (Ch. 11: Political Regimes: As they are and as they view themselves)
Herb, Michael. *All In the Family: Absolutism, Revolution, and Democracy in the Middle Eastern Monarchies*. Albany: State University of New York, 1999. (Ch. 3: Arabian Society and the Emergence of the Petro-State)


Recommended readings:


**WEEK IV- ARAB NATIONALISM, UNITY & POLITICAL PARTIES**

**Required Readings:**
Cleveland, pp. 301-344


Hinnebusch, Raymond "Political Parties in the Arab State", in Dawisha and Zartman (eds.) *Beyond Coercion: the Durability of the Arab State*, Croom Helm, 1988

**WEEK V- PALESTINE IN ARAB POLITICS**

**Required Readings:**
Gerner & Schwedler, chap. 6

Cleveland, pp. 239-270 and pp.345-367


Shafir, Gershon, "Zionism and Colonialism: a comparative perspective" in Ilan Pappe (ed.) The Israel/Palestine Question, Routledge, 1999

Morris, Benny, "The Causes and Character of the Arab Exodus from Palestine" in Ilan Pappe (ed.) The Israel/Palestine Question, Routledge, 1999

Recommended Readings:

WEEK VI- REGIONAL ECONOMY: OIL, MIGRATION, AID, & LIBERALIZATION

Required readings:
Gerem and Schwedler, chapters 7,8, 9.

Ross, Michael L. "Does Oil Hinder Democracy?" World Politics 53 (2001): 325-61. (Read for the point, not details)


Luciani, Giaccomo, "The Oil Rent, the Fiscal Crisis of the State and Democratization" in Ghassan Salame (ed.) Democracy without Democrats, I.B. Tauris, 1994

Recommended Readings:


WEEK VI- DEMOCRATIC REFORM?

Required readings:


Recommended Readings:


Week VIII - Political Challenges: Islamism


Recommended Readings:


Week IX- Civil Society and the Public Sphere


Recommended Readings:


Week X- Neo-Liberalism


Week XI- Urban Life and the Future of the Arab World

Required readings:


**Recommended readings:**


**WEEK XII- REGIME CHANGE: REMAKING STATES**


**Week XIII- The United States and the Middle-East**

S. Huntington, "The Clash of Civilization". Foreign Affairs, Summer 1993

F. Mohammedi & Y. Sadowski, "The Decline (But Not Fall) of US Hegemony in the Middle East", *Middle East Report*, 31:3 (fall 2001) p. 12-22


Rachid Khalidi, *Resurrecting Empire*, 2004 (chapter 5)

M. Mamdani, *Good Muslim, Bad Muslim*, 2004 (chapters 1, 4 and conclusion)

**Week XIV- Conclusions**

Gerner & Schwedler, chap. 14
MEMO

TO: Chuck Hermann, Bush School
FROM: Patricia A. Hurley, Head
RE: Proposed new Bush School Courses
DATE: April 19, 2006

Various members of the Department of Political Science have reviewed the syllabi for the Bush School's proposed new courses "Politics of the Contemporary Middle East" and "American Diplomacy." The Department of Political Science has no objection to these particular courses. We have no graduate offerings specifically on the Middle East and have no plans to hire an area studies expert specializing in this region. We have just hired a game theorist who specializes in diplomacy, but the diplomacy course proposed is unlikely to overlap the graduate offerings we will have in this area for our Ph.D. students.

It is unlikely that any Ph.D. students in political science would enroll in these particular courses. The work loads and the character of the readings do not mesh well with the expectations we have for Ph.D. students in political science. The Political Science faculty see the courses as appropriate for the professional degree students enrolled in the Bush School.
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Computer Science

2. Course prefix, number and complete title: CPSC 622 Generic Programming

3. Course description (not more than 50 words): The generic programming approach to design and systematic classification of software components, techniques for achieving correctness, efficiency, and generality of algorithms, data structures, and memory management, methods of structuring a library of generic software components for maximum usability are practiced in a significant design and implementation project.

4. Prerequisite(s): CPSC 211

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

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

7. Has this course been taught as a 489/689? ☐ Yes ☐ No If yes, how many times? 2 Indicate the number of students enrolled for each academic period it was taught. Fall 05, 17 students & Fall 04, 25 students

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

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

10. Prefix | Course # | Title (exclude punctuation) | Lect. | Lab | SCH | Subject Matter Content Code | Admin. Unit | Acad. Year | FICE Code | Level

   CPSC 622 GENERIC PROGRAMMING | 0 | 0 | 0 | 3 | 1 | 1,070,1,000 | 0 | 60 | 7 | 0 | 2 | 0 | 0 | 3 | 6 | 3 | 2 | 6

Do not complete shaded area.

Approval recommended by:

Head of Department: [Signature] 6/14/06

Chair, College Review Committee: [Signature] 6/14/06

Dean of College: [Signature] 6/14/06

Submitted to Coordinating Board by:

Director of Academic Support Services: [Signature] Date

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-873-5810.
Number and Name of Course: CPSC 622 Generic Programming

Hours: Theory 3 Practice 0 Total 3 Credits 3

Prerequisites: CPSC 211

Curricula requiring this course: [ X] None, it will be elective.

Description of Course (Concise statement of purpose or design.)

The generic programming approach to design and systematic classification of software components, techniques for achieving correctness, efficiency, and generality of algorithms, data structures, and memory management, methods of structuring a library of generic software components for maximum usability are practiced in a significant design and implementation project.

Textbook(s):

<table>
<thead>
<tr>
<th>Course Outline by Major Topics and Approximate Time for Each:</th>
<th>HOURS</th>
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</thead>
<tbody>
<tr>
<td>Introduction and overview</td>
<td>Th. 1</td>
</tr>
<tr>
<td>Necessary C++ background relevant for generic programming</td>
<td>2</td>
</tr>
<tr>
<td>Generic programming essentials: concepts, concept refinement, constraining generic definitions using concepts.</td>
<td>2</td>
</tr>
<tr>
<td>C++ SL overview, design principles, and use</td>
<td>5</td>
</tr>
<tr>
<td>Expressing genericity: parametric polymorphism and higher-order functions, where clauses, bounded polymorphism, run-time vs. compile-time polymorphism</td>
<td>3</td>
</tr>
<tr>
<td>GP in other languages: Generic Java, C#, Haskell type classes, ML functors and signatures. Different Implementation approaches to generics</td>
<td>3</td>
</tr>
<tr>
<td>Co-/contravariance in generic parameters, existential types via Java wildcards</td>
<td>2</td>
</tr>
<tr>
<td>Constraining generics in C++: concept checking, archetypes, language support for Concepts in C++</td>
<td>5</td>
</tr>
<tr>
<td>Case study: Boost Graph Library</td>
<td>3</td>
</tr>
<tr>
<td>Generic Programming Process</td>
<td>1</td>
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<tr>
<td>Characterizing and measuring performance properties of generic definitions</td>
<td>1</td>
</tr>
<tr>
<td>Generative programming and metaprogramming, staged languages</td>
<td>5</td>
</tr>
<tr>
<td>Concepts as algebras, data-type generic programming</td>
<td>5</td>
</tr>
<tr>
<td>Student term project presentations</td>
<td>4</td>
</tr>
<tr>
<td>Grading: Class presentations and participation = 10%, Assignments = 50%</td>
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<tr>
<td>Term projects = 40%, Total = 100%</td>
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</tbody>
</table>

Total Hours 42

Date: 03-21-06 Course Supervisor: Dr. Jaakko Järvi

ABET Classification: Science ______ Design ______ Math ______ Other ______

Laboratory Requirements: Yes or No

Equipment Required:
Americans with Disabilities Act (ADA) Policy Statement

The following ADA Policy Statement (part of the Policy on Individual Disabling Conditions) was submitted to the University Curriculum Committee by the Department of Student Life. The policy statement was forwarded to the Faculty Senate for information.

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, the 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.

Copyrights

The handouts used in this course are copyrighted. By "Handouts" we mean all materials generated for this class, which include but are not limited to syllabi, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy such handouts, unless the author expressly grants permission.

Scholastic Dishonesty

As commonly defined, plagiarism consists of passing off as one's own the ideas, work, writings, etc., that belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you 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 questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules [http://student-rules.tamu.edu], under the section "Scholastic Dishonesty".

Academic Integrity Statement

"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:
http://www.tamu.edu/aggiehonor

On all course work, assignments, and examinations at Texas A&M University, the following Honor Pledge shall be preprinted and signed by the student: "On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work."
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Electrical & Computer Engineering

2. Course prefix, number and complete title: ELEN 629 Nanotechnology Fabrication

3. Course description (not more than 50 words) Cutting edge nanostructure fabrication techniques for both top-down and bottom up approaches.

4. Prerequisite(s): Instructor approval

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

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

7. Has this course been taught as a 489/689? ☐ Yes ☐ No

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)

M.S., MEN., Ph.D. in electrical & computer engineering

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

10. Prefix  | Course #  | Title (exclude punctuation) 
       |           | ELEN 629 Nanotechnology Fabrication 

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
<th>SCH</th>
<th>Subject Matter Content Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>FICE Code</th>
</tr>
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<tr>
<td>0</td>
<td>30</td>
<td>03</td>
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</tbody>
</table>

Do not complete shaded area.

Approval recommended by:

Head of Department: N.K. Anand Date: 6/12/06

Chair, College Review Committee: N.K. Anand Date: 6/13/06

Dean of College: John M. Date: 6/13/06

Submitted to Coordinating Board by:

Dean of College Date: 6/13/06

Director of Academic Support Services Date: 6/13/06

Effective Date: 6/13/06

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.

OAR/AS-5/04
ELEN 629 Nanotechnology Fabrication

By Dr. Kameoka

Time and Location: TBA

Office Hours:
Thursday 2:00-4:00 p.m. (or open door policy) Room 312E Zachry Engineering Center

Course Description
The main purpose of this course will help students learn about the dynamic and rapidly advancing field of nanotechnology and provide them with necessary skills and knowledge to excel in the areas that interest them. Students would also benefit from the cutting edge research.

This course will cover fundamentals of nanostructure fabrications (1-100nm) based on “top-down approach” and “bottom-up approach” as well as their characterization methods. The practical applications of these nanostructures will be also presented, especially for nanoelectronics, nanobiology and medicine, nanomechnics, nanofluidics and nanosensors.

Course Objectives
(1) Build basic fundation of nanostructure fabrication based on conventional semiconductor fabrication approach and molecular self assembly.
(2) Introduce various characterization method.
(3) Present cutting edge research topics for nanoengineering.
(4) Foster creativity required for future nano scientists.

Textbook
Lecture note and current articles from journals for each topic. Recommended books are
1) Fundamentals of Microfabrication by Madou
2) The science and engineering of Microelectronic fabrication by Campbell
3) VLSI Fabrication Principles by Ghandhi

Examinations and Grading
Midterm exam (30%)
Homework (30%): 5-6 times bi-weekly.
Final project (40%)
Course Outline (total 13 weeks):

Part I: *Introduction and Overview of Nanotechnology*. (0.5-1 week)

Part II: *Nanostructure fabrication I; top-down methods*. (6.5 weeks)

1. Nanoscale photolithography
2. Electron beam lithography.
3. Nanoscale reactive ion etching.
4. Conventional thin film deposition-CVD, PECVD.
5. Integrated fabrication processing: nanodevice fabrications, etc

Part III: *Nanostructure fabrication II; bottom-up methods*. (3.5 weeks)

1. Concept of self assemble nanostructures and thermodynamical aspect.
2. 0 dimensional nanostructure
   a. Self assembled Nanoparticles
   b. CVD Nanoparticles
3. 1 dimensional nanostructures
   a. Semiconductor or polymer Nanowire fabrication.
   b. Carbon nanotube fabrication.
   c. Nanofiber, nanowire fabrication.
5. Limitation of bottom-up methods.

Part IV: *Characterization of nanostructures*. (1 weeks)

1. Scanning electron microscopy.
2. Scanning tunneling microscopy and atomic force microscopy.
3. Near field optical microscopy.

**Part V:** *Nanodevices and their cutting edge research topics.* (1 weeks)

1. **Electronic devices:** nanoscale FET, nanosensor, etc

2. **Mechanical devices:** NEMS resonator, single cell detector, etc

3. **Nanocomposite materials:** New materials for space or other application

4. **Biological and Medical devices:** DDS, Tissue engineering, Neural Network, nanofluidics, etc.

5. **Optical devices:** Photonic crystal, plasmonics, optical nanofiber, etc.
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and 25 copies. Attach a course syllabus to each.*

1. This request is submitted by the Department of Geology & Geophysics
2. Course prefix, number and complete title GEOL 645: Geochronology

3. Course description (not more than 50 words) Earth’s 4.5 billion-year history is divided into units of geologic time based on observed changes in the rock record; the timing of those changes is quantified by numerical dating methods; this course examines both dating methods and physical and biological changes observed in the rock record.

4. Prerequisite(s) Graduate classification or approval of instructor Cross-listed 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 the course be repeated within the same semester/term? □ Yes □ No

7. Has this course been taught as a 489/689? □ Yes □ No If yes, how many times? 2 Indicate the number of students enrolled for each academic period it was taught. Fall 2004 = 9, Spring 2006 = 6

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)

M.S., Ph.D. in Geology and Geophysics, Oceanography, Geography, M.A., Ph.D. in Anthropology

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

10. Prefix Course # Title (exclude punctuation)
    G E O L 6 4 5 G E O C H R O N O L O G Y

    Lect Lab SCH Subject Matter Content Code Admin. Unit Acad. Year FICE Code
    0 3 0 0 0 3 4 0 0 6 0 1 0 0 0 2 1 3 0 5 0 7 - 0 8 0 1 0 3 6 6

Approval recommended by: 5/1/06
Head of Department Date

Chair, College Review Committee 5/4/06
Dean of College Date

Submitted to Coordinating Board by:

Director of Academic Support Services Date Effective Date

* Attach a syllabus according to the guidelines on the Internet site www.tamu.edu/admissions/oaras. To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.
Geology – Geochronology – Spring 2006

Instructor: Brent Miller
Office Hours: M-W-F 10:00 – 11:00 (and by appointment)
254 Halbouty Geosciences Building
458-3671; bmiller@geo.tamu.edu

Lecture: TBD
Text: Assigned reading from various sources. For radiogenic methods, Radiogenic Isotope Geology by Alan Dickin (2nd edition, 2005), Cambridge Univ. Press is recommended, but not required.

Course Overview: The 4.5 billion years of Earth’s history is divided into units of geologic time based on the observed changes in the rock record and the numerical timing of those changes is quantified by numerical dating methods. This course examines the methods of dating both the physical and biological changes preserved in rocks. It surveys the primary tools of numerical (radiometric) dating techniques, magnetostratigraphic and magnetic susceptibility dating, utilization of fossil data, use of orbital cycles for dating, and isotope stratigraphy. It covers evaluation of the accuracy of published numerical geologic time scales, as well as evaluating the correlations of sedimentary strata. The course uses projects in graphic correlation and sequence stratigraphy to illustrate stratigraphic methods of age determination.

Grading:
- Problem Sets – 20%
- Class Presentation – 30%
- Midterm Exam – 25%
- Final Exam – 25%

Grade Scale:
- A: 90 - 100%
- B: 80 - 90%
- C: 70 - 80%
- D: 60 - 70%
- F: 0 - 60%

The instructor reserves the right to curve exam scores and to round off final percentages as he deems appropriate.

Important University Dates:
- January 17 - First day of Spring semester classes
- January 23 - Last day for adding/dropping courses
- January 27 - Last day to apply for degrees to be awarded in May
- March 6 - Mid-semester grades due
- March 13 - Spring Break
- April 3 - Last day to drop courses without penalty (Q-drop)
- April 6-21 - Preregistration for Summer, Fall semesters
- April 14 - Reading day, no classes
- May 1 - Dead day, classes but no exams
- May 2 - Last day of classes, redefined attend Friday classes
- May 3-4 - Reading days, no classes
- May 5, 8-10 - Spring semester final examinations
- May 15 - Noon, final grades due for all students

Tentative Schedule: (as of 1/15/06, topics and dates subject to change during term)

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 17, 19</td>
<td>introduction, history of geologic time</td>
</tr>
<tr>
<td>2</td>
<td>Jan 24, 26</td>
<td>age of Earth, tour of geologic time</td>
</tr>
<tr>
<td>3</td>
<td>Jan 31, Feb 2</td>
<td>tour of geologic time</td>
</tr>
<tr>
<td>4</td>
<td>Feb 7, 9</td>
<td>chronostratigraphy, stratigraphic units</td>
</tr>
<tr>
<td>5</td>
<td>Feb 14, 16</td>
<td>radiometric dating: radioactive decay, principles and systems</td>
</tr>
<tr>
<td>6</td>
<td>Feb 21, 23</td>
<td>radiometric dating: high-T systems (U-Pb, Ar/Ar, Sm-Nd, K-Ar, Rb-Sr)</td>
</tr>
<tr>
<td>7</td>
<td>Feb 28, Mar 2</td>
<td>radiometric dating: low-T systems (U-Th-He, fission tracks, cosmogenic, $^{14}$C)</td>
</tr>
<tr>
<td>8</td>
<td>Mar 7, 9</td>
<td>radiometric dating: accuracy, precision and other issues in numerical dating</td>
</tr>
<tr>
<td>9</td>
<td>Mar 21, 23</td>
<td>guest lecture, MIDTERM EXAM (Dr. Miller out of town)</td>
</tr>
<tr>
<td>10</td>
<td>Mar 28, 30</td>
<td>geomagnetic time units, magnetostratigraphic dating</td>
</tr>
<tr>
<td>11</td>
<td>Apr 4, 6</td>
<td>astrochronology – orbital cycles</td>
</tr>
<tr>
<td>12</td>
<td>Apr 11, 13</td>
<td>isotope stratigraphy, chronology by correlation</td>
</tr>
<tr>
<td>13</td>
<td>Apr 18, 20</td>
<td>graphic correlation principles, graphic correlation exercise</td>
</tr>
<tr>
<td>14</td>
<td>Apr 25, 27</td>
<td>special focus – Cretaceous-Paleogene (K-T); events and ages</td>
</tr>
<tr>
<td>15</td>
<td>May 2</td>
<td>special focus – Permian-Triassic; events and ages</td>
</tr>
<tr>
<td>FINAL</td>
<td>May ??</td>
<td>FINAL EXAM :00 to :00</td>
</tr>
</tbody>
</table>
AGGIE HONOR CODE:

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

Academic integrity is an essential force in the academic life of a university. It enhances the quality of education and celebrates the genuine achievements of others. It is, without reservation, a responsibility of all members of the Texas A&M University Community to actively promote academic integrity. Apathy or acquiescence in the presence of academic dishonesty is not a neutral act -- failure to confront and deter it will reinforce, perpetuate, and enlarge the scope of such misconduct. Instances of scholastic dishonesty will be treated in accordance with Section 20 of the TAMU Student Rules. Please inform yourself on the student rules regarding cheating, plagiarism, fabrication of information, conspiracy at the new website: www.tamu.edu/aggiehonor/.

PLAGIARISM: The materials used in this course are copyrighted. These materials include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless permission is expressly granted. As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writings, etc., which belong to another. In accordance with this 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 that person. Plagiarism is one of the worst academic offenses, 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 latest issue of the Texas A&M University Student Rules, http://student-rules.tamu.edu, under the section “Scholastic Dishonesty.”

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 the Department of Student Life, Services for Students with Disabilities in Room B118 of Cain Hall, or call 845-1637.

Copyright: All materials generated in this class, which include but are not limited to syllabi, assigned readings, handouts, and in-class lecture materials are copyrighted. Because these materials are copyrighted, you have the right only to make one copy for your personal use, unless permission is expressed given to do otherwise.
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Horticultural Sciences
2. Course prefix, number and complete title: HORT 610 Physiological and Molecular Basis for Plant Stress Response
3. Course description (not more than 50 words): Provide the student with tools to understand the molecular and physiological consequences caused by environmental factors (abiotic and biotic) on plant growth and development and the mechanisms of stress adaptation to stress.
4. Prerequisite(s): MEPS 313 or equivalent
5. Is this a variable credit course? □ Yes □ No If yes, from _______ to _______.
6. Is this a repeatable course? □ Yes □ No If yes, this course may be taken _______ times. Will the course be repeated within the same semester/term? □ Yes □ No
7. Has this course been taught as a 489/689? □ Yes □ No If yes, how many times? _______ Indicate the number of students enrolled for each academic period it was taught. 05c 7 05c 21
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)
MAgr., M.S. & Ph.D. in Horticulture & Floriculture; M.S. & Ph.D. in Molecular & Environmental Plant 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.

10. Prefix: HORT Course #: 610 Title (exclude punctuation): 610 Physiological and Molecular Basis for Plant Stress Response

Lect. 03 Lab 00 SCH 3 Subject Matter Content Code 2603 07 0002 Admin. Unit 520 Acad. Year 07-08 FICE Code 003632 Level 6

Approval recommended by:

Head of Department [Signature] [Date]
Chair, College Review Committee [Signature] [Date]
Dean of College [Signature] [Date]

Submitted to Coordinating Board by:

Director of Academic Support Services [Signature] [Date]

Effective Date

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.
OAR/A5-504
# HORT/MEPS 610
## Physiological and Molecular Basis for Plant Stress Response
### Fall Semester 2006

### Syllabus

<table>
<thead>
<tr>
<th>Credits:</th>
<th>3 (three hours lectures)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture time:</td>
<td>Tue and Thu, 12:45-2:00, HFSB 101</td>
</tr>
</tbody>
</table>
| Instructors: | Dr. Leonardo Lombardini  
Department of Horticultural Sciences  
HFSB, Room 426  
Phone: 458-8079  
E-mail: l-lombardini@tamu.edu  
Office hours: by appointment  

Dr. Hisashi Koiwa,  
Department of Horticultural Sciences  
HFSB, Room 522  
Phone: 845-5282  
E-Mail: koiwa@neo.tamu.edu  
Office hours: by appointment |
| Course website | [http://koiwa.tamu.edu/MEPS689/index.html](http://koiwa.tamu.edu/MEPS689/index.html) |
| Prerequisites: | MEPS 313 or equivalent |
| Scope and objectives: | The overall objective of the course is to provide the student with the tools to understand the molecular and physiological consequences caused by environmental factors (abiotic and biotic) on plant growth and development and the mechanism of stress adaptation to stress. The course will also cover some of the methodologies to measure stress conditions in plants, such as pressure chamber, gas exchange analyzer, chlorophyll fluorescence, and osmometer. |
| Course topics: | Introduction to plant stress physiology  
General responses to stress  
Water stress - Drought  
Water stress - Anoxia  
Post-harvest stress  
Nutritional stress - Nutrient deficiencies  
Nutritional stress - Nutrient toxicities  
Temperature stress - Low temperatures  
Temperature stress - High temperatures; Radiation stress  
Biotic stresses  
Molecular methods in plant stress response research  
Hypoxia  
Heat shock responses  
Potassium transport  
Toxic ions: Sodium transport system in plants  
Toxic ions: Heavy metal tolerance, detoxification  
Osmotic stress (2 lectures)  
Plant defense against Reactive Oxygen Species (2 lectures)  
How to measure stress |
| Grading: | Four exams 80%  
Student presentation 20% |
<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Assigned Readings:</td>
<td>Recent scientific articles, which will be provided electronically or on hardcopy, will be used as the main source of reading/studying material.</td>
</tr>
</tbody>
</table>
Biochemistry and Molecular Biology of Plants, Buchanan, Gruissen, Jones |
| Examination policy: | If an exam is not taken at the assigned time, a make-up exam must be taken within one week of the original exam date. If the make-up exam has not been preapproved and scheduled, the student will receive a “0” grade for that exam. If a student is caught cheating on an exam, the student will be given a “0” grade for that exam. Violations will be handled in accordance with the Texas A&M University regulations governing academic integrity. |
| Changes in schedule: | The instructors reserve the right to change the order and content of lectures as necessary. Exam dates may be changed by the instructors, but at least 5 days notice will be given. |
| Americans with Disabilities Act (ADA) Policy Statement: | The Americans with Disabilities Act (ADA) is a federal antidiscrimination 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 Dept. of Student Life, Services for Students with Disabilities in Cain Hall or call 845-1637. |
| Copyrights: | Please note that most handouts and supplements used in this course are copyrighted. This includes all materials generated for this class, including but not limited to syllabi, exams, in-class materials, review sheets, and lecture outlines. Materials may be downloaded or photocopied for personal use only, and may not be given or sold to other individuals. |
| Scholastic Dishonesty: | As commonly defined, plagiarism consists of passing off as one’s own ideas, work, writings, etc., which belong to another. In accordance with this 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 that 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 questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.” |
| Aggie Honor Code | “An Aggie does not lie, cheat, or steal or tolerate those who do”  
Students are expected to attend all studios, complete assignments on time, and participate fully in class discussions and group projects. Violations will be handled in accordance with the Texas A&M University Regulations governing academic integrity, which are outlined at the Aggie Honor System web page [http://www.tamu.edu/aggiehonor](http://www.tamu.edu/aggiehonor). Please refer to the Texas A&M University website on Plagiarism and Scholastic Dishonesty for resources and a detailed explanation of what constitutes plagiarism. |
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and 25 copies. Attach a course syllabus to each.*

1. This request is submitted by the Department of ___________

2. Course prefix, number and complete title ____________

3. Course description (not more than 50 words) ____________

4. Prerequisite(s) ____________ Cross-listed 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 the course be repeated within the same semester/term? □ Yes □ No

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

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

M.S., Ph.D. in WFSC; M. in marine science

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

10. Prefix Course # Title (exclude punctuation)
    MARB606 ADVANCED MARINE POP BIOLOGY

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
<th>SCH</th>
<th>Subject Matter Content Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>FICE Code</th>
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<td>010366</td>
</tr>
</tbody>
</table>

Do not complete shaded area.

Approval recommended by:

Head of Department ____________ Date ____________
Chair, College Review Committee ____________ Date ____________
Dean of College ____________ Date ____________

Submitted to Coordinating Board by:

Director of Academic Support Services ____________ Date ____________
Effective Date

* Attach a syllabus according to the guidelines on the Internet site www.tamu.edu/admissions/oaras. To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.
Syllabus
Advanced Concepts in Marine Population Biology - MARB 606- 3 CR

Instructor: Jaime R. Alvarado-Bremer – email: alvarado@tamug.edu Phone (409) 740-4958; Office FC 258

Course description: Lectures on new approaches and methods employed in the study of marine population biology and marine ecology.

Pre-requisites: BS in Marine Biology or Marine Science, or approval of the instructor.

Reading material: Lecture based on material from several texts and discussions of journal articles from Nature, Science, Ecology, Marine Ecology Progress Series, Marine Biology, Limnology and Oceanography, Marine Biotechnology, etc.

Grading: Each student will be required to present one seminar and lead a discussion session (30%). One exam will be given at the end of the semester (50%). Attendance, participation, and extra assignments account for 20% of the grade.

Lecture Schedule: Four lecture sessions per week (M-R; Summer II). Lectures will include discussions based on assigned readings.

Statement on Academic Dishonesty
For many years Aggies have followed a Code of Honor. “Aggies do not lie, cheat, or steal, nor do they tolerate those who do.” As such, it is the responsibility of students and faculty members to help maintain scholastic integrity at the University by refusing to participate in or tolerate scholastic dishonesty. The Aggie Code of Honor and the Scholastic Dishonesty sections in the TAMUS University Rules handbook will be the standard upon which scholastic integrity is maintained in this course. It is the responsibility of the student to familiarize themselves with the standards, definitions, and procedures concerning academic dishonesty. Scholastic dishonesty infractions will result in failure of this course as a minimum sanction.

Statement on the Americans with Disabilities Act of 1990
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 Counseling Office for further advising.

Statement on Absences
Information concerning absences are contained in the University Student Rules Section 7. The University views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments. For a University excused absence, the student should contact the Counseling Office to request a letter for the instructor stating that the Associate Vice President for Student Affairs or his or her designee has verified the student’s absence as excused. Please contact the University Student Rules for reasons for excused absences, detailed procedures and deadlines. If the absence is excused per the process outlined in the University Student Rules, the student must be given the opportunity to make up work that was missed. The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unauthorized absence. See Part III, Student Grievance Procedures, Section 49: Unexcused Absences, for more information about appealing an instructor’s decision.

Statement on the Family Educational Rights and Privacy Act (FERPA)
FERPA is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. To obtain a listing of directory information or to place a hold on any or all of this information, please consult the Admissions & Records Office. Items that can never be identified as public information are a student’s social security number or institutional identification number, citizenship, gender, grades, GPA or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.

Lecture Topics

Food Web Ecology
1. Trophic levels and food webs. Determining trophic level position with stable isotopes. Examples
2. Inferring webs using fatty acid composition analyses. Examples

Recruitment

**Population connectivity**
8. Modes of dispersal. Passive and active dispersal of early life history stages. Implications of larval stay hypothesis and self-recruitment. Interplay between physical oceanographic features (currents and gyres) and the swimming potential of larvae.
11. Towards an integrative approach to identify management units (stocks). Management implication of dispersal and migration of adults and early stages.

**Effects of anthropogenic activities on marine populations**
15. Design and management of marine protected areas and reserves: implication towards fisheries and the protection of biodiversity (genetic, species, community).
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Horticultural Sciences

2. Course prefix, number and complete title: MEPS 610 Physiological and Molecular Basis for Plant Stress Response

3. Course description (not more than 50 words): Provide the student with tools to understand the molecular and physiological consequences caused by environmental factors (abiotic and biotic) on plant growth and development and the mechanisms of stress adaptation to stress

4. Prerequisite(s): MEPS 313 or equivalent

5. Is this a variable credit course? □ Yes □ No If yes, from _______ to _______. Cross-listed with HORT 610 Cross-listed courses require the signatures of both department heads.

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

7. Has this course been taught as a 489/689? □ Yes □ No If yes, how many times? ______. Indicate the number of students enrolled for each academic period it was taught. 05c 7 03c 21

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)

   MAg., M.S. & Ph.D. in Horticulture & Floriculture; M.S. & Ph.D. in Molecular & Environmental Plant 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.

10. Prefix | Course # | Title (exclude punctuation)
    MEPS 610 | PLANT STRESS RESPONSE

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
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<td>26 03 07 00 02 26 20</td>
<td>07-08</td>
<td>00 3 6 3 2</td>
<td></td>
</tr>
</tbody>
</table>

Do not complete shaded area.

Approval recommended by:

Head of Department
Date

Chair, College Review Committee
Date

Dean of College
Date

Submitted to Coordinating Board by:

Dean of College
Date

Director of Academic Support Services
Date

Effective Date

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.

GAR/AS-5/04
**HORT/MEPS 610**  
**Physiological and Molecular Basis for Plant Stress Response**  
**Fall Semester 2006**

**Syllabus**

<table>
<thead>
<tr>
<th>Credits:</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Lecture time:</strong></td>
<td>Tue and Thu, 12:45-2:00, HFSB 101</td>
</tr>
</tbody>
</table>
| **Instructors:**    | Dr. Leonardo Lombardini  
                      | Department of Horticultural Sciences  
                      | HFSB, Room 426  
                      | Phone: 458-8079  
                      | E-mail: l-lombardini@tamu.edu  
                      | Office hours: by appointment  
                      | Dr. Hisashi Koiwa,  
                      | Department of Horticultural Sciences  
                      | HFSB, Room 522  
                      | Phone: 845-5282  
                      | E-Mail: koiwa@neo.tamu.edu  
                      | Office hours: by appointment |
| **Course website**  | [http://koiwa.tamu.edu/MEPS689/index.html](http://koiwa.tamu.edu/MEPS689/index.html) |
| **Prerequisites:**  | MEPS 313 or equivalent |
| **Scope and objectives:** | The overall objective of the course is to provide the student with the tools to understand the molecular and physiological consequences caused by environmental factors (abiotic and biotic) on plant growth and development and the mechanism of stress adaptation to stress. The course will also cover some of the methodologies to measure stress conditions in plants, such as pressure chamber, gas exchange analyzer, chlorophyll fluorescence, and osmometer. |
| **Course topics:**  | Introduction to plant stress physiology  
                      | General responses to stress  
                      | Water stress - Drought  
                      | Water stress - Anoxia  
                      | Post-harvest stress  
                      | Nutritional stress - Nutrient deficiencies  
                      | Nutritional stress - Nutrient toxicities  
                      | Temperature stress - Low temperatures  
                      | Temperature stress - High temperatures; Radiation stress  
                      | Biotic stresses  
                      | Molecular methods in plant stress response research  
                      | Hypoxia  
                      | Heat shock responses  
                      | Potassium transport  
                      | Toxic ions: Sodium transport system in plants  
                      | Toxic ions: Heavy metal tolerance, detoxification  
                      | Osmotic stress (2 lectures)  
                      | Plant defense against Reactive Oxygen Species (2 lectures)  
<pre><code>                  | How to measure stress |
</code></pre>
<table>
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<tr>
<th>Grading:</th>
<th>Four exams</th>
<th>80%</th>
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<tr>
<td></td>
<td>Student presentation</td>
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|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------|

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</tr>
</thead>
</table>
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional

Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Oceanography

2. Course prefix, number and complete title OCNG 684 Professional Internship

3. Course description (not more than 50 words) A directed internship in a professional setting to provide on-the-job training in ocean observing systems skills appropriate to the student's professional objectives.

4. Prerequisite(s) approval of student's committee chair; OCN 604, OCN 657 Cross-listed 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 the course be repeated within the same semester/term? ☐ Yes ☐ No

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

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

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

MGSc. Ocean Observing Systems Certificate program

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

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course #</th>
<th>Title (exclude punctuation)</th>
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<tbody>
<tr>
<td>OCNG</td>
<td>684</td>
<td>PROFESSIONAL INTERNSHIP</td>
</tr>
</tbody>
</table>

Lect. Lab SCH Subject Matter Content Code Admin. Unit Acad. Year FICE Code
3 0 5 __________________________ - 0 0 3 6 3 2

Do not complete shaded area.

Approval recommended by:

Head of Department Date

Chair, College Review Committee Date

Dean of College Date

Submitted to Coordinating Board by:

Dean of College Date

Date Effective Date

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.

OAR/AS-5/04

DEANS OFFICE
Texas A&M University
OCEANOGRAPHY 684 Professional Internship: SYLLABUS

Instructor: Dr. Lisa Campbell (variable)
Day/Time: tba (industrial/government sponsor)
Location: tba (industrial/government sponsor)
Instructor's Office: 911C O&M Building
Instructor's Office Hours: 12:30-13:30 Tues. in 911C; or by appointment
Instructor's Email: lisacampbell@tamu.edu
Course URL: http://oceanography.tamu.edu/~campbell/684/oosinternship
Prerequisites: OCNG 604 and OCNG657; approval of committee chair

Ocean Observing Systems Professional Internship

PURPOSE: OCNG 684 provides students with practical experience in the application of data analysis skills and the opportunity to learn new methods relevant to problems in Ocean Observing Systems. The experience is designed to expose students to actual problem solving or data analysis in a professional/industrial setting. Credits earned can range from 1 – 6, based on level of effort agreed to by advisor and professional sponsor in the form of a "Work Plan" defined prior to initiating the Internship.

REPORTS: Students are required to keep a record of their data analysis tasks and to complete a Final Report for the professional sponsor and for their advisor. The Final Report should include a complete explanation of the objective(s) and design of the project/experiment, methods used, results, analysis, interpretation of the data analysis, and a copy of the final data product. An appendix with all raw data should be included, if applicable. Reports should be at least 5 pages, single-spaced 12-pt Times Roman font. Criteria/specifications for complete final data product must be discussed with sponsor at onset of Internship and be stated in the Work Plan. The specifications for the data product (e.g., model, website, maps, data report, and submitted manuscript) will be determined by the sponsor in consultation with the student and student's advisor. The Final Report is due, and must be submitted to the Sponsor, by final day of classes for the semester.

GRADING: This course is graded on an S/U basis. In order to receive a grade of S, the student must submit the written Final Report (see description above), including the final data product that is approved by both the professional sponsor and faculty supervisor, on time and in the format specified. Approval is based on demonstration of understanding of the principles of the instrumentation or process studied and presentation of a complete data analysis. Successful presentation of a useful data product and satisfactory performance will be determined by the Sponsor. A grade of Unsatisfactory will be awarded if the student fails to perform (due to unexcused absences; failure to complete work according to Work Plan) or fails to submit a complete Final Report.

Attendance Policy:
Attendance should comply with University student rules.

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expulsion; at minimum you will receive a FAIL if you plagiarize. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Students Rules, student-rules.tamu.edu, under the section “Scholastic Dishonesty.”


ADA statement:

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