1. **New Course Requests:**
   
   a. BIED 621  Methods for Bilingual Research  
   b. ECEN 704  VLSI Circuit Design  
   c. ECEN 714  Digital Integrated Circuit Design  
   d. ECEN 749  Microprocessor Systems Design  
   e. EDTC 642  Designing for Mobile Learning  
   f. EPSY 650  Multiple Regression and Other Linear Models in Education Research  
   g. FINC 641  Valuation  
   h. FINC 646  Technical Analysis of Financial Markets  
   i. FINC 648  Advanced Investments  
   j. GEOP 631  Seismic Data Processing *(Tabled October 2014 GC Meeting)*  
   k. INTA 636  International Development in Theory and Practice  
   l. KINE 631  Specialized Strength & Conditioning Techniques  
   m. MARB 635  Marine Invertebrate Zoology  
   n. MARS 626  Advanced GIS for Coastal Systems  
   o. OCNG 603  Communicating Ocean Science  
   p. PSYC 605  Memory and Consciousness  
   q. VIBS 621  Endocrine Toxicology  
   r. VTMI 602  Animal Models of Obesity *(Tabled October 2014 GC Meeting)*

2. **Course Change Requests:**

   a. ANSC 615  Comparative Ruminant Animal Nutrition  
   b. BIOL 611  Molecular Biology of Differentiation and Development *(tabled at October 2014 FS Meeting)*  
   c. ECEN 773  Introduction to Nanophotonics  
   d. EPSY 621  Clinical Neuropsychology  
   e. FSTC 611  Poultry Processing and Distribution Technology  
   f. INTA 662  Nuclear Security Threat Assessment and Analysis  
   g. MARS 625  GIS Modeling for Coastal Resources  
   h. POSC 611  Poultry Processing and Distribution Technology  
   i. POSC 628  Advanced Poultry Meat Processing  
   j. SPSY 612  Individual Assessment of Children’s Intelligence  
   k. SPSY 614  Integrated Assessment Practicum  
   l. SPSY 617  Emotional Disturbance in Children  
   m. SPSY 628  Consultation Theory and Techniques  
   n. SPSY 638  Systems Consultation and Prevention Science  
   o. SPSY 641  Child Therapy for School Behavior Problems  
   p. SPSY 657  Bilingual Psychoeducational Assessment  
   q. SPSY 683  Field Experience/Externship in School Psychology  
   r. SPSY 684  Professional Internship  
   s. VPAT 640  Advanced Mechanisms of Disease  
   t. VPAT 642  Mechanisms of Metabolic Disease
3. **Curriculum Change Requests:**
   
a. Change in credit hours for the Master of Real Estate (MRE) Degree  
b. Change in undergraduate portion of B.A. 3+2 in Sociology  
c. Change in undergraduate portion of B.S. 3+2 in Sociology  

4. **Special Consideration Items:**
   
a. Executive Master of Science in Energy Degree Program (*Tabled October 2014 GC Meeting*)  
b. Graduate Certificate in Energy (*Tabled October 2014 GC Meeting*)  
c. Master of Science in Athletic Training  
d. Request for Change to CIP code of the Master of Science of Economics  
e. Request for Distance Education Master of Engineering in Aerospace Engineering  
f. Request for Non-Thesis Master of Ocean Science and Technology
New Courses
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus.

Form Instructions

1. Course request type:  
   [ ] Undergraduate  [ ] Graduate  [ ] First Professional (12th and 13th year)

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

3. Course prefix, number and complete title of course:  
   BIED 621: Methods for Bilingual Research

4. Catalog course description (not to exceed 50 words):  
   Understanding educational research and research methodologies; use of research findings to appropriately inform school and classroom practices; overview of the research methodology to develop skills as future researchers and consumers of research; examination of qualitative and quantitative research methodologies and mixed methods in relation to their application to diverse populations.

5. Prerequisite(s):  
   Graduate Classification; Approval of Department Head

   Cross-listed with:  
   Stacked with:

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

6. Is this a variable credit course?  
   [ ] Yes  [ ] No  
   If yes, from _______ to _______

7. Is this a repeatable course?  
   [ ] Yes  [ ] No  
   If yes, this course may be taken ______ times.

   Will this course be repeated within the same semester?  
   [ ] Yes  [ ] No

8. Will this course be submitted to the Core Curriculum Council?  
   [ ] Yes  [ ] No

9. How will this course be graded?  
   [ ] Grade  [ ] S/U  [ ] P/F (CLMD)

10. This course will be:  
    a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
    Master's students in BIED, PhD Students in Educational Psychology with emphasis in BIED
    b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)
    Master's and PhD students Educational Psychology

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

12. [ ] I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

13. Prefix  Course #  Title (excluding punctuation)
    BIED  621  METHODS FOR BIED RESEARCH

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</table>

Approval recommended by:

Victor Wilson, Ph.D.
Department Head or Program Chair (Type Name & Sign)  Date

George Cunningham, Ph.D.
Chair, College Review Committee  Date

George Cunningham, Ph.D.
Dean of College  Date

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

Submitted to Coordinating Board by:

Associate Director, Curricular Services

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 07/14
Dr. Héctor H. Rivera
Harrington Tower, 107 E
Office Tel. 979.862.4663
Email: hhrivera@neo.tamu.edu
Class Time: Tuesday from 5:30 to 8:30 pm
Office Hours: Tuesdays from 4-5 pm

Course Description

This course has two primary goals. Goal one is to focus on understanding the intent of educational research as well as the research methodologies so that graduate students can appropriately use research findings to inform school and classroom practices. The second goal is to provide an overview of the research methodology (e.g., experimental, quasi-experimental, ethnographic, case study, etc.) in an effort to develop graduate students’ skills as future researchers and consumers of research. In an age of accountability, the course emphasizes how school can be focused around the use and understanding of scientifically based teaching practices. This course examines qualitative and quantitative research methodologies and discusses mixed methods in relation to their application to diverse populations such as those represented within bilingual programs.

Prerequisites: Graduate Classification; Approval of department head

Required Readings


Publisher: University of Houston, Center on Instruction.

* Other articles on bilingual studies and studies with other ELLs will be chosen and provided from the research literature by the professor. Articles will focus on
quantitative and qualitative methodologies relevant to the teaching and learning of bilingual children.

**Course Objectives:**

The purpose of this class is for you to learn how to interpret research finding and distill applicable principles for the teaching and learning of bilingual children and other ELLs. It is also intended so you can develop research skills from qualitative and quantitative methodologies. By the end of the semester you should be able to answer the following questions:

1. What is educational research and how it can be distinguished from other sources of information (opinions, and anecdotes)?
2. How should the quality and importance of an educational research report be evaluated, and why is such evaluation critical to teaching and learning?
3. Where can educational research be found, and how is it disseminated, and what role does it play in our educational system and in the classroom?
4. How can educational research benefit the classroom environment and the classroom instruction?

<table>
<thead>
<tr>
<th>Objectives/Learning Outcomes</th>
<th>How learning objectives will be achieved?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Students will learn the parameter for qualitative and quantitative research methodologists.</td>
<td>Textbook and related articles will be used so students and instructor can discuss elements of research design and methods and their application to classroom instruction.</td>
</tr>
<tr>
<td>2. Students will develop their scholarship by learning about the predominant research methodologies and the steps and methods (quantitative and qualitative designs) necessary to interpret and apply research-based evidence in their classrooms.</td>
<td>Students will form small groups and discuss selected topics, by instructor, using the steps and methods presented to them. In the small groups, students will be asked to connect educational research to their experiences in the classroom and to discuss areas of weakness and strength of the different research methodologies.</td>
</tr>
<tr>
<td>4. Student will learn the two basic approaches for educational research (qualitative and quantitative methods) and connect this new knowledge to their teaching or research. This will allow for their continuous efforts to become experts on research-based instructional practices for diverse populations in their respective fields.</td>
<td>The professor will present current research examples to students. He will address issues of research design, methodology and theory as they relate to research with diverse community settings such as Greenland, the Zunis Tribe in New Mexico as well as current research in Mexico, Peru and Guatemala on capacity building.</td>
</tr>
<tr>
<td>5. Students will learn ethical issues related to the practice of educational research as well as to the rights of study participants in accordance to federal and state laws (e.g., special education, bilingual education,</td>
<td>In small groups, students will discuss the personal values professionals bring into the classroom as well as laws set to support the effective teaching and learning of at-risk populations. They will also be introduced</td>
</tr>
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</table>
University Internal Review Board (IRB) process) to issues of confidentiality and issues of practitioners’ integrity in research (IRB).

**Major Course Activities:**

Your grade is based on 6 activities for the semester: (1) a mid-term examination (exam 1) based on the readings and lectures up to that point, (2) a reflection paper (5 pages in length) examining a quantitative research article and/or a topic provided by the professor, (3) a second exam based on the qualitative chapters studies and lectures given, (4) a final written research proposal for a study – 15 to 20 pages in length (guidelines will be provided), (5) a class presentation based on a research topic chosen by student and approved by professor and (6) class participation: this last activity involves your overall quality of participation in class, your class attendance as well as the successful completion of any homework assignment given by the professor.

**GRADE SCALE**

<table>
<thead>
<tr>
<th>GRADE SCALE</th>
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<tr>
<td>A</td>
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<td>--below 59</td>
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**Grading Activities**

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<tr>
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<tr>
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<tr>
<td>Reflection Paper</td>
<td>10%</td>
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<tr>
<td>Exam 2</td>
<td>25%</td>
</tr>
<tr>
<td>Final Paper</td>
<td>20%</td>
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<tr>
<td>Class Presentation</td>
<td>17%</td>
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<tr>
<td>Class Participation</td>
<td>3%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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</table>

**Participation in Class:** The participation grade is based on the extent of your engagement in class discussion, your attendance and completion of any homework assignment. It is worth 3 points of your total grade.

**Class Attendance:** Unexcused absences negatively impact your grade. Role will be taken for each class session. One (unexcused) absence will reduce grade by 5 points (See section below on attendance and participation). For more information regarding attendance and absences please review student rule 7 at: [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07)

**Final Paper:** Your final paper will involve a written research proposal for a study. In this case, students have the choice to design their study according to their focus of work in their respective departments. For example, this could be a great opportunity to begin designing your dissertation proposal. Further details and guidelines will be given in class.
Individual Presentation: Each oral presentation should be 20 minutes. Points will be deducted if your presentation is too short or too long. Audiovisual support is not required. However, it is expected for groups (or individuals) to present in PowerPoint format. Further details about presentations will be discussed in class. Unexcused absences, by individuals, during the presentations will result in zero points for your (individual) presentation grade. As part of the presentation and work, students will be required to turn-in an electronic copy of their PowerPoint presented.

Reflection Paper: There is one reflection paper required for this course. It is a short paper that is focused on demonstrating understanding of quantitative research concept/methodology presented in class as it applies to classroom, school issues or district policies. Students will research and identify a quantitative study and examine its research soundness from a methodological perspective. Guidelines as well as a grading rubric will be provided for each assignment.

COURSE POLICIES:

Special Services: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

Cell Phones: Please do not make or receive calls in class. If you have a cell phone, turn it off. If because of an emergency, you feel you must make a call, please let me know ahead of time. If you forget to turn your phone off and it rings, please stop the ringing as quickly as possible. Under no circumstances should you begin a phone conversation in the classroom. The use of computers during lectures is allowed if you have a disability for which you need accommodations. Computers may be used during small group activities that may require their usage.

Classroom Discussions: During class, avoid “side” conversations. These are distracting to professor and your classmates. Professional respect and courtesy for each other are expected at all times.

Quality of your work: All written work and presentations must meet the high quality standards expected of a classroom teacher. Present your assignments as you would if they were to be reviewed by an administrator or member of the school board.

Missing 2 classes will result in automatic failure, unless absences are determined to be excused under University policy. Documentation must be presented to the instructor. Additionally, the instructor may require an extra assignment to make up for classes missed (partial points will be given).

PLAGIARISM STATEMENT
The handouts used in this course are copy-rights. By “handouts,” I mean all materials generated for this class, which 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 them, unless I expressly grant permission.

As commonly defined, plagiarism consists of passing off as one’s own 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 worse 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 [http://student-rules.tamu.edu/](http://student-rules.tamu.edu/)

**ACADEMIC INTEGRITY**

“An Aggie does not lie, cheat, or steal or tolerate those who do.” For additional information, please visit: [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu).

All exams MUST be turned in with the following statement typed on them and signed by the student:

“*On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work.*

[Signature of Student]

**Helpful Links:**
Academic Calendar: [http://admissions.tamu.edu/registrar/general/calendar.aspx](http://admissions.tamu.edu/registrar/general/calendar.aspx)
Final Exam Schedule: [http://admissions.tamu.edu/registrar/general/finalschedule.aspx](http://admissions.tamu.edu/registrar/general/finalschedule.aspx)
On-Line Catalog: [http://www.tamu.edu/admissions/catalogs/](http://www.tamu.edu/admissions/catalogs/)
Religious Observances: [http://dof.tamu.edu/faculty/policies/religiousobservance.php](http://dof.tamu.edu/faculty/policies/religiousobservance.php)
## Class Schedule

<table>
<thead>
<tr>
<th>Dates</th>
<th>Reading assignments</th>
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<tbody>
<tr>
<td>9/2/14</td>
<td>Chapter 1 – Educational Research in an Age of Accountability</td>
</tr>
<tr>
<td>9/9/14</td>
<td>Chapter 2 – Randomized-Experimental Designs</td>
</tr>
<tr>
<td>9/16/14</td>
<td>Chapter 3 – Quasi-Experiments</td>
</tr>
<tr>
<td>9/23/14</td>
<td>Chapter 4 – Time Series Designs</td>
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<tr>
<td>9/30/14</td>
<td>Chapter 5 – Non-experimental Quantitative Designs</td>
</tr>
<tr>
<td>10/7/14</td>
<td>Chapter 6 – Survey Research *Reflection Paper #1 due</td>
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<tr>
<td></td>
<td>*Review for exam 1</td>
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<td>10/14/14</td>
<td><strong>Exam 1</strong></td>
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<td>10/21/14</td>
<td>Chapter 7 – Introduction to Qualitative Research</td>
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<td>10/28/14</td>
<td>Chapter 8 – Qualitative Designs</td>
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<tr>
<td>11/4/14</td>
<td>Chapter 9 - Action Research</td>
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<td>11/11/14</td>
<td>Chapter 10 – Measurements *Independent Group Work in Preparation for Presentations</td>
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<td>11/18/14</td>
<td>Chapter 11 – Threats to Internal and External Validity</td>
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<td>Chapter 12 – Planning and Implementing the Study</td>
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<tr>
<td></td>
<td>*Independent Group Work in Preparation for Presentations</td>
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<td>*Review for exam 2</td>
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<tr>
<td>11/25/14</td>
<td><strong>Exam 2</strong></td>
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<tr>
<td>12/2/14</td>
<td><strong>Class Presentations</strong></td>
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<tr>
<td>12/9/14</td>
<td><strong>Class Presentations (continued)</strong></td>
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<td>12/16/14</td>
<td><strong>Final Exam Week – Final Paper due</strong></td>
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September 17, 2014

MEMORANDUM

TO: Graduate Instruction Committee, CEHD

THROUGH: George Cunningham, Ph.D.
Associate Dean, College of Education and Human Development

FROM: Victor Willson, Ph.D.
Professor and Head

SUBJECT: New Courses – BIED 621 and EPSY 650

Attached, please find the appropriate paperwork for establishing two new courses, BIED 621 - Methods for Bilingual Research and EPSY 650 - Multiple Regression and Other Linear Models in Education Research in the Department of Educational Psychology.

Pursuant to the directives of the College, the following information is provided:

1. Rationale: BIED 621 has become a required course for all bilingual education graduate students. It will also be an available elective option for those graduate students pursuing degrees in other EPSY programs and other university departments. This course was taught as an EPSY 689 in the spring 2014 semester and had thirteen enrollees.

   EPSY 650 has become a required course for doctoral students pursuing the research, measurement, and statistics emphasis of the educational psychology doctoral program. This course will also be an option for students in other doctoral programs university wide, and would also be a viable option for the College’s ARM certificate.

2. Vote by the Program: This course has been reviewed by the Executive Committee and was given unanimous support.

We appreciate your consideration of this course. Please contact us should you require any additional information.
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus.

Form Instructions
1. Course request type:  □ Undergraduate  ✔ Graduate  □ First Professional (DDS, MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name): Department of Electrical and Computer Engineering
   ECEN 704 VLSI CIRCUIT DESIGN
3. Course prefix, number and complete title of course:

4. Catalog course description (not to exceed 50 words):
   Analysis and design of monolithic analog and digital integrated circuits using NMOS, CMOS and bipolar technologies; device modeling; CAD tools and computer-aided design; design methodologies for LSI and VLSI scale circuits; yield and economics; test and evaluation of integrated circuits.

5. Prerequisite(s): Graduate classification.
   Cross-listed with: ECEN 474

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

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

8. Will this course be submitted to the Core Curriculum Council?  □ Yes  ✔ No

9. How will this course be graded?  ✔ Grade  □ S/U  □ P/F (CLMD)

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

M.E.N., M.S., Ph.D. in Electrical and Computer Engineering

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

12. ✔ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

13. Prefix  Course #  Title (excluding punctuation)
    ECEN  704  VLSI CIRCUIT DESIGN

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<th>Other</th>
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<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>HCE Code</th>
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</table>

Approval recommended by:
Krishna Narayanan  Date 10/10/14
Department Head or Program Chair (Type Name & SIGN)
Chair, College Review Committee  Date 10/10/14
Department Head or Program Chair (Type Name & SIGN)  Date  (if cross-listed course)
Dean of College  Date 10/10/14

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

Associate Director, Curricular Services  Date  Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu
Curricular Services – 07/14
Course title and number  ECEN 704 VLSI CIRCUIT DESIGN
Term Fall 2015
Meeting times and location TBD

Course Description and Prerequisites

Analysis and design of monolithic analog and digital integrated circuits using NMOS, CMOS and bipolar technologies; device modeling; CAD tools and computer-aided design; design methodologies for LSI and VLSI scale circuits; yield and economics; test and evaluation of integrated circuits. Prerequisite: Graduate classification.

Learning Outcomes or Course Objectives

Upon completion of the course, students will be able to:
- Understand basic and advanced transistor models.
- Understand layout techniques for analog integrated circuits.
- Analyze and design basic building blocks in CMOS technologies.
- Design analog integrated circuits given a set of specifications considering practical limitations.
- Use IC design tools such as Cadence to design, simulate, and verify analog integrated circuits.

Instructor Information

Name Aydin I. Karsilayan
Telephone number (979) 458-3555
Email address karsilay@ece.tamu.edu
Office hours TBD
Office location WEB 318-C

Textbook and/or Resource Material

Course material: http://ecampus.tamu.edu

Grading Policies

All exams and the final project are required for a passing grade.
Midterm exam 1: 20%
Midterm exam 2: 20%
Final exam: 20%
Final project: 10%
Labs: 20%
Homeworks: 10%

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

Lab reports are due one week after the completion of a lab. Unexcused late homeworks and lab reports will not be accepted.
For information on university excused absences visit http://student-rules.tamu.edu/rule07.
Course Topics, Calendar of Activities, Major Assignment Dates

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<tr>
<th>Week</th>
<th>Topic</th>
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<tr>
<td>1-2</td>
<td>IC Devices and Modeling</td>
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<td>3-4</td>
<td>CMOS Processing and Layout</td>
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<td>5-6</td>
<td>Current Sources and Amplifiers</td>
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<td>7</td>
<td>Frequency Response</td>
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<td>8-9</td>
<td>Feedback, Stability and Compensation</td>
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<td>10-11</td>
<td>Opamp and CMFB Design</td>
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<td>Biasing, References and Regulators</td>
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<td>13-14</td>
<td>Noise and Linearity Analysis</td>
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<td><strong>Final Exam</strong></td>
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<tr>
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<td><strong>Final Project Report Due</strong></td>
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Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu)

Academic Integrity

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

For additional information please visit: [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu)
Course title and number: ECEN 474 VLSI CIRCUIT DESIGN
Term: Fall 2015
Meeting times and location: TBD

Course Description and Prerequisites

Analysis and design of monolithic analog and digital integrated circuits using NMOS, CMOS and bipolar technologies; device modeling; CAD tools and computer-aided design; design methodologies for LSI and VLSI scale circuits; yield and economics; test and evaluation of integrated circuits. Prerequisite: ECEN 326.

Learning Outcomes or Course Objectives

Upon completion of the course, students will be able to:

- Understand basic and advanced transistor models.
- Understand layout techniques for analog integrated circuits.
- Analyze and design basic building blocks in CMOS technologies.
- Design analog integrated circuits given a set of specifications considering practical limitations.
- Use IC design tools such as Cadence to design, simulate, and verify analog integrated circuits.

Instructor Information

Name: Aydin I. Karsilayan
Telephone number: (979) 458-3555
Email address: karsilay@ece.tamu.edu
Office hours: TBD
Office location: WEB 318-C

Textbook and/or Resource Material

Course material: http://ecampus.tamu.edu

Grading Policies

All exams are required for a passing grade.
Midterm exam 1: 20%
Midterm exam 2: 20%
Final exam: 25%
Labs: 20%
Homeworks: 15%

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

Lab reports are due one week after the completion of a lab. Unexcused late homeworks and lab reports will not be accepted.
For information on university excused absences visit http://student-rules.tamu.edu/rule07.
# Course Topics, Calendar of Activities, Major Assignment Dates

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<tbody>
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<td>1-2</td>
<td>IC Devices and Modeling</td>
</tr>
<tr>
<td>3-4</td>
<td>CMOS Processing and Layout</td>
</tr>
<tr>
<td></td>
<td><strong>Midterm Exam 1</strong></td>
</tr>
<tr>
<td>5-6</td>
<td>Current Sources and Amplifiers</td>
</tr>
<tr>
<td>7</td>
<td>Frequency Response</td>
</tr>
<tr>
<td>8-9</td>
<td>Feedback, Stability and Compensation</td>
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<tr>
<td></td>
<td><strong>Midterm Exam 2</strong></td>
</tr>
<tr>
<td>10-11</td>
<td>Opamp and CMFB Design</td>
</tr>
<tr>
<td>12</td>
<td>Biasing, References and Regulators</td>
</tr>
<tr>
<td>13-14</td>
<td>Noise and Linearity Analysis</td>
</tr>
<tr>
<td></td>
<td><strong>Final Exam</strong></td>
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## Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu)

## Academic Integrity

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

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

Form Instructions:
1. Course request type: □ Undergraduate  ✔ Graduate  □ First Professional (DDE, MD, JD, PharmD, DVA)
2. Request submitted by (Department or Program Name): Department of Electrical and Computer Engineering
   ECEN 714 DIGITAL INTEGRATED CIRCUIT DESIGN
3. Course prefix, number and complete title of course:
4. Catalog course description (not to exceed 50 words):
   Analysis and design of digital devices and integrated circuits using MOS and bipolar technologies and computer aided simulation.

5. Prerequisite(s):

   Graduate classification.

   Cross-listed with: ECEN 454

   Stacked with:

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

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

7. Is this a repeatable course? □ Yes  ✔ No
   If yes, this course may be taken ______ times.

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

8. Will this course be submitted to the Core Curriculum Council? □ Yes  ✔ No

9. How will this course be graded: ✔ Grade  □ S/U  □ P/F (CLMD)

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

   M.E.N., M.S., Ph.D. in Electrical and Computer Engineering

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

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

12. ✔ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export- controls/export-controls-basics-for-distance-education).

13. Prefix  Course #  Title (excluding punctuation)

<table>
<thead>
<tr>
<th>ECEN</th>
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<tr>
<td>Lect.</td>
<td>Lab</td>
<td>Other</td>
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</tbody>
</table>

Approval recommended by:

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

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

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

Associate Director, Curricular Services

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 07/14
Course title and number: ECEN 714 DIGITAL INTEGRATED CIRCUIT DESIGN
Term: Fall 2015
Meeting times and location: TBD

Course Description and Prerequisites

Analysis and design of digital devices and integrated circuits using MOS and bipolar technologies and computer aided simulation. Prerequisites: Graduate classification.

Learning Outcomes or Course Objectives

Upon completion of the course, students will be able to:
- Understand basic transistor models.
- Understand layout techniques for digital integrated circuits.
- Analyze and design digital building blocks in CMOS technologies.
- Design digital integrated circuits given a set of specifications considering practical design constraints.
- Use IC design tools such as Cadence/Synopsys to design, simulate, and verify digital integrated circuits.

Instructor Information

Name: Peng Li
Telephone number: (979) 845-1612
Email address: pli@tamu.edu
Office hours: TBD
Office location: WEB 334-J

Textbook and/or Resource Material

References (not required):

Grading Policies

Grading: A: 100-90  B: 89-80  C: 79-70  D: 69-60  F: <60
Midterm exam: 17%
Final exam: 33%
Lab: 35%
Homework: 10%
Project: 5%

Late homework and lab submissions (counting weekends and breaks):
Homework: 50% penalty/day due to unexcused absences
Lab: 20% penalty/day due to unexcused absences
Lab reports are due one week after the completion of a lab.
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## Course Topics, Calendar of Activities, Major Assignment Dates

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<td>Midterm Exam</td>
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<td>9</td>
<td>Interconnect</td>
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<td>10</td>
<td>SPICE simulation</td>
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<td>14</td>
<td>Semiconductor memories</td>
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<td>Package, power, I/O</td>
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### Academic Integrity

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For additional information please visit: [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu)
Course title and number  ECEN 454 DIGITAL INTEGRATED CIRCUIT DESIGN
Term              Fall 2015
Meeting times and location  TBD

Course Description and Prerequisites
Analysis and design of digital devices and integrated circuits using MOS and bipolar technologies and computer aided simulation. Prerequisites: ECEN 214 and ECEN 248.

Learning Outcomes or Course Objectives
Upon completion of the course, students will be able to:
- Understand basic transistor models.
- Understand layout techniques for digital integrated circuits.
- Analyze and design digital building blocks in CMOS technologies.
- Design digital integrated circuits given a set of specifications considering practical design constraints.
- Use IC design tools such as Cadence/Synopsys to design, simulate, and verify digital integrated circuits.

Instructor Information
Name  Peng Li
Telephone number  (979) 845-1612
Email address  pli@tamu.edu
Office hours  TBD
Office location  WEB 334-J

Textbook and/or Resource Material
References (not required):

Grading Policies
Grading: A:100-90  B:89-80  C:79-70  D:69-60  F:<60
Midterm exam: 17%
Final exam: 33%
Lab: 40%
Homework: 10%

Late homework and lab submissions (counting weekends and breaks):
Homework: 50% penalty/day due to unexcused absences
Lab: 20% penalty/day due to unexcused absences
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Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and attach a course syllabus.

Form Instructions
1. Course request type: □ Undergraduate  ✔ Graduate  □ First Professional (D.D.S, M.D, J.D, Pharm.D, D.P.M)
2. Request submitted by (Department or Program Name): Department of Electrical and Computer Engineering
   ECEN 749 MICROPROCESSOR SYSTEMS DESIGN
3. Course prefix, number and complete title of course:

4. Catalog course description (not to exceed 50 words):
   Introduction to microprocessors; 16/32 bit single board computer hardware and software designs; chip select
equations for memory board design, serial and parallel I/O interfacing; ROM, static and dynamic RAM circuits for no
wait-state design; assembly language programming, stack models, subroutines and I/O processing.

5. Prerequisite(s):
   Graduate classification.
   Cross-listed with: ECEN 449

6. Is this a variable credit course? □ Yes  ✔ No  If yes, from _____ to _____
7. Is this a repeatable course? □ Yes  ✔ No  If yes, this course may be taken _____ times.
   Will this course be repeated within the same semester? □ Yes  □ No
8. Will this course be submitted to the Core Curriculum Council?  □ Yes  ✔ No
9. How will this course be graded?  ✔ Grade  □ S/U  □ P/F (CLMD)
10. 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.E.N., M.S., Ph.D. in Electrical and Computer Engineering

11. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.
12. ✔ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-control-export-controls-basics-for-distance-education).

13. Prefix  Course #  Title (excluding punctuation)
    ECEN   749   MICROPROCESSOR SYSTEMS DESIGN

    Lec.  Lab  Other  SCH  CHF  and Fund Code  Admin. Unit  Acad. Year  HCL Code
    2.00  2.00  3.00  1410010006  0936   15  -  16  0  0  3  6  3  2

    Approval recommended by:  [Signature]
    Department Head or Program Chair (Type Name & Sign)  9/24/14  Date
    Chair, College Review Committee  10/10/14  Date
    Department Head or Program Chair (Type Name & Sign)  10/10/14  Date
    (if cross-listed course)

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

    Associate Director, Curricular Services  Date
    Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 07/14
Course title and number: ECEN 749 MICROPROCESSOR SYSTEMS DESIGN
Term: Fall 2015
Meeting times and location: TBD

Course Description and Prerequisites
Introduction to microprocessors; 16/32 bit single board computer hardware and software designs; chip select equations for memory board design, serial and parallel I/O interfacing; ROM, static and dynamic RAM circuits for no wait-state design; assembly language programming, stack models, subroutines and I/O processing. Prerequisite: Graduate classification.

Learning Outcomes or Course Objectives
Upon completion of the course, students will be able to:
- Obtain an in-depth knowledge of digital circuit design using a microprocessor-based single-board embedded platform as an implementation method for digital systems.
- Understand hardware and software co-design, using a commercial FPGA (for hardware implementation) with an embedded on-chip microprocessor (for software implementation).
- Understand and become familiar with using the Verilog HDL (Hardware Description Language) as a means of implementing digital designs.
- Become familiar with a FPGA hardware platform to implement reconfigurable designs, including a single-board computer running the Linux operating system.
- Understand and gain expertise in interfacing to on-chip RAM memory, and gain knowledge of memory-mapped parallel I/O.
- Understand and implement different methods of serial I/O using pulse code modulation (PCM) techniques.
- Implement I/O drivers to interface hardware with software running on a single-board computer running Linux.
- Learn and implement display drivers to manipulate a VGA display, including timing signals for the display.
- View the design of digital systems from an embedded hardware/software perspective and obtain a set of fundamental concepts and design skills that can be applied to a wide variety of digital design problems.

Instructor Information
Name: Sunil Khatri
Telephone number: (979) 845-8371
Email address: sunilkhatri@tamu.edu
Office hours: TBD
Office location: WEB 333-F

Textbook and/or Resource Material
No required textbook. The course is taught from a set of class notes, which are derived from multiple contemporary sources.
Grading Policies

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

Test 1: 20%
Test 2: 20%
Lab: 35%
Homeworks: 15%
Project: 10%

Both tests are open-notes, and have lab-related questions. Lab reports must be turned in individually one week after the lab is completed.
For information on university excused absences visit http://student-rules.tamu.edu/rule07.

Course Topics, Calendar of Activities, Major Assignment Dates

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<td>12</td>
<td>Transmission Lines</td>
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Academic Integrity

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For additional information please visit: http://aggiehonor.tamu.edu
Course title and number  ECEN 449 MICROPROCESSOR SYSTEMS DESIGN  
Term  Fall 2015  
Meeting times and location  TBD  

Course Description and Prerequisites  
Introduction to microprocessors; 16/32 bit single board computer hardware and software designs; chip select equations for memory board design, serial and parallel I/O interfacing; ROM, static and dynamic RAM circuits for no wait-state design; assembly language programming, stack models, subroutines and I/O processing. Prerequisite: ECEN 248.

Learning Outcomes or Course Objectives  
Upon completion of the course, students will be able to: 
- Obtain an in-depth knowledge of digital circuit design using a microprocessor-based single-board embedded platform as an implementation method for digital systems. 
- Understand hardware and software co-design, using a commercial FPGA (for hardware implementation) with an embedded on-chip microprocessor (for software implementation). 
- Understand and become familiar with using the Verilog HDL (Hardware Description Language) as a means of implementing digital designs. 
- Become familiar with a FPGA hardware platform to implement reconfigurable designs, including a single-board computer running the Linux operating system 
- Understand and gain expertise in interfacing to on-chip RAM memory, and gain knowledge of memory-mapped parallel I/O. 
- Understand and implement different methods of serial I/O using pulse code modulation (PCM) techniques. 
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- Learn and implement display drivers to manipulate a VGA display, including timing signals for the display. 
- View the design of digital systems from an embedded hardware/software perspective and obtain a set of fundamental concepts and design skills that can be applied to a wide variety of digital design problems.

Instructor Information  
Name  Sunil Khatri  
Telephone number  (979) 845-8371  
Email address  sunilkhatri@tamu.edu  
Office hours  TBD  
Office location  WEB 333-F  

Textbook and/or Resource Material  
No required textbook. The course is taught from a set of class notes, which are derived from multiple contemporary sources.
Grading Policies

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

Test 1: 25%
Test 2: 25%
Lab: 35%
Homeworks: 15%

Both tests are open-notes, and have lab-related questions. Lab reports must be turned in individually one week after the lab is completed.

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Course Topics, Calendar of Activities, Major Assignment Dates

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Academic Integrity

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

Form Instructions
1. Course request type: ☑ Undergraduate  ☐ Graduate  ☐ First Professional (MPA, M.P.H, M.S.W, etc.)
2. Request submitted by (Department or Program Name): Department of Educational Psychology
3. Course prefix, number and complete title of course: EDTC 642: Designing for Mobile Learning

4. Catalog course description (not to exceed 50 words):
Introduction to basics of designing educational applications for mobile devices; emphasis on instructional, visual, and human-computer interaction design principles; hands-on design and development work combined with a theoretical approach to designing learning experiences; previous programming experience is not required.

5. Prerequisite(s):

Graduate classification; approval of department head
Cross-listed with: Stacked with:

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

6. Is this a variable credit course? ☐ Yes  ☑ No

If yes, from _______ to _______

7. Is this a repeatable course? ☐ Yes  ☑ No

If yes, this course may be taken _______ times.

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

8. Will this course be submitted to the Core Curriculum Council? ☐ Yes  ☑ No

9. How will this course be graded: ☑ Grade  ☐ S/U  ☐ P/F (CLMD)

10. This course will be:
a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
   MED in Educational Technology and Ph.D. in EPSY - Learning and Technology emphasis.

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

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

☐ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

12. ☑ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

13. Prerequisite(s):

EDTC 642 Designing for Mobile Learning

<table>
<thead>
<tr>
<th>Credit</th>
<th>Lab</th>
<th>Other</th>
<th>SCh</th>
<th>CIP and Fund Code</th>
<th>Admin. Unit</th>
<th>Grad. Year</th>
<th>EFT Code</th>
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</table>

Approval recommended by:
Victor Willis, Ph.D.
Department Head or Program Chair (Type Name & Sign) Date

George Cunningham, Ph.D.
Chair, College Review Committee Date

Mark Zoran, Ph.D.
Dean of College Date

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

Submitted to Coordinating Board by:
Associate Director, Curricular Services Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 07/14
EDTC 642 Designing for Mobile Learning
Spring 2015

Syllabus & Course Schedule

Course Description:

Introduction to the basics of designing educational applications for mobile devices. Emphasis on instructional, visual, and human-computer interaction design principles. Hands-on design and development work combined with a theoretical approach to designing learning experiences. No previous programming experience is required.

Prerequisites: Graduate Classification; approval of department head.

Instructor:

Noelle Wall Sweany, Ph.D.
Clinical Associate Professor
Educational Technology Program
Harrington 724
979-862-2086
nsweany@tamu.edu (quickest response)

Office Hours:

You are welcome to make an appointment to meet with me to discuss your progress, work, or evaluation at any time. We can arrange to discuss by phone, Skype/Google Hangouts, or meet in person.

Course Objectives:

By the end of this course, you will be able to:

- List benefits and challenges of using mobile technologies for learning
- Identify instructional objectives that would benefit from a mobile approach
- Evaluate educational apps according to pedagogical and interface design principles
- Discuss the current m-learning trends in K-12, Higher Ed, and Corporate contexts
- Describe the strengths and weaknesses of various mobile platforms
- Apply instructional, visual, and usability design principles to the development of a mobile app

Texts:


- Other readings as assigned. These will be available on eCampus for download.
Course Web Page

We will use eCampus as our learning platform. You can access our course section by logging into http://ecampus.tamu.edu/ and clicking on our course title under My Courses. Student Tutorials for eCampus can be found under ITS Docs on the Help menu or at http://ecampus.tamu.edu/student-help.php

Course Assignments and Evaluation:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly Discussions &amp; Activities</td>
<td>45</td>
</tr>
<tr>
<td>Design Proposal</td>
<td>10</td>
</tr>
<tr>
<td>Storyboard &amp; Interface Design</td>
<td>15</td>
</tr>
<tr>
<td>Working App</td>
<td>30</td>
</tr>
</tbody>
</table>

Letter Grade Scale:

A = 90 to 100 points
B = 80 to 89 points
C = 70 to 79 points
F = 0 to 69 points
Weekly Participation Requirement (45 pts.)

The success of this course depends on active participation from all of us. Weekly participation is required. Students are responsible for completing the assigned readings, completing the weekly online activities, and responding to peers' posts and comments.

For the online discussion, typically, you will be asked to post your first response to the discussion area by Tuesday (end of day). To earn FULL credit, you will post on at least 2 different days throughout the week. Your comments should demonstrate that you have thought about the material at a deeper level and they should add value/insight to our discussion. A simple "I agree" or "Good point" will not earn full credit. Substantive comments may include personal examples, provide a counter-argument, incorporate outside sources, ask follow-up questions, etc. A few other helpful guidelines:

- A week is defined as 7 days between Sunday and Saturday
- Think about the questions first before you read the responses of your classmates.
- **View the discussion not as a writing assignment but as a dialogue between yourself and the members of the class.**
- Keep your responses concise, but provide enough information to get your point across.
- Ask open-ended questions that invite the response of your classmates.
- Make sure you title the post so that classmates can follow the threads of the discussion.
- Check back to see if any of your classmates have responded to your posting.

In my role as a facilitator, I really enjoy seeing the discussion unfold and the connections that are made. To keep the discussion flowing, I will post follow-up questions/comments to specific posts, but I will not respond to every post. Please do not assume that if I don't respond to your individual post that I have not read it or do not agree with it. I typically wait for at least one other person to respond to a particular comment before I reply.

**Note: Each week will have different activities and requirements so be sure and check in early in the week to see what is required.**
**Weekly Participation Evaluation Rubric:**

The following table outlines the 3 criteria that I will be looking at in our Weekly Discussions -- Critical Thinking, Interaction, and Contributions. Each of these criteria is worth 1 to 3 points. (I consider your posts as a whole, not individually.) I will average the 3 criteria to assign you a weekly grade. If I notice you veering off track, I’ll provide some written comments as well. You’ll notice that the Weekly Discussion is worth 45% of your grade which is an indication of the value I place on these discussions.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Levels of Attainment</th>
<th>Points</th>
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<tbody>
<tr>
<td>Critical Thinking</td>
<td>• Posts demonstrate clear understanding of assigned reading</td>
<td>3</td>
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<tr>
<td></td>
<td>o (Often includes a personal example or outside source that clearly relates to content being discussed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Posts written with basic understanding of material, but need more detail</td>
<td>2</td>
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<tr>
<td></td>
<td>• Posts are brief; tend to be “I agree” or “Yes”</td>
<td>1</td>
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<tr>
<td>Interaction</td>
<td>• Initiated several interactions and responded to most/all questions asked by peers</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>• Rarely initiated interaction; Responded to direct questions asked of them</td>
<td>2</td>
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<tr>
<td></td>
<td>• Little or no interaction with peers; Did not ask questions of peers; Did not respond to questions asked of them</td>
<td>1</td>
</tr>
<tr>
<td>Contributions</td>
<td>• Posts were made on 2 or more days (initial deadline met)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>• Posts were only made on one day (Initial deadline met) OR Posts made on 2 or more days (initial deadline not met)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>• Posts were only made on one day (Initial deadline not met)</td>
<td>1</td>
</tr>
</tbody>
</table>
Relevant Policies

Copyright/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 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 any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules under Part I. Academic Rules, Academic Misconduct.

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

Academic Integrity

For additional information please visit: http://aggiehonor.tamu.edu
"An Aggie does not lie, cheat, or steal, or tolerate those who do."

CEHD Statement on Diversity

We, the faculty of the College of Education and Human Development, value and respect diversity and the uniqueness of each individual. The faculty affirms its dedication to non-discrimination in our teaching, programs, and services on the basis of race, color, religion, gender, age, sexual orientation, domestic partner status, ethnic or national origin, veteran status, or disability. The College of Education and Human Development at Texas A&M University is an open and affirming organization that does not tolerate discrimination, vandalism, violence, or hate crimes, and we insist that appropriate action be taken against those who perpetrate such acts. Further, the College is committed to protecting the welfare, rights, and privileges of anyone who is a target of prejudice or bigotry. Our commitment to tolerance, respect, and action to promote and enforce these values embraces the entire university community.
## Course Schedule

**Contents of the schedule are subject to change. Any changes will be announced in class in advance.**

*IF THE LINKS DON'T WORK, TRY COPYING AND PASTING THE URL INTO YOUR BROWSER*

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<tr>
<th>Weeks</th>
<th>Topic</th>
<th>Readings/Due Dates</th>
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<td>1 – Jan. 20</td>
<td>Introduction to the course</td>
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<td>2 – Jan. 26</td>
<td>mLearning and Cognition: Opportunities and Challenges</td>
<td>M&amp;D, Ch. 1, 2&lt;br&gt;Peters, Ch. 1, 2, 9</td>
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<td>3 – Feb. 2</td>
<td>mLearning Trends in K-12, Higher Ed, and Corporate Learning</td>
<td>M&amp;D, Ch. 5, 9, 11&lt;br&gt;Peters, Ch. 3&lt;br&gt;Ch. 5, 6 from Clark Quinn’s ‘Designing mLearning: Tapping into the Mobile Revolution for Organizational Performance</td>
</tr>
<tr>
<td>4 – Feb. 9</td>
<td>Introduction to LiveCode</td>
<td>LiveCode Beginner’s Guide</td>
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<tr>
<td>5 – Feb. 16</td>
<td>Creating your first app</td>
<td>LiveCode Tutorials</td>
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<tr>
<td>6 – Feb. 23</td>
<td>mLearning Design Guidelines</td>
<td>M&amp;D, Ch. 6, 7, 8</td>
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<tr>
<td>7 – Mar. 2</td>
<td>Designing for various mobile platforms</td>
<td>LiveCode Mobile Guide</td>
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<tr>
<td>8 – Mar. 9</td>
<td>Writing a Design Proposal</td>
<td><strong>Due 3/14: Design Proposal</strong></td>
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<td>9 – Mar. 16</td>
<td>SPRING BREAK</td>
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<td>10 – Mar. 23</td>
<td>User Interface Design Principles</td>
<td>Peters, Ch. 4,5, 10</td>
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<td>11 – Mar. 30</td>
<td>mLearning and Collaboration</td>
<td>M&amp;D, Ch. 4&lt;br&gt;Peters, Ch. 6,7&lt;br&gt;<strong>Due 4/2: Storyboard &amp; Interface Design</strong></td>
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<td>12 – Apr. 6</td>
<td>Evaluation and Accessibility Issues</td>
<td>M&amp;D, Ch. 12, 13</td>
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<td>Notes</td>
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<td>13 - Apr. 13</td>
<td>Field Testing your App</td>
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<td>14 - Apr. 20</td>
<td>Work Week</td>
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<td>15 - Apr. 27</td>
<td>Future of mLearning</td>
<td>M&amp;D, Ch. 21</td>
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<td>16 - May 4</td>
<td>Final Week</td>
<td>Course Wrap-Up</td>
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<tr>
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<td></td>
<td>Due 5/8: Final Working App</td>
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October 13, 2014

MEMORANDUM

TO: Graduate Instruction Committee, CEHD

THROUGH: George Cunningham, Ph.D.
Associate Dean, College of Education and Human Development

FROM: Victor Willson, Ph.D.
Professor and Head

SUBJECT: New Course – EDTC 642 Designing for Mobile Learning

Attached, please find the appropriate paperwork for creating the new course EDTC 642: Designing for Mobile Learning.

Pursuant to the directives of the College, the following information is provided:

1. Rationale: This course is a new course that will be required for students in the EDTC Master's program as well as the Ph.D. program in EPSY with an emphasis in Learning and Technology. The course reflects the use of mobile applications in the new era of mobile learners and education. This new course assists in keeping our program up to date in teaching our students the latest technology and offering an effective and comprehensive educational experience.

2. Vote by the Executive Committee: The changes have the unanimous support of our executive committee.

We appreciate your consideration of this course. Please contact us should you require any additional information.
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and attach a course syllabus.

Form Instructions
1. Course request type: 
   - [ ] Undergraduate  
   - [x] Graduate  
   - [ ] First Professional (Do MD, J.D, PharmD, DVM)

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

3. Course prefix, number and complete title of course:  
   EPSY 650: Multiple Regression and Other Linear Models in Education Research

4. Catalog course description (not to exceed 50 words):  
   Overview of basic and advanced topics in regression analysis; equal emphasis on developing procedural knowledge, statistical theory, research designs, and practical issues and methods using statistics in empirical research; basics of linear regression models and logistic regression models.

5. Prerequisite(s):  
   EPSY 641 or STAT 652 or SOCI 631; Graduate Classification; Approval of department head

6. Is this a variable credit course?  
   - [ ] Yes  
   - [x] No
   If yes, from _______ to _______

7. Is this a repeatable course?  
   - [ ] Yes  
   - [x] No
   If yes, this course may be taken _______ times.

   Will this course be repeated within the same semester?  
   - [ ] Yes  
   - [x] No

8. Will this course be submitted to the Core Curriculum Council?  
   - [ ] Yes  
   - [x] No

9. How will this course be graded?  
   - [x] Grade
   - [ ] S/U
   - [ ] P/F (CLMD)

10. This course will be:  
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
      Doctoral Program in Educational Psychology with an emphasis in Research, Measurement, and Statistics (RMS)
   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)
      Those completing the ARM certificate, MSin EPSY with RMS emphasis, PHD students in EPSY, CPSY, and SPSY

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

12. [x] I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

13. Prefix Course # Title (excluding punctuation)
   EPSY 650 MULTI REG & OTHER LM IN ED RES

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   Approval recommended by:  
   Victor Wilson, Ph.D.  
   Department Head or Program Chair (Type Name & Sign)  
   Date: Sep 17/14  
   Level: 6

   George Cunningham, Ph.D.  
   Chair, College Review Committee  
   Date: Oct 20/14

   Department Head or Program Chair (Type Name & Sign)  
   (if cross-listed course)  
   Date: Oct 20/14

   George Cunningham, Ph.D.  
   Dean of College  
   Date: Oct 20/14

   Mark Zoran, Ph.D.  
   Chair, GC or UCC  
   Date: Oct 20/14

   Submitted to Coordinating Board by:
   Associate Director, Curricular Services  
   Date:  
   Effective Date:  

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.  
Curricular Services – 07/14
EPSY 650: Multiple Regression and Other Linear Models in Educational Research
Spring 2014

Instructor: Wen Luo, Ph.D.
Telephone: 979-845-9250
Email: wluo@tamu.edu
Office: 718A
Office Hours: By Appointment
Meeting Time: TBD
Location: TBD

Course Description:
This course is designed to provide students with a solid overview of basic and advanced topics in regression analysis. Equal emphasis is placed on developing procedural knowledge, including general computer skills, and statistical theory, research designs, and practical issues and methods in using statistics in empirical research. This course will cover the basics of linear regression models and logistic regression models.

Learning Outcomes
After completing this course, students should be able to: (1) understand the purpose, rationale, and uses of the various regression analyses and (2) conduct and interpret regression analyses using statistical software such as SPSS and SAS.

Prerequisites
Students are expected to have taken: EPSY641, or STAT652, or SOCI631, or any equivalent courses. Students are expected to have some knowledge on ANOVA and Multiple Regression. Students who have not taken the required courses have to meet with me before they register for this course. Graduate classification and approval of the department head are also required.

Assigned texts:

Grading
Grades will be based on the following:
a) Assignments (60%)
    Note. You can discuss assignments with other students; however, you should do the analysis and write up the answers on your own. Copying others’ work (including syntax, output, and report) is considered as academic misconduct and will have severe consequences.
Each problem will be graded on a three-point scale to indicate the level of accuracy and understanding reflected in the answer:

<table>
<thead>
<tr>
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<th>Evaluation of answer</th>
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<tr>
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<td>Complete, correct and clear.</td>
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<tr>
<td>2</td>
<td>Some mistakes and/or misconceptions, somewhat unclear or incomplete.</td>
</tr>
<tr>
<td>1</td>
<td>Serious mistakes and/or misconceptions, very unclear or incomplete.</td>
</tr>
<tr>
<td>0</td>
<td>Not done or barely attempted.</td>
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b) Final in-class presentation (40%)

Note: You will work with a partner on the final presentation. You may analyze your own data or data which were collected by other individual (as long as that individual has not analyzed the data addressing the same research questions you are attempting to answer). The final presentation should include the following four sections: Introduction, method, results, and discussion. You should apply the techniques you learn from this course to your final project. You and your partner should schedule a meeting with me to talk about your final presentation at least one month before the final presentation.

Letter Grade Conversion Chart

- 90-100    A
- 80-89     B
- 70-79     C
- 65-69     D
- Below 65  F

Tentative class schedule

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<tr>
<th>Date</th>
<th>Week</th>
<th>Topic</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/22</td>
<td>1</td>
<td>Introduction &amp; Review of Correlation and simple regression</td>
<td>1-2</td>
</tr>
<tr>
<td>1/29</td>
<td>2</td>
<td>Multiple regression model; Partial and semi-partial correlations</td>
<td>3</td>
</tr>
<tr>
<td>2/5</td>
<td>3</td>
<td>Diagnosing and solving regression problems (I): Assumptions Checking</td>
<td>4</td>
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<tr>
<td>2/12</td>
<td>4</td>
<td>Diagnosing and solving regression problems (II): Outliers and multicollinearity</td>
<td>10</td>
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<tr>
<td>2/19</td>
<td>5</td>
<td>Data analytic strategies</td>
<td>5</td>
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<tr>
<td>2/26</td>
<td>6</td>
<td>Mediation analysis</td>
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<tr>
<td>3/5</td>
<td>7</td>
<td>Modeling curvilinear relationships; Transformation</td>
<td>6</td>
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</table>
3/12 8 Interaction among continuous variables 7
3/26 9 Probing interaction effect
4/2 10 Categorical independent variables 8
4/9 11 Interaction with categorical variables 9
4/16 12 Logistic regression 13
4/23 13 Longitudinal regression methods 15
4/30 14 Project final presentation (reports due)

University Policies:

Attendance and Make-up Policies: The university views class attendance as an individual student responsibility. Please see TAMU student rules on Attendance for details. Please note that to receive in-class participation points which count toward your final grade, you must be present and actively engaged in class each week. Excused absences will be taken into consideration in accordance with university attendance policy. Please refer to student rule 7: http://student-rules.tamu.edu/rule07

Students with Special Needs: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

Any student who could require assistance in the event of a necessary evacuation of the building in which this class is taught are asked to notify the instructor so that individuals can be identified to assist him/her during an evacuation.

Academic Dishonesty: “An Aggie does not lie, cheat, or steal, or tolerate those who do.”

As commonly defined, plagiarism consists of passing off as one’s own 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 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 Honor Council Rules and Procedures on the web at aggiehonor.tamu.edu

Handouts: The handouts used in this course are copyrighted. By "handouts" I mean all materials generated for this class, which include but are not limited to syllabi, quizzes, 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 I expressly grant permission.
Texas A&M University
Departmental Request for a New Course
Undergraduate + Graduate + Professional
- Submit original form and attach a course syllabus.

Form Instructions

1. Course request type:
   - [ ] Undergraduate
   - [X] Graduate
   - [ ] First Professional (DDS, MD, JD, PharmD, DVM)

2. Request submitted by (Department or Program Name):
   Department of Finance

3. Course prefix, number and complete title of course:
   FINC 641 Valuation

4. Catalog course description (not to exceed 50 words):
   Theory and application of various approaches to valuation; measuring and managing the value of corporations; principles of value creation; fundamental valuation methodology; application of value creation principles to managerial problems; special cases and complex valuation issues.

5. Prerequisite(s):
   ACCT 229 or ACCT 610 or ACCT 640; FINC 351 or FINC 632; FINC 361 or FINC 629

   Cross-listed with:
   Stacked with:

6. Is this a variable credit course?
   - [ ] Yes
   - [X] No
   If yes, from ________ to ________

7. Is this a repeatable course?
   - [ ] Yes
   - [X] No
   If yes, this course may be taken ________ times.

   Will this course be repeated within the same semester?
   - [ ] Yes
   - [X] No

8. Will this course be submitted to the Core Curriculum Council?
   - [ ] Yes
   - [X] No

9. How will this course be graded?
   - [X] Grade
   - [ ] S/U
   - [ ] P/F (CLMD)

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

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

   master's programs at Mays Business School

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

12. I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpri.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

13. Prefix Course # Title (excluding punctuation)

   FINC 641 VALUATION

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   Approval recommended by:

   R. T. Dye
   Department Head or Program Chair (Type Name & Sign) Date 10/17/14
   Chair, College Review Committee

   Department Head or Program Chair (Type Name & Sign) Date (if cross-listed course)
   Date 10/24/14
   Dean of College

   Submitted to Coordinating Board by:

   Chair, GC or UCC

   Effective Date

   Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 07/14
Class Meets: TBD
Class Website: http://ecampus.tamu.edu
Instructor: TBD
Office Hours: TBD
Phone: 979.845.xxxx (voice), 979.845.3884 (fax), 979.845.3514 (FiNC Department)

Course Description and Learning Objectives
Finance 641 is an intensive course covering three different approaches to valuation: intrinsic valuation, relative valuation, and option pricing valuation. These methods will be applied to various types of real-world companies—public and private, small and large, domestic and international, start-up and established—by building Excel models and using the models to identify sources of value creation. Students who successfully complete the course will be able to select and implement an appropriate valuation strategy for any type of business and use the results of their analysis to prescribe a course of action to maximize corporate value.

Prerequisites
ACCT 229 or ACCT 610 or ACCT 640; FiNC 351 or FiNC 632; FiNC 361 or FiNC 629
You also should be quite comfortable with computer applications, especially Excel.

Required Material

No textbook is required for this course. Lecture notes and external course references will be available on the course website. The class project requires access to Microsoft Excel.

Optional Material
The following books may be useful reference resources.


Academic Integrity
An Aggie does not lie, cheat, or steal, or tolerate those who do.
The Aggie Honor Code affirms that honesty, truthfulness, trust, fairness, respect, moral conduct, and individual responsibility guide the conduct of the Texas A&M community. Commitment to these ideals produces in each of us integrity, which fosters the will to make difficult choices, to accept responsibility for and consequences of our actions, even at great personal cost.
It is the responsibility of both students and instructors to maintain academic integrity by refusing to participate in or tolerate academic misconduct. Committing any of the following acts constitutes academic dishonesty. This list is not exclusive of any other acts that may reasonably be said to constitute scholastic dishonesty.

_Cheating:_ Intentionally using or attempting to use unauthorized materials, information, notes, study aids, or other devices or materials in any academic exercise.

_Complicity:_ Intentionally or knowingly helping (or attempting to help) another to commit an act of academic dishonesty.

_Plagiarism:_ Failing to give appropriate credit for or presenting as your own another person's words, ideas, results, or processes.

_Multiple Submission:_ Submitting substantial portions of the same work (including oral reports) for credit more than once without authorization from the second instructor.

_Falsification:_ Changing or omitting data or results, or manipulating research materials, equipment, or processes such that the research is not accurately represented in the research record.

_Fabrication:_ Recording or reporting made up data or results, or submitting fabricated documents.

I will proactively promote academic integrity and adhere to the Aggie Honor System Office's policies pertaining to reporting and adjudication of violations of the Aggie Honor Code. For detailed definitions of academic misconduct and complete Honor Council Rules and Procedures, please visit [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu).

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**Attendance**

I expect you to attend class regularly, in accordance with university policy. I will routinely check attendance. You will be held responsible for any assignments, material covered, amendments to the syllabus, or announcements made in class, whether you are present or not.

If you miss an exam without a valid, documented university excuse, you will receive a grade of zero on that exam. According to university policy, there are exactly eight types of excused absences. These are listed in Texas A&M University Regulations and on the TAMU website at [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07):

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- Confirmation of visit to a health care professional affirming date and time of visit.

c) An absence for a non-acute medical service does not constitute an excused absence.

7) Required participation in military duties.

8) Mandatory admission interviews for professional or graduate school which cannot be rescheduled.

Makeup Policy
You can make up an exam only if an absence is excused. To be considered excused, you must notify me in writing (acknowledged e-mail message is acceptable) prior to the date of absence, and provide appropriate documentation for the absence. In cases where advance notification is not feasible (for example, accident or emergency) you must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class. The fact that these are university-excused absences does not relieve you of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.

Grading
Course grades for Finance 641 will be determined as follows.

<table>
<thead>
<tr>
<th>Item</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Exams</td>
<td>25%</td>
</tr>
<tr>
<td>Semester Project</td>
<td>25%</td>
</tr>
<tr>
<td>Attendance</td>
<td>5%</td>
</tr>
<tr>
<td>Class Participation</td>
<td>5%</td>
</tr>
<tr>
<td>Harvard Simulation (M&amp;A in Wine Country)</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Like exams, the maximum possible scores for attendance and class participation is 100 points. Your class participation score will be based on an assessment of your level of preparedness for each class, as indicated by the quality of your responses to questions directed to you in class (rated either satisfactory or unsatisfactory). Even incorrect responses can demonstrate a satisfactory level of preparation. Your class participation score will be equal to 100, times the percentage of satisfactory ratings received as a percentage of total ratings. Participation ratings will be updated on the course website after each class meeting.
Unexcused absences will lower your attendance score:

<table>
<thead>
<tr>
<th>Number of Unexcused Absences</th>
<th>Attendance Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 or 1</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>90</td>
</tr>
<tr>
<td>3</td>
<td>80</td>
</tr>
<tr>
<td>4</td>
<td>70</td>
</tr>
<tr>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>6 or more</td>
<td>0</td>
</tr>
</tbody>
</table>

Course grades will follow the standard 90/80/70/60 scale:

<table>
<thead>
<tr>
<th>Points Collected (PC)</th>
<th>Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC ≥ 90</td>
<td>A</td>
</tr>
<tr>
<td>90 &gt; PC ≥ 80</td>
<td>B</td>
</tr>
<tr>
<td>80 &gt; PC ≥ 70</td>
<td>C</td>
</tr>
<tr>
<td>70 &gt; PC ≥ 60</td>
<td>D</td>
</tr>
<tr>
<td>60 &gt; PC</td>
<td>F</td>
</tr>
</tbody>
</table>

Graded assignments must be turned in before the deadline to be eligible for full credit. Late assignments are subject to the following penalties:

<table>
<thead>
<tr>
<th>If the assignment is submitted...</th>
<th>Penalty</th>
<th>Maximum Possible Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>before deadline</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>1st 24 hours after deadline</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>2nd 24 hours after deadline</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>3rd 24 hours after deadline</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>4th 24 hours after deadline</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>5th 24 hours after deadline</td>
<td>100%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Even if you have a documented excused absence, please arrange to submit your assignment by its due date unless an emergency situation makes this impossible. Late assignments accompanied by a documented university excuse will not be subject to penalty.

When any graded work is returned to you, you have one week from the date it is returned to bring any grading errors to the instructor’s attention. After the one-week deadline has passed, no further grade changes will be made for that particular item. The purpose of this deadline is not to discourage grade changes due to errors, but to ensure that any necessary ones are promptly made.

ADA Policy Statement
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information, visit http://disability.tamu.edu.
# Course Schedule

## The Value Creation Process

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction and Overview</td>
</tr>
<tr>
<td>2</td>
<td>Approaches to Valuation: Intrinsic Valuation, Relative Valuation, Option-Based Valuation</td>
</tr>
</tbody>
</table>

## Intrinsic Valuation

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Applying Intrinsic Valuation Principles: M&amp;A in Wine Country Simulation</td>
</tr>
<tr>
<td>4</td>
<td>The Cost of Equity Capital: The Risk-Free Rate and Equity Risk Premiums</td>
</tr>
<tr>
<td>5</td>
<td>The Cost of Equity Capital: Using Beta to Estimate Risk Premiums</td>
</tr>
<tr>
<td>6</td>
<td>The Cost of Equity Capital: Estimating Betas</td>
</tr>
<tr>
<td>7</td>
<td>Forecasting Cash Flows: Dividends, Earnings, and Free Cash Flow to Equity (FCFE)</td>
</tr>
<tr>
<td>8</td>
<td>Forecasting Cash Flows: Taxes, CAPEX, and Working Capital</td>
</tr>
<tr>
<td>9</td>
<td>Exam 1</td>
</tr>
<tr>
<td>10</td>
<td>Forecasting Cash Flows: Historical and Estimated Earnings Growth</td>
</tr>
<tr>
<td>11</td>
<td>Forecasting Cash Flows: Growth Drivers and the Role of Reinvestment</td>
</tr>
<tr>
<td>12</td>
<td>Forecasting Cash Flows: Terminal Value</td>
</tr>
<tr>
<td>13</td>
<td>Forecasting Cash Flows: Research and Development, Corporate Governance</td>
</tr>
<tr>
<td>14</td>
<td>Forecasting Cash Flows: Start-up Firms and Young Companies</td>
</tr>
<tr>
<td>15</td>
<td>Forecasting Cash Flows: Distressed Companies</td>
</tr>
<tr>
<td>16</td>
<td>Exam 2</td>
</tr>
</tbody>
</table>

## Relative Valuation

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Relative Valuation Versus Intrinsic Valuation</td>
</tr>
<tr>
<td>18</td>
<td><em>PE</em> and <em>PEG</em> Ratios</td>
</tr>
<tr>
<td>19</td>
<td>Enterprise Value Multiples</td>
</tr>
<tr>
<td>20</td>
<td>Price to Book Ratios, Revenue Multiples, and Forward Multiples</td>
</tr>
<tr>
<td>21</td>
<td>Choosing A Multiple</td>
</tr>
</tbody>
</table>

## Option Based Valuation

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Principles of Option Pricing and Real Options</td>
</tr>
<tr>
<td>23</td>
<td>The Option to Delay, Patents as Options</td>
</tr>
<tr>
<td>24</td>
<td>Valuing a Natural Resource Company: Option to Expand and Option to Abandon</td>
</tr>
<tr>
<td>25</td>
<td>Valuing Aggregate Equity as an Option</td>
</tr>
</tbody>
</table>

## Special Cases of Valuation

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>Valuing Private Companies</td>
</tr>
<tr>
<td>27</td>
<td>Acquisition Valuation</td>
</tr>
<tr>
<td>28</td>
<td>Value Enhancement</td>
</tr>
</tbody>
</table>
Semester Project Overview

- This project is designed to apply the valuation techniques learned in class to companies in the real world.
- It is a group project, with each person in the group picking one company to value.
- The project analysis is due in two parts:
  1) The discounted cash flow valuations are due in Session 16. They will not be graded, but will be reviewed and returned with comments.
  2) The entire project report is due in the last session of class.

Step 1: Pick the companies
Select a group of companies (one for each person in the group), making sure you have at least
- one company which currently has negative earnings;
- one company which has high-growth potential;
- one non-U.S. company;
- one service company (retail firm, financial services firm, etc.).

Step 2: Intrinsic Valuation
Value the stock of each company using a discounted cash flow model. Select the model that you think is most appropriate for that company.
--Estimate how sensitive your value estimates are to changes in your assumptions.
--What are the key drivers of value for your company? Identify the key assumption or variable that you would focus on in doing your discounted cash flow valuation (e.g., growth rate assumption, growth period assumption, net capital expenditure assumption, etc.).
--Present your valuation in a picture, summarizing the assumptions that you have made.

Step 3: Relative Valuation (Comparable Firms)
--Prepare a list of "comparable" companies, using criteria that you think are appropriate.
--Choose a multiple that you will use in comparing firms across the group. Several iterations may be necessary.
--Evaluate your company against the comparable firms using the multiple that you have chosen
  1) using simple techniques
  2) using a sector regression.

Step 4: Relative Valuation (Aggregate Market)
Using the latest regression for the market and the multiple you chose in step 3, evaluate whether your firm is under or overvalued.
-- If you have a non-U.S. company which has an ADR listed on it, you can use the U.S. regression.
-- While I will not require it, I will be very impressed if you run a regression of the multiple in your foreign market (use the 50 largest firms, if you want to reduce your work load) against the variables that determine that multiple.
Step 5: Option-Based Valuation

Identify one company from your group that is suitable for an option-based valuation and use the approach to value the company's common stock.

-- If your negative earnings firm has high leverage, value it using the option pricing model. If it does not, do not use the option pricing model.

Step 6: Final Value Estimate and Recommendation

Consider the values you have obtained from the intrinsic, relative, and option valuation models.

--How would you reconcile the different estimates of value?
--Make a final recommendation for each stock in your group.
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus.

Form Instructions
1. Course request type:  ☐ Undergraduate  ☒ Graduate  ☐ First Professional (DDS, MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name): Department of Finance
3. Course prefix, number and complete title of course: FINC 646 Technical Analysis of Financial Markets
4. Catalog course description (not to exceed 50 words): Use of price, volume, and other non-fundamental, market, and behavioral data to analyze and predict security prices; emphasis on pattern recognition and correlation analysis over theory and causal analysis; application of technical analysis as an investment discipline for institutional portfolio management; principles, terminology, techniques, and emerging theories of technical analysis.

5. Prerequisite(s): FINC 351 or FINC 632; FINC 361 or FINC 629

Cross-listed with:  ____________________________  Stacked with:  ____________________________

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

6. Is this a variable credit course?  ☐ Yes  ☒ No  If yes, from _____ to _____
7. Is this a repeatable course?  ☐ Yes  ☒ No  If yes, this course may be taken _____ times.
   Will this course be repeated within the same semester?  ☐ Yes  ☒ No
8. Will this course be submitted to the Core Curriculum Council?  ☐ Yes  ☒ No
9. How will this course be graded?  ☒ Grade  ☐ S/U  ☐ P/F (CLMD)

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

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)
   master’s programs at Mays Business School

11. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.
12. ☒ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

13. Prefix  Course #  Title (excluding punctuation)
    FINC  646  TECHNICAL ANALYSIS FINCL MKTS

<table>
<thead>
<tr>
<th>Lect</th>
<th>Lab</th>
<th>Other</th>
<th>SCH</th>
<th>Crown and Fund Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>HLC Code</th>
</tr>
</thead>
<tbody>
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<td>1110</td>
<td>15-16</td>
<td>0 0 3 6 3 2</td>
</tr>
</tbody>
</table>

Approval recommended by:
R. T. Dye  10/17/14
Chair, College Review Committee  10/24/14

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

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

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

Associate Director, Curricular Services  Date

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Curricular Services – 07/14
Class Meets: TBD
Instructor: Kevin M. Moore, CFA, CMT
Office Hours: TBD
Phone: 832-415-7000 (Mobile)

Class Website: eCampus.tamu.edu
Email: kmoore@mays.tamu.edu
Office: WCBA 341C
Teaching Assistant: TBD
TA Email: TBD

Course Description and Objectives
Technical analysis is a method of evaluating the investment attractiveness of securities by analyzing statistics generated by market activity. It is arguably the most popular methods used by investment industry practitioners. It uses price, volume and other non-fundamental or market "behavioral" data to analyze and predict security prices. Like the "big data" revolution that is currently sweeping the general business landscape, technical analysis emphasizes pattern recognition and correlation analysis over theory and causal analysis. Both are used to analyze/predict human behavior and to solve problems. A primary benefit of technical analysis is that it gives investors the tools to overcome the practical shortcomings of modern portfolio theory.

The objective of this course is to provide students with an introduction to technical analysis as an investment discipline within the context of institutional/professional portfolio management. It will introduce the basic principles, terminology and techniques, and emerging theories. However, it will emphasize application. The course will include guest speakers, case studies, class participation/discussion exercises and problem sets focused on the equity markets.

The capstone of the course will be a portfolio management project. The project will allow students to implement technical analysis and will also introduce students to the real-life issues of managing money while under the pressure to both solicit money from investors and to deliver superior investment results. This course is designed for students who are seriously considering a career in money management.

In summary, philosophically this class will be:
- Focused on the application of all concepts taught (not just the knowledge of concepts)
- Focused on the institutional/professional use of all concept taught (as opposed to for individual investing)
- Focused on simulating the levels of both competition and cooperation present in the investment industry

Learning Outcomes
Successful investing utilizing technical analysis or any other discipline requires many years of experience. This course is only an introduction. Upon successful completion of this course, students will have the basic knowledge to:
- Define and explain the basic terminology of technical analysis.
- Define, and explain and perform various methods of charting.
- Determine price trends and recognize basic market patterns.
- Establish price targets using technical analysis.
- Perform basic analysis of equity markets utilizing technical analysis.
- Define and explain the basics of how technical analysis applies to bonds, currencies, futures, and options.
- Manage a “paper” portfolio based on technical analysis.
- Design and back test a basic trading system using Bloomberg.

Prerequisites
FINC 351 or FINC 632 and FINC 361 or FINC 629. Students should be quite comfortable with computer applications, especially Excel. Familiarity with computer programming will be helpful but not required.
Required Materials

- The instructor will provide PDF copies of all case study readings.
- The project will utilize paper-trading accounts provided by Interactive Brokers. The instructor will facilitate the setting up of accounts and a basic introduction, but students will be primarily responsible for learning the tool on their own.
- Students must have access to and become familiar with a charting service/software/website (i.e., Bloomberg, freestockcharts.com, stockcharts.com).
- Students will be required to become familiar and become certified with Bloomberg.
- MTA Code of Ethics (provided by the professor).
- Students will need a calculator to solve problems in this course. Students will not be allowed to share a calculator during exams.

Suggested Material

- Technical Analysis of Stocks and Commodities Magazine (www.traders.com).
- 2014 CMT Level I Sample Exam (www.mta.org).
- Traders Magazine (www.tradersmagazine.com)

Optional Material

- Students are encouraged to seek out additional resources to enhance both their understanding of technical analysis and to improve the quality of their project.

Academic Integrity

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   b. Confirmation is required for injury or illness that causes you to be absent from class for less than three business days. Illness confirmation may be obtained by one or both of the following methods:
      i. Texas A&M University Explanatory Statement for Absence from Class form available at http://attendance.tamu.edu (if you do not see a doctor).
      ii. Confirmation of visit to a health care professional affirming date and time of visit.
   c. An absence for a non-acute medical service does not constitute an excused absence.

7. Required participation in military duties.

8. Mandatory admission interviews for professional or graduate school, which cannot be rescheduled.

It is noteworthy that job interviews are not considered excused absences. It’s never too soon to begin practicing managing your calendar in a professional manner. Arrange your job interviews and any necessary travel on dates other than those on which class meets. Please plan unexcused absences around the following exam dates:
Exam 1 October 15 (1 Hour – 60-70 Multiple Choice Questions)
Final Project Presentation December 3 (All Students must attend and remain for every presentation)
Final Project Report December 10 (Must be turned in by this date to receive credit)

Makeup Policy
You can make up an exam only if an absence is excused. To be considered excused, you must notify me in writing (acknowledged e-mail message is acceptable) prior to the date of absence, and provide appropriate documentation for the absence. In cases where advance notification is not feasible (for example, accident or emergency) you must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class. The fact that these are university-excused absences does not relieve you of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.

Grading
Course grades will be determined as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Max Points</th>
<th>Collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor Bonus (subject to class-wide limit)</td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td>General Class Participation</td>
<td>5</td>
<td>None</td>
</tr>
<tr>
<td>Quizzes</td>
<td>7</td>
<td>None</td>
</tr>
<tr>
<td>Quant Homework</td>
<td>10</td>
<td>Individual Submission – Group Collaboration</td>
</tr>
<tr>
<td>Systematic Trading – Bloomberg</td>
<td>9</td>
<td>None</td>
</tr>
<tr>
<td>Case Study Participation</td>
<td>8</td>
<td>None</td>
</tr>
<tr>
<td>Individual Trading Project</td>
<td>10</td>
<td>None</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>25</td>
<td>None</td>
</tr>
<tr>
<td>Group Trading Project</td>
<td>25</td>
<td>Groups will be assigned</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

Course grade will follow the standard 90/80/70/60 scale as a minimum. However, a curve may be applied to the total point score at the end of the semester.

<table>
<thead>
<tr>
<th>Points Collected (PC)</th>
<th>Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC ≥ 90</td>
<td>A</td>
</tr>
<tr>
<td>90 &gt; PC ≥ 80</td>
<td>B</td>
</tr>
<tr>
<td>80 &gt; PC ≥ 70</td>
<td>C</td>
</tr>
<tr>
<td>70 &gt; PC ≥ 60</td>
<td>D</td>
</tr>
<tr>
<td>60 &gt; PC</td>
<td>F</td>
</tr>
</tbody>
</table>

The Finance Department expects grades to accurately reflect the University’s published grading system: Excellent = A, Good = B, Satisfactory = C, Passing = D, and Failing = F. To implement this philosophy and to promote a culture of excellence among finance majors, the department has adopted a target overall GPA of 3.20-3.50 for FINC 646. The complete departmental grading guideline document has been disseminated to all finance majors.

Graded assignments must be turned in before the deadline to be eligible for full credit. Late assignments are subject to the following penalties:

<table>
<thead>
<tr>
<th>If the assignment is submitted...</th>
<th>Penalty</th>
<th>Maximum Possible Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>On/before deadline</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Up to one week after deadline</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>Beyond 1 Week</td>
<td>100%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Even if you have a documented excused absence, please arrange to submit your assignment by its due date unless an emergency situation makes this impossible. Late assignments accompanied by a documented university excuse will not...
be subject to penalty. Note that due to grade reporting requirements, no late final project write-ups will be accepted.

When any graded work is returned to you, you have one week from the date it is returned to bring any grading errors to the instructor’s attention. After the one-week deadline has passed, no further grade changes will be made for that particular item. The purpose of this deadline is not to discourage grade changes due to errors, but to ensure that any necessary ones are promptly made.

ADA Policy Statement
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information, visit http://disability.tamu.edu.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading/Homework</th>
<th>Project Milestone</th>
<th>Guest Speaker</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sept 3</td>
<td>Class Member Intro/Survey Course Intro Intro to Technical Analysis</td>
<td>Chapters 1-6 Quiz next week</td>
<td></td>
<td></td>
<td>Course Survey due by next class</td>
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<tr>
<td></td>
<td></td>
<td>Overview of Markets/Dow Theory</td>
<td></td>
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<tr>
<td>2</td>
<td>Sept 10</td>
<td>Quiz Market Update Trend Analysis</td>
<td>Chapters 11-14 Quiz next week</td>
<td>Project Introduction</td>
<td></td>
<td>IB Demo</td>
</tr>
<tr>
<td>3</td>
<td>Sept 17</td>
<td>Quiz Market Update Chart Pattern Analysis</td>
<td>Chapters 15-17 and Appendix B IB Webinar – Intro to TWS (Classic TWS) Quiz next week</td>
<td>Log into IB Account</td>
<td></td>
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</tr>
<tr>
<td>4</td>
<td>Sept 24</td>
<td>Quiz Market Update Market Strength, Confirmation, Selection of Markets</td>
<td>Chapters 8, 18, 21 IB Webinar – TWS Configuration Quiz next week</td>
<td>Individual Trading Starts next week!</td>
<td></td>
<td>CMT Level 1 Exam Registration Closes – Sept 23 (Optional) MTA.ORG</td>
</tr>
<tr>
<td>5</td>
<td>Oct 1</td>
<td>Quiz Market Update Sentiment and Cycles</td>
<td>Chapters 7, 9, 10, 19</td>
<td>Individual Trading starts October 1</td>
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</tr>
<tr>
<td>6</td>
<td>Oct 8</td>
<td>Quiz Market Update Presentations Exam Review</td>
<td>Chapters 20, 22, 23, and Appendix A. EXAM NEXT WEEK</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7</td>
<td>Oct 15</td>
<td>Market Update Quant Homework Intro Presentations MIDTERM EXAM</td>
<td>Quant Homework Due EOC Oct 22.</td>
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<tr>
<td>8</td>
<td>Oct 22</td>
<td>Quiz Market Update Presentations</td>
<td>Quant Homework Due EOC. PM Presentations next week.</td>
<td></td>
<td></td>
<td>CMT Level 1 Exam – Oct 23, 24, 25.</td>
</tr>
<tr>
<td>9</td>
<td>Oct 29</td>
<td>Quiz Market Update Presentations (Individual and PM)</td>
<td>Case study due next week. Group Trading starts Nov 3!</td>
<td>PM Presentations. Philosophy and Allocation Worksheets Due by Nov 1</td>
<td></td>
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<tr>
<td>10</td>
<td>Nov 5</td>
<td>Market Update Team Presentations Case Studies/ Team Time</td>
<td>Case Study</td>
<td>Weekly Update Updated Allocations (EOC)</td>
<td></td>
<td></td>
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<tr>
<td>11</td>
<td>Nov 12</td>
<td>Market Update Team Presentations Case Studies/ Team Time</td>
<td>Case Study</td>
<td>Weekly Update Updated Allocations (EOC)</td>
<td>Phil Roth</td>
<td></td>
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<tr>
<td>12</td>
<td>Nov 19</td>
<td>Market Update Team Presentations Case Studies</td>
<td>Case Study</td>
<td>Weekly Update Updated Allocations (EOC)</td>
<td></td>
<td>TBD</td>
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<tr>
<td>13</td>
<td>Nov 26</td>
<td>Market Update Team Presentations Case Studies</td>
<td>Case Study</td>
<td>Weekly Update Updated Allocations (EOC)</td>
<td></td>
<td>TBD</td>
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<tr>
<td>14</td>
<td>Dec 3</td>
<td>Market Update Final Team Presentations Case Studies</td>
<td>Case Study</td>
<td>Final Weekly Update</td>
<td>David Keller</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Dec 10</td>
<td>Final Report Due</td>
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</tr>
</tbody>
</table>

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

Form Instructions

1. Course request type: [ ] Undergraduate [ ] Graduate [ ] First Professional (DDS, MD, JD, PharmD, DVM)

2. Request submitted by (Department or Program Name): Department of Finance

3. Course prefix, number and complete title of course: FINC 648 Advanced Investments

4. Catalog course description (not to exceed 50 words): Application of finance theory to complex investment problems; implementation of asset pricing models, portfolio theory, and arbitrage strategies; implications of principles of market efficiency and behavioral finance for selection of individual securities and portfolios.

5. Prerequisite(s): FINC 351 or FINC 632; FINC 361 or FINC 629

6. Cross-listed with:________________________ Stack with:________________________

7. Is this a variable credit course? [ ] Yes [ ] No If yes, from ________ to ________

8. Is this a repeatable course? [ ] Yes [ ] No If yes, this course may be taken ________ times.

9. Will this course be repeated within the same semester? [ ] Yes [ ] No

10. Will this course be submitted to the Core Curriculum Council? [ ] Yes [ ] No

11. How will this course be graded: [ ] Grade [ ] S/U [ ] P/F (CLMD)

12. 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)
      master's programs at Mays Business School

13. Prefix: FINC Course #: 648 Title (excluding pronunciation): ADVANCED INVESTMENTS

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
<th>Other</th>
<th>SCH</th>
<th>CP and Fund Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>ECL Code</th>
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</thead>
<tbody>
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<td>3.00</td>
<td>5208070016</td>
<td>1110</td>
<td>15</td>
<td>0 0 3 6 3 2</td>
</tr>
</tbody>
</table>

Approval recommended by:

R. T. Dye
Department Head or Program Chair (Type Name & Sign) Date 01/17/14

Chair, College Review Committee Date 01/24/14

Dean of College Date

Submitted to Coordinating Board by:

Chair, GC or UCC Date

Associate Director, Curricular Services Date Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-9201 or sandra.williams@tamu.edu.
Professor: Yong Chen  
Office: WCBA 360J  
Phone: (979) 845-3870  
Email: ychen@mays.tamu.edu  
Class Schedule: TBD  
Office Hours: TBD  
Course Website: http://ecampus.tamu.edu

Course Description  
This course provides an in-depth understanding of investments through a combination of advanced finance theory and real-world application with the focus on the application part. In particular, students will see application of finance theory from working on projects and case studies as well as class discussions. The main topics include application of portfolio theory, asset pricing models and arbitrage strategy, market efficiency and behavioral finance, liquidity, mutual funds and hedge funds.

Learning Outcome  
Upon successfully completing the course, the student should gain a solid understanding of investments in modern financial markets. In addition, the student should have the enhanced skill to analyze and manage the risk and evaluate the performance of financial investments.

Pre-Requisites  
(1) FINC 351 or FINC 632 and FINC 361 or FINC 629.

(2) You should already be familiar with basic statistical concepts such as mean, variance, covariance, and correlation as well as regression techniques. We will review some of these concepts in class, though I encourage you to read a basic statistics book if you lack such background.

(3) You should either be familiar with or be willing to teach yourself how to use Microsoft Excel.

Communication  
My office hours are indicated above, and besides regular office hours you may schedule an appointment with me by phone or e-mail. Although I welcome questions via e-mail, if you have a question that requires a detailed, elaborate answer, please drop by instead. I will regularly post handouts, assignments, and announcements on course website. Please make sure to check the course site frequently. I may sometimes send e-mail notifications to the whole class.
Course Materials

(1) Lecture Handouts
My lecture handouts will be posted on course website. The handouts are directly related to my class lectures. All handouts are required readings.

(2) Case Studies
Dimensional Fund Advisors (HBS Case 9-203-026)
Long Term Capital Management, L.P. (A) (HBS Cases 9-200-007)
Long Term Capital Management, L.P. (B) (HBS Cases 9-200-008)
Long Term Capital Management, L.P. (C) (HBS Cases 9-200-009)
(All the cases are available for purchase with discount price from the course link at Harvard Business Publishing https://cb.hbsp.harvard.edu/cbmp/access/20438313 )

(3) Suggested Textbooks
Note: (a) Not-too-old editions are fine.
(b) The course will not stringently follow either of the books. Our class discussions and assignments are beyond the books, but the books are still helpful to get a good understanding of course contents.

(4) Recommended Readings
The Wall Street Journal
Lewis, Michael, The Big Short, W.W. Norton & Company, 2010
Various articles distributed through course website.

(5) Calculator and Computer
You will need a calculator that has a logarithm function and the function to raise a number to a power (e.g., \((1.1430)^{1222}\)). Whichever calculator you choose, it is your responsibility to learn how to use it. You also need to have access to a computer (with software like Adobe Reader, Microsoft Word and Excel) and a printer.

Grading
(1) Assignments (6 projects/cases): 30%
(2) Midterm exam I: 20%
(3) Midterm exam II: 20%
(4) Final exam: 30%

Course grades will follow the standard 90/80/70/60 scale: 90 ≤ A ≤ 100, 80 ≤ B < 90, 70 ≤ C < 80, 60 ≤ D < 70, F < 60.

Teams
For course assignments, you should work with a team of 3 or 4 people. You need to form a team by Monday of the second week. All members within a team will receive the same grade on the assignments. For each assignment, each team only needs to hand in one “hard copy” of their homework with all members’ names listed on the front page. Electronic submissions will not be considered. All projects and especially case reports are expected to be written in a professional way, and a guidance on how to write a case report will be provided.
Case Studies
The questions/issues that need to be addressed for each case will be posted on course website. For each case, in addition to submitting a case report from every team, there will be 2-3 teams (depending on the level of complexity of the case) assigned to present the case. Presenting teams are required to email their presentations of the case to me before the presentation day. Presenting teams may submit their presentation in lieu of a case report. All other non-presenting students will act as “challengers” who are expected to ask questions, bring up different viewpoints and clarify some issues. I will perform the same role as a challenger. Presenting teams are encouraged to see me during the office hours before the presentation. Performance of presenting teams will be reflected in the grades of case studies.

Problems to Think About (PTA)
For students who desire more practical questions, additional problems-to-think-about (PTA) will be provided besides the assignments. PTAs are not your assignments, but are useful for better understanding course contents and preparing for the exams. I will not collect your answers to PTAs, but will post a solution key on course website.

Class Participation
Class participation is very important for understanding the course concepts. You are encouraged to actively take part in class discussions and to raise questions to promote class understanding. You are not expected to correctly answer every question since everybody is wrong part of the time. For students with good class participation (e.g., often volunteer to answer questions and/or ask stimulating questions) I reserve the right (but no obligation) to raise their final grades. Through the semester I will randomly take attendance for 6 times, a student who misses 3 or more of attendance will automatically lose the opportunity of raising his/her final grade.

Examinations
The exams will cover all material assigned or discussed in class. The final exam will cover the entire course. The format of exams is a combination of calculation questions and short essay questions. If you miss a midterm exam for a legitimate reason (see Attendance Policy below for details), the weight of the midterm will automatically go to your final exam (i.e., the weight of your final exam becomes 50%) unless an alternative way (e.g. pre-take the midterm) is approved by me. You need to bring your calculator to exams. A formula sheet will be provided to you in exams.

Academic Integrity Statement (Aggie Honor Code)
An Aggie does not lie, cheat, or steal or tolerate those who do. Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning and to follow the philosophy and rules of the Honor System. 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://aggiehonors.tamu.edu/

Attendance Policy
To be excused the student must notify the instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence, and provide appropriate documentation for the absence. In cases where advance notification is not feasible (e.g., accident or emergency) the student must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class.
The reasons absences are considered excused by the university are listed below. See Student Rule 7 for details (http://student-rules.tamu.edu/rule07.htm). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.

1) Participation in an activity that is required for a class and appears on the university authorized activity list.
2) Death or major illness in a student's immediate family.
3) Illness of a dependent family member.
4) Participation in legal proceedings or administrative procedures that require a student's presence.
5) Religious holy day. NOTE: Prior notification is NOT required.
6) Illness that is too severe or contagious for the student to attend class.
   a) Injury or illness of three or more class days -- student will provide a medical confirmation note from his or her medical provider within one week of the last date of the absence (see Student Rules 7.1.6.1)
   b) Injury or illness of less than three class days -- student will provide of the following, within one week of the last date of the absence: (i.) Texas A&M University Explanatory Statement for Absence from Class form available at http://attendance.tamu.edu or (ii.) Confirmation of visit to a health care professional affirming date and time of visit.
7) Required participation in military duties.
8) Other absences may be excused at the discretion of the instructor with prior notification and proper documentation. In cases where prior notification is not feasible (e.g., accident or emergency) the student must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class.

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

Mays Food & Beverage Policy
We have beautiful and state-of-the-art classrooms in the Wehner Building and Cox Hall. We want to maintain the high quality of these classrooms for the students in future years. Thus, it is necessary for you to adhere to the established policy of no beverages, food, tobacco products, or animals (unless approved) within the Wehner Building and Cox Hall classrooms. Your assistance is greatly appreciated.
ADA Statement
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<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Readings and Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quantitative Analysis of Stock Returns: Statistical Properties, Risk,</td>
<td>BKM Chapter 5.4-5.5 (skim 5.6-5.8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>gladwell.com/blowing-up</td>
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<tr>
<td></td>
<td>Project 1: Analyzing Stock Returns with Real Data</td>
<td></td>
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<tr>
<td>2</td>
<td>Modern Portfolio Theory: Mean Variance Algebra and Diversification</td>
<td>BKM Chapter 6, 7 (skip 7.5), skim 8.1-8.3, 9</td>
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<tr>
<td></td>
<td></td>
<td>Malkiel Chapter 8</td>
</tr>
<tr>
<td>3</td>
<td>Modern Portfolio Theory: Minimum Variance Frontier, Two Fund</td>
<td>Project 2: Managing Socially Responsible Portfolios</td>
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<td></td>
<td>Separation, and Implementations</td>
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<tr>
<td>4</td>
<td>Capital Asset Pricing Model: Inclusion of the Risk-Free Asset and</td>
<td>BKM Chapter 9</td>
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<tr>
<td></td>
<td>Theoretical Development</td>
<td>Malkiel Chapter 9</td>
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<tr>
<td>5</td>
<td>Capital Asset Pricing Model: Applications</td>
<td>Midterm Exam I</td>
</tr>
<tr>
<td>6</td>
<td>Arbitrage Pricing Theory: Factor Models and Arbitrage with Tracking</td>
<td>BKM Chapter 10</td>
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<td>Portfolios</td>
<td>Malkiel Chapter 9</td>
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<tr>
<td>7</td>
<td>Arbitrage Pricing Theory: Theoretical Development and Implementation</td>
<td></td>
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<tr>
<td>8</td>
<td>Market Efficiency and Behavioral Finance: Tests of Efficiency and</td>
<td>BKM Chapter 11, 12, 13 (skip 13.5)</td>
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<td>Anomalies</td>
<td>Malkiel Chapter 1-7, 10, 11</td>
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<td></td>
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<td>of the Economics of Finance, Edited by G.M. Constantinides, M. Harris, and R. Stulz,</td>
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<td></td>
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<td>Volume 1</td>
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<tr>
<td>9</td>
<td>Market Efficiency and Behavioral Finance: Event Studies and Limits to</td>
<td>Case 1: Dimensional Fund Advisors (HBS Case 9-203-026)</td>
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<td>Arbitrage</td>
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<td>Liquidity, Arbitrage Liquidity Limits, and Liquidity Management</td>
<td>BKM Chapter 9.6</td>
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<td>Effects,” Journal of Financial Markets</td>
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<td>Project 3: Understanding Liquidity and Limits of Arbitrage</td>
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<td>Midterm Exam II</td>
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<tr>
<td>11</td>
<td>Mutual Funds: Industry Review and Fees, Expenses, and Tax Status</td>
<td>BKM Chapter 4, 24</td>
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<tr>
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<td>Elton, E., and M. Gruber, 2013, Mutual Funds, Chapter 15, Handbook of the Economics of</td>
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<td></td>
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<td>Finance, Edited by G.M. Constantinides, M. Harris, and R. Stulz, Volume 2</td>
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<tr>
<td>12</td>
<td>Mutual Funds: Performance Evaluation and Managerial Incentives</td>
<td>Project 4: Design Your Own Market Timing Strategy</td>
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<tr>
<td>13</td>
<td>Hedge Funds: History, Background, and Strategies</td>
<td>BKM Chapter 26</td>
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<td></td>
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<td>Lowenstein, When Genius Failed: The Rise and Fall of Long-Term Capital Management</td>
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<tr>
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<td>Lewis, The Big Short, W. W. Norton &amp; Company, 2010</td>
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<tr>
<td>14</td>
<td>Hedge Funds: Risk and Return, Fraud and Due Diligence</td>
<td>Case 2: Long-Term Capital Management (BHS Cases 9-200-007/008/009)</td>
</tr>
</tbody>
</table>
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus. •

Form Instructions
1. Course request type: □ Undergraduate  ✓ Graduate  □ First Professional (M.D., D.M.D., J.D., Pharm.D., D.V.M.)
2. Request submitted by (Department or Program Name): Department of Geology and Geophysics
3. Course prefix, number and complete title of course: GEOP 631 Seismic Data Processing

4. Catalog course description (not to exceed 50 words):
Methods used to image the Earth using seismic reflection data, including deconvolution, f-k filtering, velocity analysis, and migration; processing software; emphasis on field data.

5. Prerequisite(s): Graduate standing or permission of instructor.

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

6. Is this a variable credit course?  □ Yes  ✓ No  If yes, from _______ to _______
7. Is this a repeatable course?  □ Yes  ✓ No  If yes, this course may be taken _______ times.

Will this course be repeated within the same semester?  □ Yes  ✓ No
8. Will this course be submitted to the Core Curriculum Council?  □ Yes  ✓ No
9. How will this course be graded?  ✓ Grade  □ S/U  □ P/F (CLMD)

10. 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. or Ph.D. in Geology, Geophysics, Oceanography

11. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.
12. ✓ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-control-basics-for-distance-education).

13. Prefix  Course #  Title (excluding punctuation)
    GEOP  631  Seismic Data Processing

<table>
<thead>
<tr>
<th>Lec.</th>
<th>Lab</th>
<th>Other</th>
<th>SCH</th>
<th>CIP and Fund Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>HEC Code</th>
<th>Level</th>
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<td>0 0 3 6 3 2</td>
<td>Level</td>
</tr>
</tbody>
</table>

Approval recommended by: [Signature]

Department Head or Program Chair (Type Name & Sign)  Date: 8/13/14

Chair, College Review Committee  Date: 8/27/10

Dean of College  Date: 8/27/10

Submitted to Coordinating Board by:

Chair, GC or UCC  Date: 8/27/10

Associate Director, Curricular Services  Date: 8/27/10

Effective Date: 8/27/10

Questions regarding this form should be directed to Sandra Williams at 845-6201 or sandra.williams@tamu.edu.
Curricular Services – 07/14
Course title and number  Seismic Data Processing GEOP 631
Term
Meeting times and location  TBA

Course Description and Prerequisites
Survey of basic methods used to image the Earth using seismic reflection data, including deconvolution, f-k filtering, velocity analysis, and migration; introduction to processing software; exercises emphasize developing experience with field data.

Prerequisites: Graduate standing or approval of instructor.

Learning Outcomes
Students will be able to:
- explain the major processing steps required from field data acquisition to generation of seismic images
- design and test data processing work flows to apply seismic data to answer geologic questions
- apply quantitative tests to choose optimal data processing methods depending on acquisition geometry, signal-to-noise ratio and other variations in data quality
- distinguish artifacts associated with data processing steps from features indicating important geological structures
- discuss and interpret seismic processing results to communicate corresponding geological insights to other scientists and engineers

Instructor Information
Name  Richard L. Gibson, Jr.
Telephone number  979-862-8653
Email address  gibson@tamu.edu
Office hour  TBA
Office location  Haughton 351

Textbook and/or Resource Material
Practical Seismic Data Analysis, by H.-W. Zhou (Cambridge University Press, 2014 ISBN: ). The syllabus, course announcements, and some other supplementary materials will be posted during the semester on the course web site. The syllabus, course announcements, and some other supplementary materials will be posted during the semester on the course web site.

Grading Policies
The most important course component for grade assignment will be completion of data processing tasks on field data provided for each student. Each student will also prepare an oral report on the assigned data and the results of the processing tasks, including a description of the final seismic image obtained during the semester. A midterm and final exam will also be given to test comprehension of processing methods.

The grade will be determined as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing assignments and homework</td>
<td>50%</td>
</tr>
<tr>
<td>Term project presentation</td>
<td>20%</td>
</tr>
</tbody>
</table>
MIDTERM EXAM (15%)  FINAL EXAM (15%)  TOTAL

The grade scale is:  90-100=A  80-89=B  70-79=C  60-69=D  0-59=F.

Student Absences: Absences will be administered in accordance with Student Rule #7 http://student-rules.tamu.edu/rule07

Course Topics, Calendar of Activities, Major Assignment Dates

Tentative course outline, including required reading from sections in course textbook:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/1-9/5</td>
<td>Introduction – summary of seismic reflection data and data acquisition</td>
<td>1.1-1.3</td>
</tr>
<tr>
<td>9/8-9/12</td>
<td>Introduction continued – overview of typical processing sequence; visualizing data (gain control, display methods)</td>
<td>1.3-1.6</td>
</tr>
<tr>
<td>9/15-9/19</td>
<td>Seismic data quality control and static corrections; near surface issues</td>
<td>2.1-2.6</td>
</tr>
<tr>
<td>9/22-9/26</td>
<td>Overview of Fourier transform and filters; tests on synthetics</td>
<td>3.1-3.2, 3.4; 5.1-5.3</td>
</tr>
<tr>
<td>9/29-10/3</td>
<td>Time spectral analysis; filters and deconvolution; application of filters and deconvolution to field data</td>
<td>3.3; 6.5</td>
</tr>
<tr>
<td>10/6-10/10</td>
<td>Survey of velocity analysis methods; applications to synthetic seismograms</td>
<td>Review 2.2; 8.1-8.2</td>
</tr>
<tr>
<td>10/13-10/17</td>
<td>Advanced velocity analysis; evaluation of velocity analysis applied to field data</td>
<td>8.4-8.6</td>
</tr>
<tr>
<td>10/20-10/24</td>
<td>Introduction to methods for noise and multiple attenuation, e.g., f-k filters, slant-stack, Radon transform</td>
<td>5.4-5.5; 10.2</td>
</tr>
<tr>
<td>10/27-11/1</td>
<td>Data stacking; resolution of data; attenuation; generation of unmigrated images from field data</td>
<td>4.1-4.5; 7.1</td>
</tr>
<tr>
<td>11/3-11/7</td>
<td>Introduction to migration methods</td>
<td>7.2-7.3</td>
</tr>
<tr>
<td>11/10-11/14</td>
<td>Continued introduction to migration methods; application of post-stack migration to synthetic seismograms</td>
<td>7.4</td>
</tr>
<tr>
<td>11/17-11/21</td>
<td>Pre-stack migration and imaging; migration velocity analysis; application of post-stack migration to field data</td>
<td>8.3</td>
</tr>
<tr>
<td>11/24-11/28</td>
<td>Overview of multicomponent processing and anisotropy</td>
<td>10.3-10.4</td>
</tr>
<tr>
<td>12/1-12/5</td>
<td>Completion of field data analysis and presentations of term projects</td>
<td></td>
</tr>
</tbody>
</table>

The midterm exam is tentatively scheduled for 16 October 2014; the final exam will be held on the university-assigned schedule.
Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

Academic Integrity

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

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

Copyright and Plagiarism Policy

All materials used in this class 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 sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have any questions regarding plagiarism, please consult the Aggie Honor Code site (http://aggiehonor.tamu.edu) or the latest issue of the Texas A&M University Student Rules, http://studentrules.tamu.edu.
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
- Submit original form and attach a course syllabus.

Form Instructions:

1. Course request type:  □ Undergraduate  √ Graduate  □ First Professional (DPh, MD, JD, PharmD, DVM)

2. Request submitted by (Department or Program Name): International Affairs

3. Course prefix, number and complete title of course: INTA 636 International Development in Theory and Practice

4. Catalog course description (not to exceed 50 words):
Course reviews various definitions of development and the theories which explain why some countries develop and others do not, current controversies will be examined about what factors lead to economic growth; what role good governance and democratic institutions play; the cultural values of a society; social services play in government

5. Prerequisite(s): none

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

7. Is this a repeatable course?  □ Yes  √ No If yes, this course may be taken _____ times.

8. Will this course be repeated within the same semester?  □ Yes  √ No

9. Will this course be submitted to the Core Curriculum Council?  □ Yes  √ No

10. How will this course be graded:  √ Grade  □ S/U  □ P/F (CL/MD)

11. 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)
      n/a

12. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.
   □ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export- controls/export-controls-basics-for-distance-education).

13. Prefix  Course #  Title (excluding punctuation)
    INTA  636  Intl Dev Theory & Prac

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<th>Lect.</th>
<th>Lab</th>
<th>Other</th>
<th>SCH</th>
<th>CIP and Fund Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
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</table>

Approval recommended by:
Leonard Bright
Department Head or Program Chair (Type Name & Sign) Date

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

Submitted to Coordinating Board by:
Associate Director, Curricular Services

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 07/14
"International Development Theory and Practice"
INTA 636
Andrew Natsios
George H.W. Bush School of Government and Public Service
Texas A and M University

The course will review various definitions of development and the theories which explain why some countries develop and others do not. Current controversies will be examined about what factors lead to economic growth; what role good governance and democratic institutions, the cultural values of a society, and social services play in development. Finally, the course will analyze how the foreign aid programs of donor governments and international institutions affect the development process, the politics of aid programs and the mechanisms for their implementation, and the role of new actors in development such as non-governmental organizations, corporations, and foundations.

Andrew Natsios Contact Information

Office: 1081 Allen Building
Telephone: 979-862-1154
Office Hours: Tuesdays after class
Classroom: TBD
Class schedule: Tuesdays

Required Texts


Paul Collier, The Bottom Billion, Oxford University Press, 2007

Douglass North, Weingast, and Wallis, Violence and Social Orders, 2009

James Scott, Seeing Like a State, Yale University Press, 1998
And other readings from development journals and publications

Course Objectives

Students who complete the course successfully will be able to describe:

- the 9 major schools of international development theory, their predictive value, and their strengths and weaknesses.
- the major sectoral disciplines of international development practice
- the history of international development practice through multi-lateral institutions such as the World Bank and the United States government aid agencies
- the options available to policy makers in allocating foreign assistance among countries
- the four major clashes within donor governments among the multi-uses of international development funding and other equities and interests which conflict with long term development
- the evidence of what works, what does not, and why in the use of foreign aid program dollars
- the mechanisms used to spend aid dollars by aid agencies, the characteristics of each of the mechanisms, and the trade-offs between options
- the new, non-traditional partners which are now engaged in doing and funding development programs and the consequences of these changes

Assignments

A 12 page (DOUBLE SPACED) research paper is due on the last day of class.

There will be 4 one page papers SINGLE SPACED.

There will also be an in-class midterm and final exam.

Grading Methodology

Each student’s grade will be made up of the grades of the mid-term (20%), final examination (30%), one paper (20%), 4 one page papers (20%) and class attendance, class presentations, and attendance at Scowcroft class lectures (10%). If you attend a formal lecture of the Scowcroft Institute you will get extra credit if you send me a one paragraph summary of the lecture within 24 hours.

Academic Honesty: The Bush School is committed to the development of principled leaders for public service. The commitment to “principled leadership” is a further elaboration of the Texas A&M student honor code that states: “An Aggie will not lie, cheat, or steal nor tolerate those who do.” Students who engage in plagiarism or other forms of academic dishonesty will be referred to the Aggie Honors Council. These same
penalties apply to submission of the same material for a grade in more than one course.

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. The source of the material does not matter – a book, an article, material off the web, another student’s paper – all constitute plagiarism unless the source of the work is fully identified and credited. It is important when using a phrase, a distinct idea, concept, a sentence, or sentences from another source to credit explicitly that source either in the text, a footnote, or endnote. Plagiarism is a violation of academic and personal integrity, and carries extremely serious consequences. Further information can be found at http://www.tamu.edu/aggiehonor/acadmisconduct.htm. Students in this course must submit the book review and the research paper to Turnitin.com, before a grade will be given. Turnitin.com is an internet-based service which serves as a tool to help detect plagiarism. Turnitin.com reduces plagiarism by comparing course papers to on-line resources. The student will submit the paper simultaneously to Turnitin.com and to the instructor. Information and procedures for access to Turnitin.com may be found at http://itsinfo.tamu.edu/turnitin/. Select the “student” prompt.

Americans with Disabilities Act (ADA) Policy Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu.

Grading Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Extraordinary, excellent work and mastery of concept</td>
</tr>
<tr>
<td>B</td>
<td>Good work and solid command of concept</td>
</tr>
<tr>
<td>C</td>
<td>Adequate work and sufficient understanding of concept</td>
</tr>
<tr>
<td>D</td>
<td>Poor work, little understanding of concept</td>
</tr>
<tr>
<td>F</td>
<td>Lack of work, no understanding of concept</td>
</tr>
</tbody>
</table>

Attendance and Make-Up Policy

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

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

Other absences may be excused at the discretion of the instructor with prior notification and proper documentation. In cases where prior notification is not feasible (e.g., accident or emergency) the student must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class.

On rare occasions, the instructor might have to miss a class due to administrative or academic responsibilities out of town. This will be exceedingly rare, but if it does occur, the instructor reserves the right to reschedule class at a time when the vast majority of students are available for the make-up class and will convey the material to students unable to attend the make-up during office hours.

**Office Hours**

Office Hours will be held the hour following class each week, however you may stop in any afternoon (I will be writing in the morning) after 1 pm. Knock on my door—I keep my door closed so I do not disturb other people near my office—but a closed door does not mean I am away from my office (nor does it mean I am busy). I do not mind you stopping by as long as it is after 1 pm. If you wish to make an appointment for a specific time, do it by email.
Contacting Me

If you have any questions during the semester between classes each week, email them to me on my TAMU/Bush Account and cc my gmail account. anatsios@gmail.com

E-reserves or Blackboard

Some of the readings will be on e-reserves for which the syllabus does not have links, wherever it says on blackboard read that to mean e-reserves. If the syllabus says you must read most or all of the book the law prohibits me from placing the book on e-learning or e-reserves, so you must get the book itself.

CLASSES 1-3: BACKGROUND ON DEVELOPMENT

Lecture 1 - Poverty and Underdevelopment at the beginning of the 21st century

- Define international development, poverty, and underdevelopment
- How do we define progress?
- What countries have made progress, which have not and why?
- Poverty, destitution, disease, hunger, illiteracy, and human rights.
- Inequality and development
- Capability-based development: Amartya Sen

READINGS: (Complete these readings for our first class on January 15)
1. Summary Statement from USAID Foreign Aid in the National Interest pgs. 1-6 (Available online at
   http://transition.usaid.gov/about_usaid/acvfa/acvfasummary021103.pdf)

FOR THE FIRST CLASS A ONE PAGE PAPER (SINGLE SPACE)

Lecture 2 - Schools of Development Theory. Stages of Economic growth, Structuralism, Modernization theory, and Neo-liberalism

- Threat, Crisis, and modernization: Toynbee, Birdsall hypothesis.
- Dependency Theory and neo-Marxism: Wallerstein and Prebisch
- Structuralism and Neo-Structuralism: Prebisch
- Stages of Economic Growth: Walter Rostow
- Neo-liberalism & Washington Consensus: John Williamson

READINGS:


**Lecture 3 – Schools of Development Theory. What causes economic growth?—micro and macro development economics.**

- Washington Consensus, structural adjustment, market fundamentalism, and macro-economic reform
- Pro-Poor Growth: inequities in growth
- Trade and Growth → East Asian export-led development
- Geographic determinism: Diamond and Sachs
- Fraying of the neo-liberal consensus: Joseph Stiglitz and Dani Rodrik

**READINGS:**


2. Rodrik, Dani. *One Economics and Many Recipes*, (Chps 1, 3, 5, and 6)


**CLASSES 4 – 9: ISSUES IN DEVELOPMENT**

**Lecture 4: Micro-economics of growth, culture and values and development, geographic determinism, institutions and growth. High Modernism and its Critics.**

- **Micro-economics of growth**: Michael Porter on Competitiveness, *Doing Business Report* of World Bank, Hernando DeSoto, property rights and informal sector
- **Development, institutions, and open access orders**: Douglass North, Frank Fukuyama
- **Culture and Values**: Max Weber and Larry Harrison
- **High Modernism and its critics**: Edmund Burke, Jane Jacobs, and the James Scott critique
READINGS:

*Lectures 5 and 6 - Fragile States and State Failure: Institutions and Development*

- Define state fragility and failure
- The greatest development challenge of our time
- Relationship between Least Development Countries (LDC) and fragile and failed states
- Complex humanitarian emergencies: economic collapse, civil war and human rights abuses, food insecurity and starvation, disease epidemics, collapse of the authority of the state to govern, and mass population displacement.
- Post-conflict reconstruction
- Role of Military. Security sector reform. DDRR

READINGS: (Complete the Collier reading for February 21 and the second two readings for class on February 28th)
5. Fukuyama, Francis. *State Building*: Chs. 1 & 2

SECOND PAPER DUE TBD.

MID-TERM EXAM – Date to be announced

*Lecture 7 - Technology and Development*

- The internet and development
- Cell phones: communication, mobile banking, and health data reporting.
- Computers and development
- Point of care diagnostic devices for health

READINGS:

March 16 – Spring Break No Class

Lecture 8 - State Building

- Institutions and development
- Corruption and development
- Democracy and governance strategies and whether they work: current state of research.
- What affect does democracy have on development?

READINGS:

THIRD PAPER DUE – to be determined

Lecture 9 - The Sectors: Agriculture, the Environment, and Health

- The Green Revolution in Asia
- Agriculture and rural employment as a source of growth:
- Food security defined: access, availability, utilization
- Environmental degradation and growth
- Effect of Climate Change on Development
• Education: primary vs. secondary, higher education reform, and structural reforms of education management. Problems of developing world education.

READINGS:
2. International Institute for Environment and Development. The Impact of Climate Change on Least Developed Countries and Small Island Developing States. (On Blackboard)

Lecture 10 - What is foreign aid? What are the Purposes of aid? Has it worked?

• Definitions.
• Multilateral vs. bilateral foreign aid; concessional lending, grant aid.
• National Security and foreign aid during the cold war.
• Short History of Foreign Aid: Marshall Plan, Alliance for Progress, Transitional Assistance after collapse of Soviet Union.
• Foreign Aid and the Bush Administration
• Restructuring of foreign aid and Rice reforms
• Systems for allocating foreign aid: need, performance, risk, interest, and historical inertia

READINGS:
2. Lancaster, Carol, Foreign Aid: Diplomacy, Development, and Domestic Politics (entire book).

Lecture 11 - The Strategic Realignment of International Development: the current debate

• The Millennium Development Goals
• The Monterrey Consensus
• Johannesburg Summit on Sustainable Development
• Poverty Reduction Strategy Plans (PRSP) process of the World Bank
• The UN General Assembly Meeting September 2005 on the MDGs
• Trade and Development: Doha, Cancun, and Hong Kong
• The 2008 recession, western donors economic crisis and the decline of
ODA

- The fraying of the international aid system post-2008.

READINGS:

Lecture 12 - The four clashes in the practice of development using foreign aid funds for diplomatic, counter-bureaucratic, national defense, and political purposes

- Congressional earmarks and directives on US foreign aid spending
- The Local Purchase of food aid controversy in the U.S.
- Non-governmental organizations and faith-based NGOs
- The aid industry and its dependency on donor governments
- Domestic constituencies for foreign aid

READINGS:

Lecture 13 - How efficiently do we spend foreign aid? - The Aid Effectiveness Debate

- Bilateralism vs. multilateralism: World Bank Trust Funds.
- Models of implementation and their programmatic and political implications
- The Paris Declaration 2005: country led development
- Obama Policy: USAID FORWARD
- Untying of donor aid procurement
- The problem of absorptive capacity
• Monitoring and Evaluation of aid programs
• Managing Complexity: donor coordination

READINGS:
1. “The Paris Declaration on Aid Effectiveness” March 2005
2. USAID White paper, (Available Online at:
   Chapters 20-22
4. Moyo, Dambisa Dead Aid: Why aid is not working and how there is a better way for

FOURTH PAPER DUE – date to be announced

Lecture 14 - Institutions that Deliver Aid: New Partners and Actors in Development
• The rise of the non-governmental organizations and for profit
  development contractors.
• Private foreign aid defined: the Hudson Institute research
• Public/Private alliances: Global Development Alliance
• Remittances and development
• Corporate, foundations, and faith-based foreign aid
• What we know about development and aid and what we do not know

READINGS:
1. Carol Adelman, Index of Global Philanthropy and Remittances, Hudson Institute,
   2012.
2. Edited by Donald F. Terry and Steven R. Wilson, Beyond Small Change: Making
   Migrant Remittances Count, Inter-American Development Bank, 2005. Chapters 1 &
   2 (p. 3-40).
   Innovations Review, Fall 2009
   http://www.ssireview.org/articles/entry/public_private_alliances_transform_aid
4. Roger Ridell, Does Foreign Aid Really Work? NGOs Chapter 16-17.
   Parameters, Fall 2004. (Available on Blackboard and online at
   http://www.carlisle.army.mil/usawc/parameters/Articles/05autumn/natsios.pdf)

CLASS PAPER DUE AT THE BEGINNING OF THE LAST CLASS
Texas A&M University  
Departmental Request for a New Course  
Undergraduate • Graduate • Professional  
• Submit original form and attach a course syllabus.

Form Instructions
1. Course request type:  
   - [ ] Undergraduate  
   - [X] Graduate  
   - [ ] First Professional (JD, MD, DVM, PharmD, DPT, DNP, DDB)
2. Request submitted by (Department or Program Name):  
   Department of Health & Kinesiology
3. Course prefix, number and complete title of course:  
   KINE 631 Specified Strength & Conditioning Techniques

4. Catalog course description (not to exceed 50 words):  
   Research based physiological responses and adaptations associated with power, speed, 
   quickness, flexibility and mobility are covered in conjunction with laboratory demonstration/implementations and specific practical experiences 
   based on available scientific research. Practical mastery as well as theoretical understanding is required.

5. Prerequisite(s):  
   KINE 629 or Approval of Instructor
   Cross-listed with:  
   Stacked with:  
   [X] Cross-listed courses require the signature of both department heads.

6. Is this a variable credit course?  
   - [ ] Yes  
   - [X] No  
   If yes, from _______ to _______

7. Is this a repeatable course?  
   - [ ] Yes  
   - [X] No  
   If yes, this course may be taken _______ times.
   Will this course be repeated within the same semester?  
   - [ ] Yes  
   - [ ] No

8. Will this course be submitted to the Core Curriculum Council?  
   - [ ] Yes  
   - [X] No

9. How will this course be graded?  
   - [X] Grade  
   - [ ] S/U  
   - [ ] P/F (CLMD)

10. 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 Kinesiology

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

12. [X] I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

13. Prefix  
   Course #  
   Title (excluding punctuation)
   KINE  
   631  
   SPEC STRENGTH & COND TECH

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   Approval recommended by:  
   [Signature]  
   [Name]  
   Department Head or Program Chair (Type Name & Sign)  
   Date

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

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

   Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu. 
Curricular Services – 07/14
Course Title: KINE 631 – Specialized Strength & Conditioning Techniques
Course Time: Monday & Wednesday 9:00 AM – 10:15 AM
Professor: Dr. Mike Greenwood FNSCA, RSCC *D, CSCS * D, FACSM, FISSN
Phone: 979-862-4667
Office: Blocker 305 D
Office Hours: TBA & By Appointment [Establish Day/Time To Meet Before Or After Class]
E-Mail: mgreenwood@hlkn.tamu.edu
Prerequisite(s): KINE 629 or Approval of Instructor

Required Text:

Also - Select Published Research Manuscripts

Supplemental Textbooks/Materials/Handouts:


Current supplemental readings relevant to the day’s topics will be assigned

Course Description:

Research based physiological responses and adaptations associated with power, speed, agility, quickness and flexibility, mobility are covered in conjunction with laboratory demonstrations/implementation and specific practical experiences based on available scientific research. Practical mastery as well as theoretical understanding is required. Students will demonstrate an understanding of the following “Course Objectives”:

Course Outcomes: At the conclusion of the semester students will:

1. Identify and demonstrate classic and specialized “power” training options to infuse into select periodization schemes.

Power Variations:
- Physiology
- Warm-up progressions
- Drills
- Exercises
- Technique/mechanics development of athlete
- Technique/mechanics analysis and feedback of coach/professional
- Equipment
- Sport specificity & functionality [Rate Of Force Development]

2. **Identify and demonstrate classic and specialized “speed” training options to infuse into select periodization schemes.**

**Speed Variations:**
- Physiology
- Warm-up progressions
- Drills
- Exercises
- Technique/mechanics development of athlete
- Technique/mechanics analysis and feedback of coach/professional
- Equipment
- Sport specificity & functionality - Aerobic/Anaerobic

3. **Identify and demonstrate classic and specialized “agility, quickness & mobility” training options to infuse into select periodization schemes.**

**Agility, Quickness & Mobility Variations**
- Physiology
- Warm-up progressions
- Drills
- Exercises
- Technique/mechanics development of athlete
- Technique/mechanics analysis and feedback of coach/professional
- Equipment
- Sport specificity – Directional Movement & Functionality

4. **Identify and demonstrate classic and specialized “plyometric” training options to infuse into select periodization schemes.**

**Plyometric Variations**
- Physiology
- Warm-up progressions
- Drills
- Exercises
- Technique/mechanics development of athlete
- Technique/mechanics analysis and feedback of coach/professional
5. Identify and demonstrate additional specialized training options to infuse into select periodization schemes.

Other Valuable Training Considerations
- Flexibility Options
- Movement Screens
- Core Strength & Stability
- Kettlebell Training – Chains & Bands
- Drills, Exercises, Technique/mechanics development of athlete
- Technique/mechanics analysis and feedback of coach/professional
- Equipment & Assessment & Muscle Specificity & Functionality
- Rate of force development

Evaluation Procedures
A. Course Assignments and Requirements:
   The student is expected to:
1.) Attend class - participate in discussions, presentations and practical experiences;
2.) Abide by reasonable rules of professional conduct;
3.) Turn in typed quality work on time (NO LATE ASSIGNMENTS ACCEPTED – See University Excused Absence policy for exceptions.);
4.) Demonstrate effective writing, speaking skills and rational thinking ability.

B. Evaluation Procedures

Final Exam - 40% of Final Grade (400 points)
This written take home exam will be provided 2 weeks before the end of the semester. This exam will require that the student demonstrates a strong knowledge of all the content areas covered in class. The exam will be essay format with emphasis placed on practical application and available research. The exam is worth 40% of the final grade. No makeup exams will be given except in the cases of university excused absences.

Final Exam due to Dr. Greenwood via e-mail file no later than assigned due date {12-??-15.5PM}

PowerPoint Presentations - 20% of Final Grade (200 points)
E-mailed PowerPoint to Dr. Greenwood at Least 2 Days Before Assigned Presentation Date
Throughout the course of the semester students will be expected to participate/teach in various strength training and conditioning protocols. Students enrolled in this class will be required to teach/conduct various PowerPoint sessions [2.5 Teaching Experiences]. The following content, in the order provided, is required for the format/structure that must appear in your PowerPoint presentation(s). Do not assume that your presentation content is known to all so please make sure to include specific details regarding all information/content presented – do not take short cuts! Handouts & relevant articles are always welcomed and evaluated accordingly. You will have one hour for the PowerPoint Presentation & one hour for your Laboratory Teaching Experience. Plan
& organization well – it is better to plan with much quality information that is relevant rather than not enough information to meet the requirements of this assignment.

- Title Slide Relevant To Topic Assigned For The Day
- Terms/Definitions Relevant To Topic Assigned For The Day
- Scientific Rationale Behind Topic(s) Assigned For The Day (Accurate Detail Here)
- How Where & When These Relevant Aspects Fit Into One’s Periodization Scheme
- Safety Aspects, Correct Technique & Equipment Regarding The Assigned Topic For The Day
- Other Direct & Indirect Training Techniques Related To The Assigned Topic For The Day
- Specific Anatomical Training Movements & Their Practical Applications
- Future Research Endeavors That Will Expand The Current Body Of Literature

Laboratory Teaching Experiences - 20% of Final Grade (200 points)

E-mailed Teaching Laboratory & Handouts to Dr. Greenwood at Least 2 Days Before Assigned Due Date

Throughout the course of the semester the student will be expected to participate in and pass various strength training and conditioning protocols [1.5 Teaching Experiences]. Emerging professional strength and conditioning specialists are expected to participate in and dress appropriately for course practical activities/laboratories. Failing to participate in or dress appropriately for course practical experiences will result in a 10 points reduction in your grade for each offense. It is also critical that your lab teaching experience pay specific detail to your assigned topic. You will have one hour for your Laboratory Teaching Experience after a 5-10 minute dynamic warm-up. At times special guest speakers will assist in this process while students within the class will be required to teach/conduct various lab sessions.

Research Article Reviews - 20% of Final Grade (200 points) {Flexibility – Core S & S – Speed – Power}

Four research article reviews will be required on select assigned topics relevant to strength & conditioning concepts and applications. The students will select articles relevant to designated topics for specific days. The articles will be research oriented and current (2000's to current). Students will follow the abstract template format provided in class in detail in order to ensure quality reviews as well as earn the designated points related to this assignment. In addition to completing the article review form also attach the complete article that you evaluated.

No Late Assignments Accepted – Exceptions For University Excused Absences

See Student Rule #7 for more information - http://students-rule.tamu.edu/rule07

Grading Scale:

A = 90 - 100 (900 - 1000 pts.)
B = 80 - 89 (800 - 899 pts.)
C = 70 - 79 (700 - 799 pts.)
D = 60 - 69 (600 699 pts.)
F = Below 60 (below 599 pts.)
## IV. CLASS OUTLINE AND SCHEDULE *

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Book Chapter: More Content</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Course Introduction – Foundations of PSAQ</td>
<td>Syllabus: Course, Handouts, Assignment Schedules, etc.</td>
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<tr>
<td></td>
<td>Fighting The Good Fight Video</td>
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<tr>
<td>Week 1</td>
<td>Myofacial Release Techniques Viable Options?</td>
<td>Lecture &amp; Handouts, Video Link</td>
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<tr>
<td>Week 2</td>
<td>Flexibility/Warm-Up Presentation &amp; Discussion</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Research Article Due Motion Screens Lab, Flexibility Lab, Supplemental Readings Siff - 174-193 - 404-411</td>
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<td>Assigned Student PowerPoint &amp; Practical Lab Demonstration &amp; Participation</td>
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<tr>
<td>Week 2</td>
<td>Flexibility/Warm-Up Lab</td>
<td>Handouts</td>
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<td>Assigned Student Practical Lab Demonstration &amp; Participation</td>
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<td>Week 3</td>
<td>FMS - Movement Screens Presentations/Discussion</td>
<td>Supplemental Readings Siff - 193-200 &amp; Grey Cook</td>
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<tr>
<td>Week 3</td>
<td>FMS Demonstration &amp; Lab</td>
<td>Motion Screens Lab, Supplemental Readings Siff - 193-200 &amp; Grey Cook</td>
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<td>Practical Application Lab Demonstration &amp; Participation</td>
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<td>Student Lab Handouts</td>
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<tr>
<td>Week 4</td>
<td>Core Strength - Stability Presentations - Discussions</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Research Article Due Core Lab, Supplemental Readings Siff - 152-162</td>
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<td>Week 4</td>
<td>Practical Application Lab Demonstration &amp; Participation</td>
<td>Core Lab, Supplemental Readings Siff - 151-160</td>
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<td>Week 5</td>
<td>Sport Specific Functional Work – Presentation - Discussion</td>
<td>Supplemental Readings Siff - 95-124 &amp; 248-253</td>
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<td>Week 5</td>
<td>Sport Specific Functional Laboratory</td>
<td>Supplemental Readings Siff - 95-124 &amp; 248-253</td>
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<td>Week 6</td>
<td>Speed Strength Presentation &amp; Discussions</td>
<td>Supplemental Notes Siff - 65-73 &amp; 144 – 152 &amp; 241 - 247</td>
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<td>Week 6</td>
<td>Speed Strength Laboratory &amp; Presentation</td>
<td>Speed Strength Lab, Supplemental Notes Siff - 65-73 &amp; 144 – 152 &amp; 241 - 247</td>
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<td>Week 7</td>
<td>Speed Endurance Presentation &amp; Discussions</td>
<td>3&lt;sup&gt;rd&lt;/sup&gt; Research Article Due Speed Endurance Lab, Supplemental Notes Siff - 65-72 &amp; 143 – 150 &amp; 240 - 246</td>
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<td>Week 7</td>
<td>Speed Endurance Laboratory &amp; Presentation</td>
<td>Speed Endurance Lab, Supplemental Notes Siff - 65-72 &amp; 143 – 150 &amp; 240 - 246</td>
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<td>Week 8</td>
<td>Agility Presentations &amp; Discussions</td>
<td>Supplemental Readings Siff - 124-142</td>
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<td>Week 8</td>
<td>Agility Laboratory &amp; Presentation</td>
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<td>Student Lab Handouts</td>
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<td>Week 9</td>
<td>Mobility Presentations &amp; Discussion</td>
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<td>Week 9</td>
<td>Mobility Laboratory &amp; Discussion</td>
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<td>Student Lab Handouts</td>
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<td>Week 10</td>
<td>Quickness Presentation - Presentation &amp; Discussion</td>
<td>Supplemental Readings Siff - 125-144</td>
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<td>Assigned Student PowerPoint</td>
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| Week 10 | Quickness Laboratory & Discussion  
Practical Application Lab Demonstration & Participation  
Student Lab Handouts | Quickness Lab  
Supplemental Readings  
SIFR – 125-144 |
|---------|-------------------------------------------------|--------------------------------------------------|
| Week 11 | Plyometric & Med Ball Presentation & Discussion  
Assign Student: PowerPoint | 4th Research Article Due  
Supplemental Readings  
SIFR – 255-298 – 563-577 |
| Week 11 | Plyometric & Med Ball Laboratory & Discussion  
Practical Application Lab Demonstration & Participation  
Student Lab Handouts | Supplemental Readings  
SIFR – 255-298 – 563-577 |
| Week 12 | Olympic Lifts & Kettlebell Presentation  
Assigned Student PowerPoint & Video | Power Training  
Supplemental Readings  
SIFR – 255-298 – 563-577 |
| Week 12 | Olympic Lifts & Kettlebell Laboratory & Discussion  
Practical Application Lab Demonstration  
Student Lab Handouts | Power Training  
Supplemental Readings  
SIFR – 255-298 – 563-577 |
| Week 13 | Power - Chains - Bands - Sled Presentation  
Assigned Student PowerPoint | Power Training Option  
Supplemental Readings  
SIFR – 255-298 – 563-577 |
| Week 13 | Power Laboratory - Chains & Bands - Sled Work  
Practical Application Lab Demonstration & Participation  
Student Lab Handouts | Power Training Laboratory  
Supplemental Readings  
SIFR – 255-298 – 563-577 |
| Week 14 | Power Presentations - Tires - Ropes - Sledge Hammers  
Assigned Student PowerPoint | Power Training Laboratory  
Supplemental Readings  
SIFR – 255-298 – 563-577 |
| Week 14 | Power Laboratory - Tires - Ropes - Sledge Hammers - TRX  
Practical Application Lab Demonstration & Participation  
Student Lab Handouts | Power Training Laboratory  
Supplemental Readings  
SIFR – 255-298 – 563-577 |
| Week 15 | Final Comprehensive Take Home Exam Due  
Sent To Dr. Mike Greenwood Via E-Mail Attachment | Final Exam Due  
By: 6 PM On: Before |

This schedule is subject to change upon the instructor’s discretion; student will be notified of such changes in advance.

**COURSE ADMINISTRATIVE STATEMENTS:**

**ADA Statement:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Disability Services in Room B118 of Cain Hall, or call 845-1637. Helpful information is located at [http://disability.tamu.edu](http://disability.tamu.edu).

**Plagiarism Statement:** 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 sins, for the plagiarist destroys the trust among colleagues without which research cannot be safety 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.”

Copyright Statement: 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.

Aggie Code of Honor: “Aggies do not lie, cheat or steal, nor do they tolerate those who do.” “The Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty, integrity, characteristics that Aggies have always exemplified. The Aggie Code of Honor functions as a symbol to all Aggies, promoting the understanding and loyalty to truth and confidence in each other.”

All students are expected to abide by the Aggie Honor Code. Students should be aware of all Honor Council Rules and Procedures on the Honor Council website at http://aggiehonor.tamu.edu.
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus.

Form Instructions

1. Course request type:  ☐ Undergraduate  ☑ Graduate  ☐ First Professional (DDS, MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name):  Department of Marine Biology
3. Course prefix, number and complete title of course:  MARB 635 Marine Invertebrate Zoology
4. Catalog course description (not to exceed 50 words):  General biology of marine invertebrate animals; morphology, evolution, and systematics. Laboratory will stress studies of local fauna.

5. Prerequisite(s):  Graduate standing
Cross-listed with:  N/A  Stacked with:  MARB 435

6. Is this a variable credit course?  ☐ Yes  ☑ No
If yes, from _______ to _______
7. Is this a repeatable course?  ☐ Yes  ☑ No
If yes, this course may be taken _______ times.
Will this course be repeated within the same semester?  ☐ Yes  ☑ No
8. Will this course be submitted to the Core Curriculum Council?  ☐ Yes  ☑ No
9. How will this course be graded?  ☑ Grade  ☐ S/U  ☐ P/F (CLMD)
10. 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)

   any master's or doctoral level program
11. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.
12. ☐ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).
13. Prefix  Course #:  Title (excluding punctuation)
    MARB  635  INVERTEBRATE ZOOLOGY

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Approval recommended by:

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

Antonietta Quigg  
Chair, College Review Committee  Date

Antonietta Quigg  
Dean of College  Date

Submitted to Coordinating Board by:

Chair, GC or UCC  Date

Associate Director, Curricular Services  Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 07/14
15 October 2014

Anja Schulze, Ph.D.
Associate Professor, Marine Biology
Texas A&M University at Galveston
200 Seawolf Parkway
OCSB Bldg 3029, Rm 258
Galveston, TX 77553

Dear Anja,

I am glad to hear that you are expanding your MARB 435 Marine Invertebrate Zoology course to include a graduate section. I know there will be great demand for this there at Galveston. I have talked to Dr. Wicksten about this, and she also thinks it is a great idea. Therefore, I am happy to say that the Department of Biology enthusiastically supports your effort to create a graduate section of your Marine Invertebrate Zoology course.

Sincerely,

Thomas D. McKnight
Professor and Head of Biology
Course Information
Course number and title MARB 435/635 – Marine Invertebrate Zoology
Term Spring 20XX
Lecture (OCSB 141): TR 11:00 – 12:15
Lab (CLB 201):
M 1300-1550 (901)
T 1300-1550 (902)
W 1300-1550 (903)
M 1600-1850 (904)
Meeting times and location

Course Description
This course gives an overview of approximately 20 phyla of invertebrate animals with an emphasis on marine representatives. The lectures present an introduction to the diversity, morphology, evolution and ecology of each taxon. The labs focus on local fauna and include several field trips in the Galveston area and an independent study project for students taking the class at the graduate level.

Prerequisites
UG students: BIOL 111 and 112. Junior or senior classification or approval of instructor.
G students: Graduate standing or approval by instructor

Learning Outcomes
. Gain a basic understanding of marine invertebrate diversity, ecology, physiology and evolution
. Research and analyze current literature in invertebrate zoology and synthesize the information
. Collect, analyze and interpret invertebrate-related data and summarize in written reports.

Instructor Information
Name Anja Schulze, Ph.D.
Telephone number 409-740-4540
Email address schulzea@tamug.edu
Office hours T, TR 8:30-10 or by appointment
Office location OCSB 258

Textbooks and/or Resource Material
2. Marine Invertebrate Zoology, lab manual; available in bookstore (required)

Exams (UG and G students)
The tests, except the lab finals, will mainly cover the material since the last test, but comparative questions referring to previously covered material can be expected.
If you miss a test due to an excused absence you will have the opportunity to take it within 5 business days after the original date. If you have an excused absence exceeding five business days, alternative assignments for extra credit can be arranged.

**Independent Project (G students only)**
Each G student will work on an independent research project on a topic related marine throughout the semester. The project will include a field and/or laboratory component and may be related to the student’s graduate work, but it should be concise enough to complete within a semester.

**Presentations**
UG students will give a 10 min group presentation during one of the labs on a choice of topics provided by the TAs.
Each G student will prepare and present one lecture on a topic of their choice, in consultation with the instructor, to the class.

**Written Assignments**
UG students: You are required to submit one research article critique (~500 words) and two field trip reports (800 words each). Reports are due two weeks after each trip at the beginning of your lab meeting. You will receive written feedback on your first submission and will have chance to revise it. The penalty for a late assignment is 2 points per day. No late assignments will be accepted after the final deadline in the week of April 21 (beginning of respective lab section). For additional guidance on written assignments, consult with the TAMUG Writing Lab (CLB, writinglab@tamug.edu).

G students: You will submit a written report of your independent study project, structured in the format of a scientific journal article (~10 pages double-spaced, plus references and figures as applicable).

**Grading**

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<th>Lecture</th>
<th>Points</th>
<th>Percent of final grade</th>
<th>Labs</th>
<th>Points</th>
<th>Percent of final grade</th>
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</thead>
<tbody>
<tr>
<td>Research article critique</td>
<td>100</td>
<td>10%</td>
<td>Field trip report 1</td>
<td>80</td>
<td>8%</td>
</tr>
<tr>
<td>Test 1</td>
<td>120</td>
<td>12%</td>
<td>Field trip report 2</td>
<td>80</td>
<td>8%</td>
</tr>
<tr>
<td>Test 2</td>
<td>120</td>
<td>12%</td>
<td>Lab practical 1</td>
<td>40</td>
<td>4%</td>
</tr>
<tr>
<td>Test 3</td>
<td>120</td>
<td>12%</td>
<td>Lab practical 2</td>
<td>40</td>
<td>4%</td>
</tr>
<tr>
<td>Final exam</td>
<td>140</td>
<td>14%</td>
<td>Lab final</td>
<td>80</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quizzes</td>
<td>40</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Presentation</td>
<td>40</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>600</strong></td>
<td><strong>60%</strong></td>
<td><strong>400</strong></td>
<td><strong>40%</strong></td>
<td></td>
</tr>
</tbody>
</table>
G students
Test 1 (120 points): 12%
Test 2 (120 points): 12%
Test 3 (120 points): 12%
Final (140 points): 14%
Class presentation: 20%
Research project: 30%

All students
A: 90-100%
B: 80-89.9%
C: 70-79.9%
D: 60-69.9%
F: < 60%

Deadlines

UG Students:
Week 3 Zooplankton report
Week 6 Trawling report
Week 8 Oyster reef report
Week 10 Meiofauna report
Week 12 Article critique
Week 13 Habitat recovery report, last deadline to submit all written assignments; no assignments will be accepted after this date.

G Students
Week 4 One page concept paper for independent study project
Week 12 Rough draft of Project Report
Week 14 Final Project Report

Absences
Information concerning absences is 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. Please consult the University Student Rules for reasons for excused absences, detailed procedures and deadlines as well as student grievance procedures (Part III, Section 45).

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Office of Student Counseling, in Seibel Student Services Center, Suite 104, or call 409-740-4736. For additional information visit http://www.tamug.edu/counsel/Disabilities.html
Academic Integrity
For additional information please visit: http://www.tamug.edu/catalog/calendar.html

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

Helpful Websites

Academic Calendar http://registrar.tamu.edu/General/Calendar.aspx
Final Exam Schedule http://www.tamug.edu/admrc/Records.html
On-line Catalog http://www.tamug.edu/catalog/
Student Rules http://www.tamug.edu/stulife/studentrules.html
Religious Observances http://dof.tamu.edu/content/religious-observance
Center for Teaching Excellence http://cte.tamu.edu/
<table>
<thead>
<tr>
<th>Schedule (subject to minor changes)</th>
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<tbody>
<tr>
<td><strong>Lecture Topic</strong></td>
</tr>
<tr>
<td><strong>Week 1</strong></td>
</tr>
</tbody>
</table>
| Syllabus, Introduction | **Chapter 1:** Introduction  
**Chapter 2:** Classification, Inferring evolutionary relationships | Field trip: Zooplankton |
| Zooplankton, Phylogenetics | | |
| **Week 2** | | |
| Metazoa, Writing lab presentation | **Chapter 4:** complete | Porifera |
| Porifera, Placozoa | | |
| **Week 3** | | |
| Cnidaria | **Chapter 6:** complete  
**Chapter 7:** complete | Cnidaria |
| Ctenophora | | |
| **Week 4** | | |
| Bilateria | **Chapter 8:** Introduction and Class Turbellaria | Trawling |
| Platyhelminthes I | | |
| **Week 5** | | |
| Test 1 | **Chapter 8:** Classes Cestoda and Trematoda  
**Chapter 11:** complete | Mollusc shell identification |
<p>| Platyhelminthes II, Nemertea | | |
| <strong>Week 6</strong> | | |
| Mollusca I | <strong>Chapter 12:</strong> Introduction, Classes Polycladophora, Aplacophora, Monoplacophora, Scaphopoda and Gastropoda | Field trip: Oyster reefs, habitat deployment |
| Mollusca II | | |</p>
<table>
<thead>
<tr>
<th>Week 7</th>
</tr>
</thead>
</table>
| Mollusca III | **Chapter 12:** Classes Bivalvia and Cephalopoda  
**Chapter 13:** Introduction, Class Polychaeta (including echinurans and sipunculans) |
| Annelida I | **Mollusca** |

<table>
<thead>
<tr>
<th>Week 8</th>
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| Meiofauna | **Article:** Morell, V. 1995. Life on a grain of sand.  
**Field trip:** Meiofauna |
| Test 2 | |

<table>
<thead>
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<th>Week 9</th>
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</table>
| Annelida II | **Chapter 13:** Class Clitellata  
**Chapter 10:** Phylum Rotifera  
**Chapter 18:** Phylum Chaetognatha  
**Chapter 19:** complete |
| Rotifera, Chaetognatha, Lophophorates | **Annelida** |

<table>
<thead>
<tr>
<th>Week 10</th>
</tr>
</thead>
</table>
| Spiralia/Ecdysozoa, Tardigrada, Onychophora, Arthropoda I | **Chapter 15:** Tardigrades and onychophorans  
**Chapter 14:** Introduction, Subphylum Trilobitomorpha, Subphylum Chelicerata, Subphylum Mandibulata, Superclass Myriapoda |
| Arthropoda II | **Arthropoda** |

<table>
<thead>
<tr>
<th>Week 11</th>
</tr>
</thead>
</table>
| Arthropoda III | **Chapter 14:** Superclasses Hexapoda and Crustacea  
**Field trip:** Habitat recovery |
| Arthropoda IV | |

<table>
<thead>
<tr>
<th>Week 12</th>
</tr>
</thead>
</table>
| Nematoda, Protostomia and Deuterostomia | **Chapter 16:** complete  
**Chapter 22:** complete |
<p>| Test 3 | <strong>Deuterostomes, review</strong> |</p>
<table>
<thead>
<tr>
<th>Week 13</th>
<th>Echinodermata I</th>
<th>Echinodermata II</th>
<th>Hemichordata, Invertebrate Chordates</th>
<th>Review</th>
<th>Final Exam</th>
</tr>
</thead>
</table>
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
- Submit original form and attach a course syllabus.

Form Instructions
1. Course request type:
   - Undergraduate □
   - Graduate ☒
   - First Professional (DMS, MD, J D, PharmD, DVM)

2. Request submitted by (Department or Program Name):
   Marine Sciences

3. Course prefix, number and complete title of course:
   MARS 626 Advanced GIS for Coastal Systems

4. Catalog course description (not to exceed 50 words):
   Conceptual and technical expansion of GIS and spatial analysis methods. Hands on experience with multidisciplinary data sets relevant to coastal systems: spatial and statistical methods, creation, manipulation, and analysis of various datasets that address the interaction of human and natural systems in coastal habitats.

5. Prerequisite(s):
   MARS 625, ESSM 351, RENR 405, ESSM 651 or similar course, graduate status or approval of instructor
   Cross-listed with:
   Stacked with:

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

6. Is this a variable credit course?
   - Yes □
   - No ☒
   If yes, from ___ to ___

7. Is this a repeatable course?
   - Yes □
   - No ☒
   If yes, this course may be taken ___ times.
   Will this course be repeated within the same semester?
   - Yes □
   - No ☒

8. Will this course be submitted to the Core Curriculum Council?
   - Yes □
   - No ☒

9. How will this course be graded?
   - Grade ☒
   - S/U □
   - P/F (CLMD) □

10. 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)

   elective for MARM, MARB-IDP or other Galveston-based graduate students

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

12. I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

13. Prefix Course # Title (excluding punctuation)
   MARS 626 ADV GIS FOR COASTAL SYSTEMS

   Lec. Lab Other SCH CIP and Fund Code Admin. Unit Acid. Year FICE Code
   2.00 2.00 3.00 1102020006 1810 15 - 16 01 0 2 9 8

   Approval recommended by:

   Kyrong Park Xinrong Pan 10/24/14
   Department Head or Program Chair (Type Name & Sign) Date

   Chair, College Review Committee 10/22/14
   Dean of College 10/22/14

   Submitted to Coordinating Board by:

   Chair, GC or UCC Date

Associate Director, Curricular Services

Questions regarding this form should be directed to Sandra Williams at 845-821 or sandra-williams@tamu.edu.
Curricular Services — 07/14
MARS 626: Advanced Geographic Information Systems for Coastal Systems
Spring 2016

Instructor: Dr. Wesley Highfield
Office: OCSB 364
Office Hours: By appointment/request
E-mail: highfielw@tamug.edu
Phone: (409)740-4726

Teaching Assistant: TBA
E-mail:

Course Description
This course will challenge students to conceptually and technically expand their knowledge of GIS and spatial analysis methods. Students will gain hands on experience manipulating and analyzing multidisciplinary data sets relevant to coastal systems. Utilizing spatial and statistical methods, students will create, manipulate, and analyze various datasets that address the interaction of human and natural systems in coastal habitats. It is expected that students in this course will come from a range of backgrounds—the interdisciplinary background of your peers should help promote a wide range of discussions throughout the semester.

Goals
This overall aim of the course is to promote students' growth of existing spatial analysis skills and introduce more advanced analytical approaches. More specifically, the primary goal of this course is to enhance and expand general GIS skills, spatial analysis, and the application of ArcGIS in an interdisciplinary framework. Students will also be exposed to spatial statistics and the assembly/management of spatially-based data for analysis outside of a GIS framework. Knowledge gained during this course is applicable in both research and professional settings.

Prerequisites
MARS 625, ESSM 351, RENR 405, ESSM 651 or similar course, graduate status or approval of instructor.

Course Structure
This course will have a lecture, computer-based lab, and reading component. Students are expected to attend classes and labs in addition to reading the assigned material.

Required Text
There is no required text. You will need to use the laboratory computers with GIS software. I have also secured a free, one-year license of ArcGIS for each of you enrolled in the class that can be installed on your personal computer (PC only—sorry Mac users). Much of the information needed from a technical perspective can be found on the web and/or through the software's help menu.
Grading
The weighting of course grades are as follows:
- Weekly Lab Exercises: 30%
- Final Exam: 30%
- Final Project: 30%
- Participation: 10%
I will follow the traditional grading scale of: A=90-100, B=80-89, C=70-79, D=60-69, F=<60

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Re-Introduction to GIS</td>
</tr>
<tr>
<td>Week 2</td>
<td>A review of GIS software, data structures, and data management</td>
</tr>
<tr>
<td>Week 3</td>
<td>Geoprocessing and Model Builder</td>
</tr>
<tr>
<td>Week 4</td>
<td>Vector Data Analysis – Point Pattern Analysis</td>
</tr>
<tr>
<td>Week 5</td>
<td>Vector Data Analysis – Areal Interpolations</td>
</tr>
<tr>
<td>Week 6</td>
<td>Spatial autocorrelation and cluster detection I</td>
</tr>
<tr>
<td>Week 7</td>
<td>Spatial autocorrelation and cluster detection II</td>
</tr>
<tr>
<td>Week 8</td>
<td>Raster Data Analysis – Spatial Interpolations</td>
</tr>
<tr>
<td>Week 9</td>
<td>SPRING BREAK</td>
</tr>
<tr>
<td>Week 10</td>
<td>Raster Data Analysis – Surface Analysis</td>
</tr>
<tr>
<td>Week 11</td>
<td>LiDAR and Point Cloud Data</td>
</tr>
<tr>
<td>Week 12</td>
<td>Basic Image Analysis</td>
</tr>
<tr>
<td>Week 13</td>
<td>Loosely-coupled models: data assembly, analysis and display (cont’d)</td>
</tr>
<tr>
<td>Week 14</td>
<td>Project work; Project Presentations</td>
</tr>
<tr>
<td>Week 15</td>
<td>Final Exam</td>
</tr>
</tbody>
</table>
Make Up Policy for Lab Assignments
Due dates are final. Make-up exams require a university excused absence due to serious illness, a family emergency or extenuating circumstances. 5 points per day will be deducted for late labs.

Plagiarism
Plagiarism consists of passing off as one's own ideas, words, writings, etc., which belong to another. 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". I take academic dishonesty very seriously and if discovered, I WILL pursue it.

Americans with Disabilities Act (ADA) Policy Statement
The Americans with Disabilities Act (ADA) is a federal non-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this law 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, Seibel Student Center, or call (409)740-4587. For additional information visit http://www.tamug.edu/counsel/services/dssprocedures.htm.

Academic Integrity Statement and Policy
"An Aggie does not lie, cheat, or steal or tolerate those who do."
All syllabi should contain a section that states the above Aggie Honor Code and refers the student to the Honor Council Rules and Procedures on the web: http://www.tamug.edu/HonorSystem.

Statement on Absences
Information concerning absences is 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. Please consult the University Student Rules for reasons for excused absences, detailed procedures and deadlines as well as student grievance procedures (Part III, Section 45). Re: excused/unexcused absences & make-up policies will follow Student Rules: http://www.tamug.edu/stulife/Academic%20Rules/Rule%207.pdf.

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, GPR 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.

Statement on Course Evaluations
The PICA (Personalized Instructor/Course Appraisal) is an online course evaluation for Texas A&M. We highly encourage you to complete an evaluation for each course on your schedule. Student input is a critical component used to improve curriculum and teaching. Each faculty member values your input to improve his/her methodology. Your comments can also significantly impact the mix and membership of faculty. The PICA website is available at http://pica.tamu.edu or your howdy portal.
As you may guess, I do not what is required. As I forward this email to Melanie, I hope (and sure) she will let us know what we need to do. Thanks for contacting Katy.

K

Begin forwarded message:

From: Wesley Highfield <highfiw@tamug.edu>
Date: October 20, 2014 at 8:25:59 PM CDT
To: Kyeong Park <parkk@tamug.edu>
Subject: FW: Requesting approval new course

Kyeong-

I don't have the course request form, or I would add these course to the prerequisites. Is the email enough to suffice for tomorrow's meeting? I'm going to optimistically take her response as a conditional "yes".

If not her response is not enough for GIC, I can modify tonight/tomorrow morning with a copy of the course request form.

wh

******************************
Wesley E. Highfield, Ph.D.
Assistant Professor
Department of Marine Sciences
Texas A&M University at Galveston
Galveston, TX 77553-6175
Phone: 409-740-4726
******************************

From: Katy Kavanagh [Katy.Kavanagh@aag.tamu.edu]
Sent: Monday, October 20, 2014 8:05 PM
To: Wesley Highfield
Cc: kathy@tamu.edu; Kyeong Park
Subject: Re: Requesting approval new course

Wesley,
I am sorry that my reply is delayed. I did check with Rusty and Ben and the both agreed there is some overlap:
Rusty said "We should ask them to explicitly list ESSM 351, RENR 405, and ESSM 651 as alternate prerequisites that can be taken in place of MARS 625 - so, MARS 625 OR ESSM...." Ben did not have any major concerns.

I enjoyed my visit to Galveston today!

Katy

Dr. Kathleen Kavanagh
Professor and Department Head
Ecosystem Science and Management
College of Agriculture and Life Sciences
Texas A&M University
http://essm.tamu.edu
979.845.6049

On Oct 20, 2014, at 7:47 PM, "Wesley Highfield" <highfielw@tamug.edu> wrote:

Dr. Kavanaugh-

Apologies for the multiple e-mails, but would it be possible for you to grant permission and/or support for my new course offering?

The new course, MARS 626 "Advanced GIS for Coastal Systems", is likely to have a small overlap with Srin's ESSM 652 course. However, my course will be oriented toward coastal systems and their data requirements relative to the 652 course. We, the Marine Sciences Department at TAMUG, would like to add this course to the Fall 2015 Catalog. Dr. Searcy in BAEN has already expressed that they have no objections to the course.

I've attached the syllabus for the course; the previous e-mail from our department head, Kyeong Park, has the course request form attached.

Thanks in advance for your consideration and response. And as an alum of the FRSC department (what is now ESSM), I wish you a (belated) welcome.

Thanks again,

Wes Highfield

*****************************
Wesley E. Highfield, Ph.D.
Assistant Professor
Department of Marine Sciences
Texas A&M University at Galveston
Galveston, TX 77553-6175
BAEN has no objection to the proposed new course, MARS 626.

Stephen W. Searcy, P.E.
Professor and Head
Biological and Agricultural Engineering
Texas A&M University
2117 TAMU
201 Scoates Hall
College Station, TX 77843-2117
Office: 979-845-3940
Mobile: 979-450-3156
Email: s-searcy@tamu.edu

From: Kyeong Park [mailto:parkk@tamug.edu]
Sent: Monday, September 22, 2014 3:24 PM
To: katyk@tamu.edu; Stephen Searcy
Cc: Melanie Lesko
Subject: Requesting approvals/support for our new course

Dear Drs. Kavanaugh and Searcy,

I am new DH of Marine Sciences at TAMUG. I am sending you this email asking for your permission to add a new course, MARS 626 (Advanced GIS for Coastal Systems) to our catalog. Attached please find the course request form that includes a syllabus and Dr. Highfield’s CV. While there might be some overlap between this course and ESSM 652 (Advanced Topics in GIS), cross listed with BAEN 652, this course is oriented toward coastal data sets and problems. With your permission, we plan to add this course to the fall 2015 catalog. Please let me know if you have any questions.

I like to thank you in advance for your cooperation. I hope to have a chance to meet you in person in the near future.

Best,

Kyeong Park, Ph.D.
Professor and Head, Dept. of Marine Sciences
Texas A&M University at Galveston
P.O. Box 1675
1001 Texas Clipper Rd, OCSB 280
Galveston, TX 77553
Phone: +1-409-740-4710
Fax: +1-409-740-4429
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
- Submit original form and attach a course syllabus.

Form Instructions
1. Course request type:
   □ Undergraduate  □ Graduate □ First Professional (DDS, MD, JD, PharmD, DVM)

2. Request submitted by (Department or Program Name):
   Department of Oceanography

3. Course prefix, number and complete title of course:
   OCNG 603 Communicating Ocean Science

4. Catalog course description (not to exceed 50 words):
   Instruction and practice with presenting scientific information on the ocean to a variety of audiences under different
time constraints. Critical components for any presentation; knowing your audience; designing effective visual aids and
graphics; leading your audience through complex concepts; and communicating with non-scientists.

5. Prerequisite(s):
   N/A

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

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

8. Will this course be submitted to the Core Curriculum Council? □ Yes  □ No

9. How will this course be graded:
   □ Grade  □ S/U  □ P/F (CLME)

10. Cross-listed with:
    N/A
    Stacked with:
    N/A

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

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

12. I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

13. Prefix  Course #  Title (excluding punctuation)
    OCNG 603  Communicating Ocean Science

<table>
<thead>
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<th>Lect.</th>
<th>Lab</th>
<th>Other</th>
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<th>CIP and Fund Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>EICE Code</th>
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</tr>
</tbody>
</table>

Approval recommended by:

[Signature]

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

Chair, College Review Committee Date

Dean of College Date

Submitted to Coordinating Board by:

[Signature]

Chair, GC or UCC Date

Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu
Curricular Services – 07/14
Course title and number: OCNG 603: Communicating Ocean Science
Term: Fall 2015
Meeting times and location: W 1:50 to 4:50, O&M 617

Course Description and Prerequisites

This course will provide instruction and practice with presenting scientific information on the ocean to a variety of audiences under different time constraints. Emphasis will be on oral communication, with some written communication. Topics include critical information to be included in any presentation; knowing your audience; designing effective visual aids and graphics; leading your audience through complex concepts; preparing for presentations; and communicating with non-scientists.

Learning Outcomes or Course Objectives

By the end of this course you should be able to:
1. Synthesize and explain complex scientific information.
2. Present clearly to audiences composed of scientists inside your field, scientists outside your field, and non-scientists.
3. Design and present effective oral and poster presentations.
4. Construct clear, easy to follow scientific talks under a variety of times constraints.
5. Speak clearly and confidently in front of small and large audiences.
6. Prepare visual/graphical content that is easy for an audience to see and understand.

Instructor Information

Name Dr. Kathryn E. F. Shamberger
Telephone # 979-845-5752
Email address katie.shamberger@tamu.edu
Office hours By appointment (I am happy to meet with you if you have any questions.)
Office location Rm 911B, O&M Bldg

Textbook and/or Resource Material

You will be expected to read a number of scientific journal papers in your research area to be presented to the class and in writing. You will choose the papers yourself and approval by the instructor is required before presenting them. Other recommended readings and resources will be posted on eCampus.

Grading Policies

Grading will be based on the following: participation (15%), 10 min talk (10%), 15 min talk (10%), outreach project (5%), 5 min talk and poster presentation (5%), 25 min talk (20%), final poster presentation (20%), paper (15%=5%(paper)+5%(peer review)+5%(revised paper)). The participation part of the grade is based on personal presentation improvement throughout the semester and giving constructive feedback to other students in the class. In order to demonstrate personal presentation improvement, the student must give all required presentations, including the outreach project, and giving constructive feedback to other students in the class requires attending class for other students' presentations. The grading divisions will be: A (90 -100 %), B (80 - 89 %), C (70 – 79 %), D (60 – 69 %) and F (0 – 59%). There will be no extra credit.
Assignments

There will be 6 presentations total throughout the semester: 5, 10, 15, and 25 minute talks and 2 poster presentations, including a final poster presentation. The 10 min talk will be based on a scientific paper from a peer-reviewed journal that the student will choose and have approved by the instructor by Mon, Week 2. Students will be assigned a 10 min talk time for Week 3. The 15 min talk will be a review of the peer-reviewed literature in the student's chosen field of study and will conclude with open research questions that the student finds compelling. A reference list with at least 10 peer-reviewed journal articles must be submitted to the instructor by Mon, Week 4. Students will be assigned a 15 min talk time for Week 6 or 7. The 5 min talk and first poster are based on the same material as the 15 min talk. All students will give a 5 min talk and present their poster in Week 9. The 25 min talk will follow the format of a proposal which includes a review of pertinent literature, the research question to be addressed, research plan/methods, and how this work would contribute to the field of study. Students will be assigned a 25 min talk time for Week 12, 13 or 14. The final poster presentation will be based on the same material as the 25 min talk. A poster session will be held during the final exam time and students will take turns presenting their posters and viewing other students' posters. Outside professors and graduate students will also be invited to view and evaluate posters. In addition, there will be an Outreach Activity which students will plan and perform in teams to communicate ocean science to non-scientists.

There will be 3 writing assignments total during the semester and each will be based on a 3-5 page literature review paper covering the same material as the 15 min talk/5 min talk/first poster. The paper is due on Mon, Week 8 (first writing assignment). Each student will be assigned another student's paper to peer review. Reviews will be double blind and are due by Fri, Week 9 (second writing assignment). Students will then be able to revise their papers based on comments from the instructor and from the peer review. Revised papers are due by Fri, Week 14 (third writing assignment).

Cell Phone/Laptop Policy

**Cell Phones:** Set to silent during class. Please, no texting during class. If you must take a call, leave the room quietly to do so.

**Laptops:** I expect your attention during class. Using a laptop to take notes is perfectly acceptable. Please, do not surf, message, or continually check email during class.

Course Topics, Calendar of Activities, Major Assignment Dates

This table shows the class schedule for Communicating Ocean Science. In the event that major changes need to be made to the schedule you will be notified by email and by postings on eCampus ASAP.

<table>
<thead>
<tr>
<th>Week</th>
<th>Monday date</th>
<th>Topics</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>TBD</td>
<td>Critical Components in any Presentation, Preparing for Presentations</td>
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<tr>
<td>Week 2</td>
<td>TBD</td>
<td>Answering Questions, Being a Good Speaker, and Literature Reviews</td>
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<td>Week 3</td>
<td>TBD</td>
<td>10 min talks</td>
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<tr>
<td>Week 4</td>
<td>TBD</td>
<td>Knowing Your Audience: Gearing your Presentation to Different Audiences; Visual Aids and Graphics</td>
<td>References List by Mon</td>
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<tr>
<td>Week 5</td>
<td>TBD</td>
<td>Leading Your Audience Through Complex Concepts and Paper Reviews</td>
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<td>Week 6</td>
<td>TBD</td>
<td>15 min talks</td>
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<tr>
<td>Week</td>
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<td>15 min talks</td>
<td><strong>Paper due by Mon</strong></td>
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<tr>
<td>Week 8</td>
<td>TBD</td>
<td>Speed Talks; Guide to Good Poster Presentations</td>
<td><strong>Peer Reviews by Fri</strong></td>
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<td>Week 9</td>
<td>TBD</td>
<td>5 min talks and Poster Presentations</td>
<td><strong>Outreach Plan by Fri</strong></td>
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<td>TBD</td>
<td>Communicating with Non-Scientists; Outreach Activities</td>
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<td>Week 11</td>
<td>TBD</td>
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<td>Week 13</td>
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<td>Week 14</td>
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<td>25 min talks</td>
<td><strong>Revised Paper by Fri</strong></td>
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<td>5/8, 5/11-13</td>
<td>FINAL EXAM = Poster Session: Date/time TBD</td>
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**Other Pertinent Course Information**

The goal of this course is to provide the tools and guidance needed for each student to become the best possible presenter they can be. Students are expected to play an active role in this process, not just in improving their own presentation skills, but also in assisting every student in the class to improve. Everyone in the class will give and receive feedback on each other's presentations, and openly communicating **constructive feedback** is encouraged and required. The class is expected to function as a team that supports and encourages every member.

**Copyright**

All materials generated for this class, which include but are not limited to syllabi, in-class materials, Blackboard materials, and exams, are copyrighted. You do not have the right to redistribute these unless I expressly grant permission. Posted lecture notes can be printed for your sole use and cannot be redistributed.

**Americans with Disabilities Act (ADA)**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu)

**Academic Integrity**

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

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

Form Instructions:

1. Course request type: 
   □ Undergraduate  ✓ Graduate  □ First Professional (e.g., PPM, IIN, MNL, etc.)

2. Request submitted by (Department or Program Name):
   Department of Psychology
   PSYC 605 Memory & Consciousness

3. Course prefix, number and complete title of course:
   PSYC 605 Memory & Consciousness

4. Catalog course description (not to exceed 50 words):
   Research on consciousness and memory; all levels of conscious awareness associated with memory retrieval, from
detailed personal experiences of remembering to unaware uses of memory; implicit and explicit memory; automatic
and controlled processes; metacognitive explorations of consciousness.

5. Graduate classification or approval of instructor
   Cross-listed with: NA  Stacked with: NA
   Cross-listed courses require the signature of both department heads.

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

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

8. Will this course be submitted to the Core Curriculum Council? □ Yes  ✓ No

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

   This course will be an elective course for graduate students in Psychology.

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

11. ✓ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-control-basics-for-distance-education).

12. Prefix  Course #  Title (excluding punctuation)
    PSYC  605  Memory & Consciousness

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   Approval recommended by:
   Douglas Woods
   Department Head or Program Chair
   Date: 9/24/14

   Chair, College Review Committee
   Date: 9/30/14

   Dean of College
   Date: 9/30/14

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

   Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 04/14
Human Memory and Consciousness (Psych 605)
Wed 9:00-12:00
Room 422, Psychology Building
Spring 2016

Professor: Lisa Geraci
Office hours: By appointment; Psychology, Room 241
Office phone number: 845-2585
E-mail: lgeraci@tamu.edu

Recommended prerequisites: Graduate classification or approval of instructor

Course overview and objectives
This course is designed to provide an in-depth examination of research on consciousness and memory. We will consider all levels of consciousness that are associated with memory retrieval, from detailed personal experiences of memory (often called autonoetic consciousness) to fact-like experiences of memory (often called noetic consciousness) to unaware uses of memory (often called anoetic consciousness). Specific topics will include implicit and explicit memory, automatic and controlled memory, and metacognitive explorations of consciousness. In particular, we will discuss remembering and knowing, reality or source monitoring, and the use of post-memory confidence judgments in assessing levels of awareness associated with explicit memory performance. Lastly, we will examine how consciousness and memory may or may not change across the lifespan.

Learning Outcomes. Successful students of this course will:
- Discuss and analyze current research articles on consciousness and memory
- Describe and compare major theories and findings in the area of memory and consciousness

Required Readings: course readings will be distributed by the instructor and are listed on the course schedule.

Course Requirements and Grading

Discussion questions for readings (30 points)
For each reading, you will be asked to think of at least 3 thoughtful questions to discuss in class. You will hand in these questions at the end of each class.

Class discussion of assigned reading (15 points)
You will also be asked to lead the discussion of 3 articles in class (worth 5% each). You should prepare some thought-provoking questions that will stimulate class discussion. Use this time to point out any problems you see with the article’s methodology or conclusions. You should assume that everyone has read the article, so you do not need to spend much time going over the details of the article.

Research proposal (40 points)
This paper is designed to give you an opportunity to develop a research proposal on some aspect of memory and consciousness. This should be a proposal for a research project that you might want to conduct. Please follow the format of a typical NIH or NSF grant proposal or a typical APA style paper that you would use for published work. You will receive more detailed instructions for this paper in the following few weeks. The paper should be about 10-15 pages long.

Research proposal presentation (15 points)
During the last two weeks of the semester, you will be asked to present your research proposal idea to the class in a 30 minute presentation, including questions. You should prepare a PowerPoint presentation of your proposed research, including background information, methods, potential results, and discussion of those results.
<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
<th>Readings</th>
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</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Course Introduction</td>
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<tr>
<td>Week 2</td>
<td>Remembering and Knowing</td>
<td>Tulving, 1985</td>
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<td>Rajaram, 1993</td>
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<td>Bodner &amp; Lindsay, 2003</td>
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<td>Week 3</td>
<td>Awareness and memory processes</td>
<td>Dewhurst, Holmes, Brandt, &amp; Dean, 2006</td>
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<td>Jacoby, Woloshyn, &amp; Kelley, 1989</td>
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<td>Wheeler &amp; Buckner, 2004</td>
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<td>Week 4</td>
<td>Confidence and awareness</td>
<td>Rajaram, Hamilton, Bolton, 2002</td>
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<td></td>
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<td>Conway, Gardiner, Perfect, et al., 1997</td>
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<td>Java, Gregg, &amp; Gardiner, 1997</td>
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<td>Week 5</td>
<td>Illusions of consciousness</td>
<td>Lindsay &amp; Kelley, 1996, <em>JML</em></td>
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<td>Whittlesea &amp; Williams, 1998</td>
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<td>Roediger &amp; McDermott, 1995</td>
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<td>Geraci &amp; McCabe, 2006</td>
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<td>Week 6</td>
<td>Awareness across the lifespan</td>
<td>Bruce, Dolan, Phillips-Grant, 2000</td>
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<td>Perfect &amp; Dasgupta, 1997</td>
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<td>Mantyla, 1993</td>
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<td>Week 7</td>
<td>Amnesia and awareness</td>
<td>Warrington &amp; Wieskrantz, 1970</td>
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<td>Schacter, 1983</td>
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<td>Week 8</td>
<td>Implicit memory in normals</td>
<td>Roediger, 1990</td>
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<td>Blaxton, 1989</td>
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<td>Schnyer, Dobbins, &amp; Schacter, 2007</td>
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<tr>
<td>Week 9</td>
<td>Awareness in implicit memory</td>
<td>Richardson-Klavohn &amp; Gardiner, 1995</td>
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<td>Barnhardt &amp; Geraci, 2007</td>
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<td>MacLeod, 2007</td>
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<td>Week 10</td>
<td>Implicit memory and aging</td>
<td>Gabrieli, Vaidya, Stone, et al., 1999</td>
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<td>Prull, Dawes, Martin, Rosenberg, &amp; Light, 2006</td>
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<td>Fleischman, Wilson, Gabrieli, et al., 2004</td>
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<td>Week 11</td>
<td>Reconsidering implicit memory</td>
<td>Willingham &amp; Preuss, 1995</td>
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<td>Mitchell, 2006</td>
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<td>Roediger, 2003</td>
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<td>Week 12</td>
<td>Memory awareness and aging</td>
<td>Levy, 1996</td>
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<td>Hess, Hinson, &amp; Stratham, 2004</td>
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<td>Chasteen, Bhattacharyya, Horhota, et al, 2005</td>
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<td>Hughes, Geraci, &amp; De Forrest, 2013</td>
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<td>Week 13</td>
<td>Class presentations</td>
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<tr>
<td>Week 14</td>
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<td>Research proposals due!</td>
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Grades will be assigned according to the following scheme:

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<td>49.50 – 69.49</td>
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<tr>
<td>00.00 – 49.49</td>
<td>F</td>
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</tbody>
</table>

Additional issues

**Attendance Policy:** Consistent with university policy, class attendance is viewed as an individual student responsibility. Students are expected to attend class and to complete all assignments. Students who miss exams, project or homework deadlines for a University approved reason will be given the opportunity to make up the graded work in accordance with University regulations. Further information about university policies may be found at: [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07)

**ADA Statement:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu)

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

Form Instructions

1. Course request type: □ Undergraduate □ Graduate □ First Professional (DDS, MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name): Department of Veterinary Integrative Biosciences
3. Course prefix, number and complete title of course: VIBS 621 Endocrine Toxicology
4. Catalog course description (not to exceed 50 words):
Impacts of endocrine toxicology on endocrine system; prevalence, environmental and occupational use and disposal of environmental endocrine disrupting chemicals (EDCs); and structure, toxicokinetics and mechanism of action of EDCs; effects of EDCs on the development and function, disorders, and diseases of the endocrine and reproductive organs.

5. Prerequisite(s): Graduate classification; approval of instructor
   Cross-listed with: □ Stacked with: VIBS 421
   Cross-listed courses require the signature of both department heads.

6. Is this a variable credit course? □ Yes □ No
   If yes, from ________ to ________
7. Is this a repeatable course? □ Yes □ No
   If yes, this course may be taken ________ times.
   Will this course be repeated within the same semester? □ Yes □ No
8. Will this course be submitted to the Core Curriculum Council? □ Yes □ No
9. How will this course be graded? □ Grade □ S/U □ P/F (CLMD)
10. 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)
      N/A

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

12. ☑ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vp.brscrresources-export-control/export-control-basics-for-distance-education).

13. Prefix Course # Title (excluding punctuation)
   VIBS 621 ENDOCRINE TOXICOLOGY

<table>
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   Approval recommended by:
   Evelyn Tiffany-Castilioni □ C. Jane Welsh □
   Department Head or Program Chair (Type Name & Sign) Date 10-13-12
   Chair, College Review Committee Date 10-14-14
   Department Head or Program Chair (Type Name & Sign) Date 10-14-14
   Dean of College Date

   Submitted to Coordinating Board by:
   Associate Director, Curricular Services

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 07/14
VIBS 421/621: ENDOCRINE TOXICOLOGY

Credit: 3; Spring 2015
Time: 11:10 A.M – 12:25 P.M
Days: Tuesdays and Thursdays
Class room: VMA 329

Director/Instructor:

Sakhila K. Banu, MSc, MPhil, PhD
Assistant Professor
Department of Veterinary Integrative Biosciences
College of Veterinary Medicine &
Biomedical Sciences
Texas A&M University, TAMU 4458
College Station, Texas 77843
Room# 105, VMR building
Phone: 979-458-3613
Fax: 979-847-8981
Email: skbanu@cvm.tamu.edu

Course Description:

VIBS 421 / VIBS 621. Credit 3. Environmental and occupational use of endocrine disrupting chemicals (EDCs); structure, toxicokinetics and mechanism of action of EDCs; effects of EDCs on the development and function, disorders, and diseases (including cancers) of the endocrine and reproductive organs. Detailed study on the endocrine toxicology of PCB, PBB, PAH, DIOXIN and BPA; plasticizers, pesticides, diethylstilbestrol, genistein and coumestrol, and heavy metal endocrine disruptors; and vinclozolin and atrazine, persistent organic pollutants (POPs). Clinical perspectives of EDCs, and their effects on estrogen and androgen receptor signaling, ovarian failure, oxidative stress/antioxidants, epigenetics, and an overview of research methodology to study EDCs.

Course learning outcomes:

Upon completion of the course, students will be able to:
1. Describe the most prevalent environmental endocrine disrupting chemicals (EDCs) in the environment; describe properties and the biological processes of EDCs' which modulate their toxicokinetics.
2. Understand molecular, cellular and pathophysiological responses of the endocrine organs resulting from exposure to EDCs.
3. Identify underlying mechanisms those contribute to endocrine diseases/disorders and intervention strategies to mitigate/prevent adverse effects of EDCs.
4. Explain research approaches to understand adverse effects of EDCs on endocrine organs.

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<td>Senior classification; Approval of the instructor.</td>
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<td>Exam-4: Case study report *:</td>
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<td>Exam-4: Descriptive (short essays) *: 40%</td>
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<tr>
<td>Total:</td>
<td>100%</td>
<td>Total: 100%</td>
</tr>
<tr>
<td>* Case Study Report: All students will be required to prepare a case study report (maximum total of</td>
<td></td>
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</tr>
</tbody>
</table>
The case study will require examining a chemical in a specific contaminated site (e.g., chromium in California and New Jersey) or a chemical that affects a more specific target endocrine organ (e.g., organochlorine and thyroid gland or dioxin and endometriosis), or choose one of the "World's worst polluted places", and select one particular EDC and its clinical/endocrinological relevance on the health of the people living in that environment. Alternatively, choose an EDC that is more relevant to occupational exposure etc., (the student can obtain help from the instructor to choose the topic). The case study will examine sources, pathways, transport, levels of contamination in the environment, remediation process (if any), and receptors in the target endocrine organ, and end-point diseases or disorders. The paper should be submitted according to a required format and will reference peer-reviewed work and reviews, website information, reports from USEPA and/or ATSDR, The Blacksmith Institute etc.

<table>
<thead>
<tr>
<th>Grading</th>
<th>90-100</th>
<th>A</th>
<th>90-100</th>
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<tr>
<td></td>
<td>Less than 60</td>
<td>F</td>
<td>Less than 60</td>
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</tbody>
</table>

Study Materials:

Hand out of the lecture will be given (Most of the objective questions will be taken from lectures). Particular book chapters or interested journals could be referred.

Course material will be derived from the following books & reviews.
1. Casarett & Doull's Essentials of Toxicology, by Curtis D. Klaassen and John B. Watkins III.
3. Our Stolen Future by Theo Colborn, Dianne Dumanoski, John Peterson Myers, published by Dutton.

Hand out of the lecture will be given (Most of the questions will be taken from lectures). Particular book chapters or interested journals could be referred.

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### 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. For additional information visit [http://cisability.tamu.edu](http://cisability.tamu.edu).

### Attendance Policies

A university-excused absence is the only excuse acceptable for missing an exam, case studies presentation, homework assignment or a class period (attendance). For information regarding what constitutes an excused absence, please see [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07). Late work is unacceptable, unless the student has a university-excused absence. All university excused absences should be verified through the BIMS office with proper documentation (ex. Doctor’s note etc.).  “Rule 7.3: Students may be excused from attending class on the day of a graded activity or when attendance contributes to a student’s grade, for the reasons stated in Section 7.1, or other reason deemed appropriate by the student’s instructor. Except in the case of the observance of a religious holiday, to be excused the student must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. In cases where advance notification is not feasible (e.g. accident, or emergency) the student must provide notification by the end of the second working day after the absence. This notification should include an explanation of why notice could not be sent prior to the class. Accommodations sought for absences due to the observance of a religious holiday can be sought either prior or after the absence, but not later than two working days after the absence”. Instructor’s contact email: skbanu@cvm.tamu.edu; office # 979-458-3613; and mobile: 979-255-3946.

### Academic Integrity Statement

“An Aggie does not lie, cheat, or steal or tolerate those who do.”
The student to the Honor Council Rules and Procedures can be found on the web: [http://aggiehonor.tamu.edu/](http://aggiehonor.tamu.edu/)

<table>
<thead>
<tr>
<th>Lec#</th>
<th>WEEK</th>
<th>Day &amp; Time</th>
<th>DATE</th>
<th>Title/Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Week 1</td>
<td>Thursday 11:10 A.M-12.25 P.M</td>
<td>1/22/2015</td>
<td>Introduction to Environmental Endocrine Disrupting Chemicals (EDC).</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Tuesday 2:20-3:35PM</td>
<td>1/27/2015</td>
<td>Influence of EDCs on Learning and Memory, and Their Effects on Neurocognitive Disorders.</td>
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<tr>
<td>Week</td>
<td>Date</td>
<td>Time</td>
<td>Topic</td>
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<tr>
<td>4</td>
<td>Thursday</td>
<td>11:10 A.M-12:25 P.M</td>
<td>1/29/2015</td>
<td>Structure and Toxicokinetics of Polychlorinated biphenyls (PCBs), Polybrominated Biphenyls (PBBs) &amp; Polycyclic Aromatic Hydrocarbons (PAH); and Their Effects on Hypothalamo-Pituitary-Thyroid (HPT) Axis.</td>
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<tr>
<td>5</td>
<td>Tuesday</td>
<td>11:10 A.M-12:25 P.M</td>
<td>2/3/2015</td>
<td>Effects of PCBs and PBBs on Male and Female Reproductive System.</td>
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<tr>
<td>7</td>
<td>Tuesday</td>
<td>11:10 A.M-12:25 P.M</td>
<td>2/10/2015</td>
<td>Structure and Toxicokinetics of Dioxins &amp; Bisphenol A (BPA); and Their Effects on Male and Female Reproduction, and Fetal Development.</td>
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<td>9</td>
<td>Tuesday</td>
<td>11:10 A.M-12:25 P.M</td>
<td>2/17/2015</td>
<td>REVIEW AND DISCUSSION - 1</td>
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<td>10</td>
<td>Thursday</td>
<td>11:10 A.M-12:25 P.M</td>
<td>2/19/2015</td>
<td>EXAM - 1</td>
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<tr>
<td></td>
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<td></td>
<td>Phase II: Plasticizers, pesticides, diethylstilbestrol, genistein and coumestrol, bioremediation of EDCs, and heavy metal endocrine disruptors.</td>
<td></td>
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<tr>
<td>11</td>
<td>Tuesday</td>
<td>11:10 A.M-12:25 P.M</td>
<td>2/24/2015</td>
<td>Structure and Toxicokinetics of Plasticizers Phthalates; and Reproductive and Developmental Toxicity of Phthalates.</td>
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<td>16</td>
<td>Thursday</td>
<td>11:10 A.M-12:25 P.M</td>
<td>3/12/2015</td>
<td>Heavy Metal Toxicity &amp; Endocrine Disruption.</td>
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<tr>
<td>3/16/15 – 3/20/15</td>
<td></td>
<td></td>
<td>SPRING BREAK</td>
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</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td>Phase III: Vinclozolin and atrazine, Persistent Organic Pollutants (POPs), Clinical perspectives, Epigenetics and ER-signaling and EDCs, ovarian failure, oxidative stress/antioxidants and EDCs; and mechanistic</td>
<td></td>
</tr>
<tr>
<td>Week 11</td>
<td>Tuesday 11.10 A.M-12.25 P.M</td>
<td>4/7/2015</td>
<td>Epigenetics and Environmental Endocrine Disruptors.</td>
<td></td>
</tr>
<tr>
<td>Week 12</td>
<td>Tuesday 11.10 A.M-12.25 P.M</td>
<td>4/14/2015</td>
<td>Occupational and Environmental Exposure to EDCs and Reproductive Failure.</td>
<td></td>
</tr>
</tbody>
</table>
| Week 13 | Tuesday 11.10 A.M-12.25 P.M | 4/21/2015 | (i) In vivo and In vitro Research Approaches to Understand the Basic Mechanisms of Endocrine Disruption.  
(ii) Policies and Regulations of EDCs.  
(iii) Bioremediation.  
ANNOUNCEMENTS ABOUT CASE STUDY REPORT – ASSIGNMENT QUESTIONS  
Thursday 11.10 A.M-12.25 P.M | 4/23/2015 | REVIEW AND DISCUSSION - 3 |
| Week 14 | Tuesday 11.10 A.M-12.25 P.M | 4/28/2015 | Preregistration for the 2015 first term, second term, 10-week summer semester, and fall semester.  
Thursday 11.10 A.M-12.25 P.M | 4/30/2015 | EXAM – 3 |
| Week 15 | Tuesday 11.10 A.M-12.25 P.M | 5/5/2015 | Exam preparation; no classes  
Thursday 11.10 A.M-12.25 P.M | 5/7/2015 | FINAL EXAM – ASSIGNMENTS – CASE REPORT DUE |

Return the case study report and assignment to Dr. Banu  
Email: skbanu@cvm.tamu.edu
May 2, 2014

Sakhila K. Banu, PhD, Assistant Professor
Department of Veterinary Integrative Biomedical Sciences
College of Veterinary Medicine & Biomedical Sciences
Texas A&M University
College Station, TX 77843-4458

RE: Endocrinology Toxicology Course Offerings – VIBS 421/621

Dr. Banu –

Faculty in the Department of Veterinary Physiology & Pharmacology have reviewed your material for the “Endocrinology Toxicology” - VIBS 421/621 course offerings and find no conflict or overlap with existing courses in our department. We are therefore supportive of your request to make this a permanent course offering.

Let me know if additional information is needed.

John N. Stallone, Interim Head
Department of Veterinary Physiology & Pharmacology
May 01, 2014

Dr. Evelyn Tiffany-Castiglioni
Professor and Head
Department of Veterinary Integrative Biosciences
Associate Dean for Undergraduate Education
College of Veterinary Medicine & Biomedical Sciences
Texas A&M University

Dear Castiglioni:

RE: Support letter for VIBS 421 / VIBS 621: Endocrine Toxicology course.

As Chair of the Interdisciplinary Faculty of Toxicology at Texas A&M University (TAMU), I am writing to strongly confirm my support for Dr. Sakhila Banu’s Endocrine Toxicology course. Dr. Banu developed the course Endocrine Toxicology and taught the course for the first time in the spring of 2013. She has successfully taught the course for the past 2 years, and is planning to teach every Spring semester. When she formed her syllabus, she discussed it with me and other colleagues in the College of Veterinary Medicine to avoid possible overlap with other courses at TAMU. In addition, the syllabus was reviewed by the executive committee of the Interdisciplinary Faculty of Toxicology (IFT); and five external reviewers (one international and four national) outside of the Texas A&M University, who are experts in the field of endocrine and/or reproductive toxicology. Their comments about the course indicate that it is well-designed and will be an outstanding contribution to our program.

Endocrine Toxicology has excellent lecture materials, and (again) will not be competing with any course on the campus. Course materials are up-to-date, very thorough, timely, in-depth, solid and very comprehensive. As the reviewers had mentioned, the course covers every essential topic in the endocrine toxicology field. Dr. Banu is an excellent teacher, and she has highly recommended from former students who took the course.

Therefore, I support full course status for Endocrine Toxicology.

Thank you,

Timothy D. Phillips, M.S., Ph.D. ATS, Faculty Fellow
Chair, Interdisciplinary Faculty of Toxicology
Distinguished Professor
Reed Endowed Chair in Toxicology

IFT
Texas A&M University
4461 TAMU
College Station, TX 77843-4461

Tel. 979.845.5529 Fax. 979.862.4929
http://toxicology.tamu.edu
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and attach a course syllabus.

4. Catalog course description (not to exceed 50 words):
The course is an overview of animal models of obesity. Special emphasis will be on rodent genetically engineered models of obesity related to diabetes mellitus type 2 ("obesity related diabetes") and leptin research to understand metabolism, molecular biology, and origin of lipids as signaling molecules important in obesity.

5. Prerequisite(s):
   Cross-listed with: __________
   Stacked with: __________
   Consent of instructor; minimum 3 credit hours of undergraduate or graduate biochemistry

6. Is this a variable credit course? __Yes ______ No
   If yes, from _______ to _______

7. Is this a repeatable course? __Yes ______ No
   If yes, this course may be taken ______ times.
   Will this course be repeated within the same semester? __Yes ______ No

8. Will this course be submitted to the Core Curriculum Council? __Yes ______ No

9. How will this course be graded? __Grade ______ S/U ______ P/F (CLMD)

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

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

12. I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

<table>
<thead>
<tr>
<th>Prefix</th>
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<th>Title (excluding punctuation)</th>
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<tbody>
<tr>
<td>VTMI</td>
<td>602</td>
<td>Animal Models of Obesity</td>
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<th>Lect.</th>
<th>Lab</th>
<th>Other</th>
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<th>GRA</th>
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<th>Admin. Unit</th>
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<td>10-0002</td>
<td>2907</td>
<td>15 - 16</td>
<td>00 3 6 3 2</td>
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</table>

Approval recommended by: ______________________ Date 9/20-14

Department Head or Program Chair (Type Name & Sign)

Chair, College Review Committee Date 9/30-14

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

Dean of College Date 9/30-14

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

Associate Director, Curricular Services Date Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu
Curricular Services – 07/14
Animal Models of Obesity
VTMI 602
4 credits
Fall 2015
TBA Rm 308 VMR Building

Course Description and Prerequisites

The course is an overview of the role that animal models play in studying obesity. Special emphasis will be placed on rodent and genetically engineered mouse models of obesity related to diabetes mellitus type 2 ("obese diabetes") and mixed diabetic models, particularly genetically engineered, spontaneous, and induced models, to understand intracellular transport, metabolism, molecular biology and origin of lipids as signaling molecules and binding with nuclear receptors important in metabolism, literature evaluation, and communication of rationales to other scientists. Prerequisite: VPAT 601 Comparative Pathology.

Learning Outcomes or Course Objectives

This course is an overview of the role of animal models in obesity, especially in diabetes mellitus. Animal model design advantages and disadvantages encountered by biological scientists in the conduct of their research, in their evaluation of the literature in the field, in their pursuit of grant resources, and design and publication of experiments will be discussed. The course aims to introduce graduate students in pathology, laboratory animal medicine and other life sciences to these issues involving animal models at an early stage in their careers. Students should develop vocabulary and thinking skills that will enhance their ability to make informed judgments on studies of metabolism in vivo, evaluating the appropriate use of such animals by others in the literature and in presentations, and to communicate the rationale for their decisions to other scientists and to the broader public.

Instructor Information

Dr. Ann Kier
(979) 862-1509
akier@cvm.tamu.edu
Wed 3:00-5:00
Rm 383 VMR Building

Textbook and/or Resource Material

Christos S. Mantzoros (Ed). Obesity and Diabetes. Humana Press, 1st edition, 2010. In addition, numerous handouts will be provided reviewing select aspects of obesity in animal models.
Attendance Policy

Your presence and participation is expected at all class meetings. The University and College have published guidelines defining excused vs. unexcused absence. If an absence is excused, the instructor will either provide the student an opportunity to make up any quiz, exam or other work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial absence. The reasons absences are considered excused by the university are listed below. See Student Rule 7 for details (http://student-rules.tamu.edu/rule07). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.

1) Participation in an activity that is required for a class and appears on the university authorized activity list at https://studentactivities.tamu.edu/app/sponsauth/index
2) Death or major illness in a student's immediate family.
3) Illness of a dependent family member.
4) Participation in legal proceedings or administrative procedures that require a student's presence.
5) Religious holy day. NOTE: Prior notification is NOT required.
6) Injury or illness that is too severe or contagious for the student to attend class.
   a) Injury or illness of three or more class days: Student will provide a medical confirmation note from his or her medical provider within one week of the last date of the absence (see Student Rules 7.1.6.1)
   b) Injury or illness of less than three class days: Student will provide one or both of these (at instructor's discretion), within one week of the last date of the absence: (i.)Texas A&M University Explanatory Statement for Absence from Class form available at http://attendance.tamu.edu or (ii.) Confirmation of visit to a health care professional affirming date and time of visit.
7) Required participation in military duties.
8) Mandatory admission interviews for professional or graduate school that cannot be rescheduled. Other absences may be excused at the discretion of the instructor with prior notification and proper documentation. In cases where prior notification is not feasible (e.g., accident or emergency) the student must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class.

If an examination is missed due to an excused absence, a makeup will be offered. The make-up examination must be completed promptly (within one week of the absence), at a time and place determined by the instructor. Unexcused absence from an examination, or failure to complete a makeup examination, will result in a grade of "zero" (no grading points) for the examination.

Grading Policies

Students will be evaluated on the basis of a midterm presentation and submission of a final term paper focused on a topic covered in the course. Each will count 50% of the final grade. Grading scale: A = 90-100, B = 80-89, C = 70-79, D = 60-69, F = < 60, I = incomplete.
Course Topics, Calendar of Activities, Major Assignment Dates

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction: epidemiology and pathophysiology</td>
<td>Ch. 1, 2</td>
</tr>
<tr>
<td>2</td>
<td>Genetics of obesity</td>
<td>Ch. 3</td>
</tr>
<tr>
<td>3</td>
<td>Signals of energy homeostasis, Leptin receptors</td>
<td>Ch. 4, 5</td>
</tr>
<tr>
<td>4</td>
<td>Atherosclerosis and models</td>
<td>Ch. 13, Publications</td>
</tr>
<tr>
<td>5</td>
<td>Metabolic syndrome and models</td>
<td>Ch. 9</td>
</tr>
<tr>
<td>6</td>
<td>Obesity complications and models</td>
<td>Ch. 10, Publications</td>
</tr>
<tr>
<td>7</td>
<td>Student midterm presentations</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Mixed diabetes mellitus and models; complications of obesity/diabetes and models: accelerated cardiovascular disease</td>
<td>Publications</td>
</tr>
<tr>
<td>9</td>
<td>Complications of obesity/diabetes and models: hypertension</td>
<td>Ch. 17, Publications</td>
</tr>
<tr>
<td>10</td>
<td>Statins and other pharmaceutical interactions and models</td>
<td>Publications</td>
</tr>
<tr>
<td>11</td>
<td>Diet and lifestyle factors; surgical treatments</td>
<td>Ch. 24, 28, Publications</td>
</tr>
<tr>
<td>12</td>
<td>Paired feeding nutritional experiments-animal model design</td>
<td>Publications</td>
</tr>
<tr>
<td>13</td>
<td>High fat/high cholesterol nutrition experiments-animal model design</td>
<td>Publications</td>
</tr>
<tr>
<td>14</td>
<td>Presentations and final term paper due</td>
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</tr>
</tbody>
</table>

Other Pertinent Course Information

Americans with Disabilities Act (ADA)

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Academic Integrity

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

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

It is further recommended that instructors print the following on assignments and examinations: “On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work.”

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

Form Instructions
1. Course request type:
   - Undergraduate
   - Graduate
   - First Professional (DVM, MD, JD, PharmD, DMD)
2. Request submitted by (Department or Program Name):
   Department of Animal Science
3. Course prefix, number and complete title of course:
   ANSC 615 Comparative Ruminant Animal Nutrition

4. Change requested
   a. Prerequisite(s): From: ANSC 107, ANSC 108 To: ANSC 603 or ANSC 604 or instructor approval
   b. Withdrawal (reason):
   c. Cross-list with:

5. Is this an existing core curriculum course?
   - Yes
   - No
6. If grade type is changing for existing course, indicate the new grade type:
   - Grade
   - S/U
   - P/F (CLARD)
7. If this course will be stacked, please indicate the course number of the stacked course:
   ANSC 415
8. I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-
   controls/export-controls-basics-for-distance-education).
9. Complete current course title and current catalog course description:
   ANSC 615 Comparative Ruminant Animal Nutrition
   Contrast two scenarios of ruminant production in Brazil; the effects of globalization on the two different production systems

10. Complete proposed course title and proposed catalog course description (not to exceed 50 words):
    ANSC 615 Brazil: Comparative Ruminant Production
    Contrast two scenarios of ruminant production in Brazil; the effects of globalization on the two different production systems

11. a. As currently in course inventory:

   Prefix Course # Title (excluding punctuation)
   ANSC 615 Comp Ruminant Animal Nutrition

   Lect. Lab Other Sub CIP and Fund Code Admin. Unit HG Code Level
   3.00 0.00 0.00 3.00 1090100005 0270 0 0 3 6 3 2 6

   b. Change to:

   Prefix Course # Title (excluding punctuation)
   ANSC 615 Braz Comp Ruminant Production

   Lect. Lab Other Sub CIP and Fund Code Admin. Unit Acad. Year HG Code Level
   3.00 0.00 0.00 3.00 1090100005 0270 15 16 0 0 3 6 3 2

   Approval recommended by:
   H. Russell Cross Department Head or Program Chair (Type Name & Sign) Date

   Chair, College Review Committee
   Dean of College Date

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

   Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8291 or sandra.williams@tamu.edu,
Curricular Services – 08/14
Statement for changes
ANSC 615

4a. Prerequisites- The prerequisites originally approved were not intended for this graduate level course. The proposed prerequisites are appropriate for this graduate level course.

10. Proposed course title- There was a mistake in the wording in the original title that emphasized animal nutrition. The proposed course title reflects the intended emphasis of production and matches the stacked course ANSC 415. There is no change in the course description.

11b. The abbreviated title should be changed from Braz Comp Ruminant Nutr to Braz Comp Ruminant Prod.
ANSC 615 Brazil: Comparative Ruminant Production

Summer Course

May 29, 2015 to June 18, 2015

Texas A&M Instructors
Prof. Luis O. Tedeschi
230 Kleberg Center
2471 TAMU
Phone: (979) 845-5065
luis.tedeschi@tamu.edu

Brazilian University Invited Instructors
Universidade Federal Rural de Pernambuco
To be determined

Cathryn Clement (Invited instructor)
Borlaug Institute for International Agriculture
100 Teague Building
Office: 979-458-0820
clement@ag.tamu.edu

Prof. Raul Franzolin Neto
Universidade de São Paulo
Faculdade de Zootecnia e Engenharia de Alimentos
rfrazol@usp.br

Course Information: This course will expose students to two contrasting and different scenarios of ruminant production in Brazil. Ruminant animals (cattle, water buffalo, sheep, and goats) have an unambiguous characteristic: they can convert human-inedible resources (e.g. cellulose) into animal products (e.g. milk and meat) for human consumption. Globalization has imposed changes in economic and political arenas. Certain changes in the international agriculture have created new opportunities for efficient production of ruminants in different parts of the world. Brazil and the US together have the largest commercial herd of ruminant animals in the world and different production systems. Students will attend a one week at the Universidade Federal Rural de Pernambuco (UFRPE) in which small ruminants (sheep and goats) and forage production will be emphasized. Then, in the following week, students will spend a week at the Universidade de São Paulo, Campus Pirassununga (USP/FZEA), to learn about large ruminant production (beef and dairy cattle, water buffalo, and product processing).

Credits: This is a 3-credit course.

Course requirements: The prerequisite for this course is general animal science courses (ANSC 603 and/or ANSC 604) or approval of the instructor.

Travel abroad requirements: Students will need to obtain a student visa to travel to Brazil.

Textbooks: There will not be a required textbook for this course. See list of references at the end for further information.
Learning Outcomes: Upon taking this course the student will be able to...

- gain an in-depth understanding of ruminant animal production of small ruminant and compare it to large ruminant
- understand how globalization impacts the production industry
- prepare a written and oral report of current industry issues dealing with ruminant animal production

Grading System: Grades will be on a letter basis (50% from an on-site oral presentation and 50% from a report). Student will have to (1.) make a presentation about the ruminant production systems visited and compare them with US production systems. Additional requirements for ANSC 615 graduate credit: write a report (from 5 to 10 pages, single spaced, no title page, and with line and page numbers). Final reports will be due on June 27, 2015.

Presentations will be graded as described below and each item is worth 10 points.

| Organization and technicality. Information presented was sound, good use of sketches, graphics, and table to convey the information. |
| Visual: slides, overheads, handouts; use of animations. |
| Speaking: Ability to convey the information clearly based on volume, pace/rhythm, and intonation. Jokes were inappropriate. |
| Explanation: Speaker was able to command and control the subject; explained well the concepts. |
| Questions: Speaker was able to clearly answer questions, go to the point, and provide feedback to the audience. |

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-site oral presentation</td>
<td>50</td>
</tr>
<tr>
<td>Student report</td>
<td>50</td>
</tr>
<tr>
<td>Total Points Possible:</td>
<td>100</td>
</tr>
</tbody>
</table>

Final grade: A ≥ 90 points, B = 80-89 points, C = 70-79 points, D = 60-69 points, F ≤ 59 points. Final grades will be made available as soon as possible, and will be posted online. Actual reports will be returned to the student.

Americans with Disabilities Act (ADA) Policy Statement:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 979-845-1637. For additional information visit http://disability.tamu.edu.
Academic Integrity Statement:

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

For more information on Academic Integrity, please refer to the Honor Council Rules and Procedures on the web a work product in an attempt to pass off the work as one's own; attempting to receive credit for work performed by another, including papers obtained in whole or in part from individuals or other sources." Plagiarism is one of the worst academic sins because it destroys the trust among colleagues without which research cannot be safely and widely communicated (http://aggiehonor.tamu.edu).

Course outline

Texas A&M University

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 29, 2015 (FRIDAY)</td>
<td>Briefing about the visit sites in Brazil</td>
</tr>
<tr>
<td>May 30, 2015 (SATURDAY)</td>
<td>Travel: Houston to São Paulo</td>
</tr>
<tr>
<td>May 31, 2015 (SUNDAY)</td>
<td>Travel: São Paulo to Recife</td>
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</table>

Universidade Federal Rural de Pernambuco
<table>
<thead>
<tr>
<th>Dates</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 31, 2015 (SUNDAY)</td>
<td>9am – 3pm City tour (Recife and Olinda)</td>
</tr>
<tr>
<td>June 1, 2015 (MONDAY)</td>
<td>9am – 10am Overview of biomes and forage production systems in Brazil</td>
</tr>
<tr>
<td></td>
<td>(Dr. Dubeux)</td>
</tr>
<tr>
<td></td>
<td>10am – 12pm Visit forage facilities (forage plots and laboratories) at</td>
</tr>
<tr>
<td></td>
<td>DZ/UFRPE</td>
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<tr>
<td></td>
<td>12pm – 2pm Lunch</td>
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<tr>
<td></td>
<td>2pm – 3pm Overview of small ruminant production systems in Brazil (Dr.</td>
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<td></td>
<td>Guim)</td>
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<tr>
<td></td>
<td>3pm – 4pm Overview of small ruminant production systems in the US (Dr.</td>
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<td></td>
<td>Tedeschi)</td>
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<tr>
<td></td>
<td>4pm – 6pm University tour (veterinary medicine, agronomy, soils and</td>
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<tr>
<td></td>
<td>fisheries)</td>
</tr>
<tr>
<td>June 2, 2015 (TUESDAY)</td>
<td>8am – 6pm Visit Experimental Station in Itambé, PE, on the Coastal area;</td>
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<tr>
<td></td>
<td>experimentation on tropical grasses and legumes for crossbred cattle and</td>
</tr>
<tr>
<td></td>
<td>sheep</td>
</tr>
<tr>
<td>June 3, 2015 (WEDNESDAY)</td>
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<tr>
<td>------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>9am – 10am</td>
<td>Major forage species grown in Brazil (Dr. Dubeux)</td>
</tr>
<tr>
<td>10am – 11am</td>
<td>Visit forage anatomy lab for practical classes in forage anatomy and its links with forage nutrition values</td>
</tr>
<tr>
<td>11am – 12am</td>
<td>Comparative analysis between anatomical, physiological, and nutritional aspects of tropical grasses and temperate grasses (Dr. Dubeux)</td>
</tr>
<tr>
<td>12pm – 2pm</td>
<td>Lunch</td>
</tr>
<tr>
<td>2pm – 3pm</td>
<td>Major sheep and goats breeds in Brazil (Dr. Ribeiro)</td>
</tr>
<tr>
<td>3pm – 5pm</td>
<td>Visit small ruminant facilities at DZ/UFRPE</td>
</tr>
<tr>
<td>5pm – 6pm</td>
<td>Nutritional requirements of sheep and goats – focus on Brazilian breeds (Dr. Robson)</td>
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<thead>
<tr>
<th>June 4, 2015 (THURSDAY)</th>
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</thead>
<tbody>
<tr>
<td>8am – 6pm</td>
<td>Visit Caroatá Farm, a nationwide famous farm for raising pure breeds sheep and goats; Visit a meat goat farmer in Bezerros; Lunch; Visit local handcraft center</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>June 5, 2015 (FRIDAY)</th>
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</thead>
<tbody>
<tr>
<td>8am – 6pm</td>
<td>Visit Caruaru Experimental Station and small farms in the region</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>June 6, 2015 (SATURDAY)</th>
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</thead>
<tbody>
<tr>
<td>8am – 6pm</td>
<td>Beach tour (Porto de Galinhas, PE)</td>
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<table>
<thead>
<tr>
<th>June 7, 2015 (SUNDAY)</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Travel: Recife to Pirassununga, São Paulo</td>
</tr>
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</table>
### Overview of the Extensive and Intensive Beef Cattle Production Systems in Brazil (Drs. Paulo Leme and Saulo Silva)

**Coffee Break**

**Overview of the Beef Cattle Production in the US (Dr. Tedeschi)**

**Zebu, European, and Crossbreed Cattle and Genetic Improvement and Management (Dr. José Bento S. Ferraz)**

**Visit beef cattle grazing and feedlot production facilities at USP**
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 9, 2015</td>
<td>8am – 5pm</td>
<td>Visit beef cattle farms in Sao Paulo state</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>June 10, 2015</strong> (WEDNESDAY)</td>
</tr>
<tr>
<td>8am – 9:30am</td>
<td></td>
<td>Overview of the dairy cattle production and breeds in Brazil</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Dr. Arlindo Saran Netto)</td>
</tr>
<tr>
<td>9:30am – 10am</td>
<td></td>
<td>Coffee break</td>
</tr>
<tr>
<td>10am – 11am</td>
<td></td>
<td>Nutrition and feeding of calves and heifers and system management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Dr. Arlindo Saran Netto)</td>
</tr>
<tr>
<td>11am – 12pm</td>
<td></td>
<td>Nutrition and feeding research in dairy cattle (Dr. Marcus Zanetti)</td>
</tr>
<tr>
<td>12pm – 2pm</td>
<td></td>
<td>Lunch</td>
</tr>
<tr>
<td>2pm to 5pm</td>
<td></td>
<td>Visit dairy cattle facilities and dairy processing unit at USP</td>
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<tr>
<td></td>
<td></td>
<td><strong>June 11, 2015</strong> (THURSDAY)</td>
</tr>
<tr>
<td>8am – 5pm</td>
<td></td>
<td>Visit dairy cattle farms in Sao Paulo state</td>
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<td></td>
<td></td>
<td><strong>June 12, 2015</strong> (FRIDAY)</td>
</tr>
<tr>
<td>8am – 9am</td>
<td></td>
<td>Types, species, and origin of buffalos; Overview of water</td>
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<td></td>
<td></td>
<td>buffalo production in India, Italy, and Brazil (Dr. Raul Franzolin)</td>
</tr>
<tr>
<td>9am – 9:15am</td>
<td></td>
<td>Coffee break</td>
</tr>
<tr>
<td>9:15am – 10:15am</td>
<td></td>
<td>Water buffalo breeds, meat, milk, and work production;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>management and dairy products (Dr. Raul Franzolin)</td>
</tr>
<tr>
<td>10:15am – 11am</td>
<td></td>
<td>Visit water buffalo production facilities at USP</td>
</tr>
<tr>
<td>11am – 12am</td>
<td></td>
<td>Lunch</td>
</tr>
<tr>
<td>12am – 5pm</td>
<td></td>
<td>Visit water buffalo farm and dairy product in São Paulo state</td>
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<tr>
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<td></td>
<td><strong>June 13, 2015</strong> (SATURDAY)</td>
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<tr>
<td>8am – 5pm</td>
<td></td>
<td>FEICORTE 2012 (International Beef Production Fair and Exhibition),</td>
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<tr>
<td></td>
<td></td>
<td>São Paulo, SP</td>
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<td></td>
<td><strong>June 14, 2015</strong> (SUNDAY)</td>
</tr>
<tr>
<td>8am – 5pm</td>
<td></td>
<td>Rural Adventure (walking, waterfalls, horse ride), Brotas, SP</td>
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<tr>
<td></td>
<td></td>
<td><strong>June 15, 2015</strong> (MONDAY)</td>
</tr>
<tr>
<td>2pm – 4pm</td>
<td></td>
<td>ANSC 489/689 students’ presentations</td>
</tr>
<tr>
<td>4pm – 6pm</td>
<td></td>
<td>F7FA/USP International Academic Integration Workshop; students’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>presentations</td>
</tr>
<tr>
<td>6pm – 7pm</td>
<td></td>
<td>Closing and reception</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>June 16, 2015</strong> (TUESDAY)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Travel Pirassununga to Sao Paulo city, to Houston, TX</td>
</tr>
</tbody>
</table>
References


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

Form Instructions
1. Course request type:
   ☐ Undergraduate  ☒ Graduate  ☐ First Professional (DVM, MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name): Select or Type Department/Program Name
3. Course prefix, number and complete title of course: BIOL 611 MOLEC BIOLOG DIFF & DEV
4. Change requested
   a. Prerequisite(s): From: __________________________ To: __________________________
   b. Withdrawal (reason):
   c. Cross-list with:
      Cross-listed courses require the signature of both department heads.
   d. Change in course title and description. Enter complete current course title and current course description in item 5; enter proposed course title and proposed course description in item 6. Complete item 7 for change in title.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 7. Attach a course syllabus.
5. Is this an existing core curriculum course? ☐ Yes ☐ No
6. If grade type is changing for existing course, indicate the new grade type: ☒ Grade ☐ S/U ☐ P/F (LMD)
7. If this course will be stacked, please indicate the course number of the stacked course:
   ☒ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).
8. Complete current course title and current catalog course description:
   BIOL 611 - MOLECULAR BIOLOGY OF DIFFERENTIATION AND DEVELOPMENT. Major paradigms of eukaryotic gene regulation in terms of the role of gene expression during ontogeny and the effect of dysfunction in these processes in the neoplastic state.
9. Complete proposed course title and proposed catalog course description (not to exceed 50 words):
   BIOL 611 - DEVELOPMENTAL GENETICS

11. a. As currently in course inventory:
   Prefix  Course #  Title (excluding punctuation):
   BIOL  611  MOLEC BIOLOG DIFF & DEV
   Lect  Lab  Other  SCH  CIP and Fund Code  Admin Unit  ECE Code  Level
   3.00  0.00  -  3.00  2604040002  440  0  0  3  6  3  2  5
   b. Change to:
   Prefix  Course #  Title (excluding punctuation):
   BIOL  611  DEVELOPMENTAL GENETICS
   Lect  Lab  Other  SCH  CIP and Fund Code  Admin Unit  Aced Year  HCE Code  Level
   3.00  0.00  -  3.00  2604040002  440  0  0  3  6  3  2  5
   Approval recommended by:
   Department Head or Program Chair (Type Name & Sign) Date 8-18-14
   Chair, College Review Committee Date 8-19-14
   Dean of College Date 8-22-14
   Chair, GC or UCO Date
   Submitted to Coordinating Board by:
   Associate Director, Curricular Services

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services • 07/14
Biology 611: Molecular Biology of Differentiation and Development

Bruce Riley (845-6494, briley@mail.bio.tamu.edu)
Jim Erickson (862-2204, jerickson@mail.bio.tamu.edu)

Tuesday and Thursday 9:30-11:00, room 117 Heldenfels.

Aug. 27
Overview of course objectives.
Introduction to historical perspectives and basic concepts.

Aug. 29
Intro to vertebrates
Nodal signaling and organizer activity in zebrafish.


Sep. 3
Wnt8 and coordination of AP and DV axes in zebrafish.


Sep. 5
Epithelial-Mesenchymal Transition (EMT) in development & cancer.


Sep. 10
Fgf, Bmp and DV patterning in zebrafish.


Sep. 12
Delta-Notch signaling, neurogenesis, and regulation by ubiquitin ligase.

Sep. 17
Somitogenesis and molecular clocks.


Sep. 19
HOX/HOM genes and AP patterning.


Sep. 24
Hedgehog signaling and axon guidance.


Sep. 26
Intro to Drosophila
Drosophila axis determination (AP axis): Transcriptional control of development.


Oct. 1
Drosophila axis determination (DV axis): Transcriptional control of development.


Oct. 3


Oct. 8
Translational control of fly development.


Oct. 10
Dissection of the EGFR pathway in Drosophila eye development.


Oct. 15
Branching morphogenesis and tracheal development in Drosophila.


Oct. 17
Sex Determination.


Oct. 22
MIDTERM EXAM.

Oct. 24
Introduction to C. elegans
Axis determination.

Oct. 29
Convergence of multiple signals in C. elegans vulval induction.


Oct. 31
Programmed cell death and the CED pathway in C. elegans.


Nov. 5
Developmental timing: Heterochrony and regulation by micro-RNA.


Nov. 7
Aging and longevity.


Nov. 12
Introduction to Arabidopsis
Auxin signaling & symmetry-breaking.


Nov. 14
Cell signaling and meristem maintenance.

Nov. 19
Intro to Evo-Devo
Descent with modification.


Nov. 21
The concept of developmental modules.


Nov. 26
Developmental constraints and phenotypic variation.

Syllabus part 2

Course Objectives:
1. Learn general principles and specific mechanisms of development.
2. Become familiar with the advantages and limitations of commonly studied genetic model organisms.
3. Gain experience in critical reading and interpretation of primary research articles.

Course Format for class meetings:
We will be discussing literature papers in the order listed on the syllabus. Papers are available online through the electronic journals page of the Medical Sciences Library (only through an on-campus computer or through dial-up modem/connection through the University). [Link]. The instructors will assume that you have read the paper PRIOR to arriving at the meeting and are ready to discuss the following issues:

- What was the previous information that led to the question being asked in the paper?
- What is the hypothesis being tested?
- How does the hypothesis relate to or extend what we have discussed earlier or what you may know from other classes?
- What is the design and method of the experiments?
- What were the assays used to examine developmental events?
- How did their results address or relate to their hypothesis?
- Did they prove their point to your satisfaction? If not, what would you have liked to see them do?

Grading: Your grade will be based on four criteria, all weighted equally. The four criteria are as follows:

1) Attendance and participation during class discussions. Asking questions, raising points, answering questions posed by the instructors or classmates and volunteering information are some ways in which you can participate. Of course full participation also requires thorough reading of all assigned papers.

2) Homework assignments. For the first half of the semester, each paper will be accompanied by a set of homework problems designed to make you think about the paper on a deeper level. Homework is DUE at the beginning of the class session in which the paper will be discussed. NO late homework assignments will be accepted.

Notes on plagiarism: When answering homework problems, you may draw from information gleaned from books, articles, etc., but do not simply transcribe (copy word-for-word) any material written by others. You must state all concepts in your own words. If you are describing a complex concept or a model obtained from another author (as opposed to a general principle), use appropriate citation practices. Plagiarism is a very serious offense that has become increasingly common in recent years. Any student caught plagiarizing will receive zero credit for that homework assignment. If there is a
second offense, the student will be summarily dismissed from the course (with an automatic F) and may face expulsion from the university.

3) You will be responsible for presentation of papers for two class periods during the semester. This means providing background, understanding the experimental approaches and interpretations, critiquing experimental design or the authors' conclusions, and being able to lead the group discussion. The background given in the paper will NOT generally be sufficient for your presentation. You should attempt to give a more in-depth introduction to the paper. You are encouraged to discuss your assigned paper with one of the instructors prior to your class presentation. Students are strongly advised to prepare well in advance to allow sufficient time to confer with the instructor and make necessary adjustments to your presentation. We suggest starting at least a week ahead of time if you have not done this type of presentation before.

4) A written midterm exam will be conducted halfway through the semester. The exam will test your understanding and recall of core concepts and developmental mechanisms covered during the first half of the semester. These concepts and mechanisms will also provide a foundation for class discussions in the second half of the semester.

Links that might be helpful:

http://flybase.bio.indiana.edu/

http://www.wormbase.org/

http://www.informatics.jax.org/

http://zfin.org

http://biocourse.bio.tamu.edu/faculty/pepper/awg/

(The last url has various links to sites related to Arabidopsis).
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
• Submit original form and attachments •

Form Instructions
1. Request submitted by (Department or Program Name): Electrical and Computer Engineering
2. Course prefix, number and complete title of course: ECEN 773 - Introduction to Nanophotonics

Change requested
a. Prerequisite(s): From: equivalent. 322 electromagnetic or equivalent To: Instructor approval
b. Withdrawal (reason): Graduate students unable to register with pre-requisites in place
c. Cross-list with:

Cross-listed courses require the signature of both department heads.
d. Change in course title and description. Enter complete current course title and current course description in item 5; enter proposed course title and proposed course description in item 6. Complete item 7 for change in title.
e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 7. Attach a course syllabus.

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

5. Complete current course title and current catalog course description: Photonic bandgap optical circuitry, photonic crystal fiber, Visible to infrared semiconductor quantum lasers; Semiconductor quantum dots. Plasmonic field enhancement, plasmonic optical circuitry, sub-wavelength optical lithography, negative refractive index and sub-wavelength optical imaging. Nano-structure characterization techniques, atomic force microscopy, near-field optical microscopy, scanning and transmission electron microscopy.

6. Complete proposed course title and proposed catalog course description (not to exceed 50 words): Photonic bandgap optical circuitry, photonic crystal fiber, Visible to infrared semiconductor quantum lasers; Semiconductor quantum dots. Plasmonic field enhancement, plasmonic optical circuitry, sub-wavelength optical lithography, negative refractive index and sub-wavelength optical imaging. Nano-structure characterization techniques, atomic force microscopy, near-field optical microscopy, scanning and transmission electron microscopy.

7. As currently in course inventory:

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<tbody>
<tr>
<td>ECEN</td>
<td>773</td>
<td>NANOPHOTONICS</td>
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<th>Lab</th>
<th>SCH</th>
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<th>Admin. Unit</th>
<th>HC Code</th>
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b. Change to:

<table>
<thead>
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<th>Prefix</th>
<th>Course #</th>
<th>Title (excluding punctuation)</th>
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<tr>
<th>Lect.</th>
<th>Lab</th>
<th>SCH</th>
<th>CIP and Fund Code</th>
<th>Admin. Unit</th>
<th>Dept. Year</th>
<th>HC Code</th>
<th>Level</th>
</tr>
</thead>
</table>

Approval recommended by:

C. Singh

Department Head or Program Chair (Type Name & Sign) Date: 9/24/14

Chair, College Review Committee Date: 10/10/14

Dean of College Date: 10/10/14

Submitted to Coordinating Board by:

Chair, GC or UCC Date: 10/10/14

Associate Director, Curricular Services Date: 10/10/14

Effective Date: 02/11

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Course title and number: ECEN 773 Introduction to Nanophotonics
Term: Fall 2015

Course Description: Photonic bandgap optical circuitry, photonic crystal fiber, Visible to infrared semiconductor quantum lasers; Semiconductor quantum dots. Plasmonic field enhancement, plasmonic optical circuitry, sub-wavelength optical lithography, negative refractive index and sub-wavelength optical imaging. Nano-structure characterization techniques, atomic force microscopy, near-field optical microscopy, scanning and transmission electron microscopy.

Prerequisite: Instructor approval

Course Objectives:

The philosophy of this course is to teach nanophotonics such that both undergraduate and graduate students can appreciate and benefit from this course without invoking too much intricate details and calculations related to the various topics in nanophotonics. Graduate students can use this course to further their research and undergraduates who do not intend to pursue graduate studies can get an “executive type technical knowledge” in nanotechnology as they enter their profession. As an example, students will know the principle and applications (potential applications) of: Atomic force microscope, nanoscopy, two-photon nanolithography, molecular self-assembly, functionalized quantum dots, photonic bandgap materials, plasmonics, nonconventional solar to electric conversion, quantum cascade lasers etc.

Instructor Information
Name: Chin B. Su
Telephone number: (979) 845-7584
Email address: su@ece.tamu.edu
Office hours: Anytime
Office location: 312F Zach. (O), and 115E Zach. (Lab.)
Textbook and/or Resource Material


Grading Policies:

There is no homework or test for undergraduate students. Grades of undergraduate students depend on writing three separate reports outlining what students have learned. Each report should be three or more pages in length. Grades will be based on the coverage of the various topics and the professional level of presentation. Each report weighs 33.3% of the total grade of 100. Articles may also be assigned for students to read - articles such as the "The Invisible Cloak" to excite students' imaginations and interests.

For graduate students, their grades will depend on one midterm exam and one final exam; each weighing 50%. The grading scale is as follows: 88-100 A, 87-78 B, 77-68 C, 67-58 D, below 58 F.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tr>
<td>1</td>
<td>Principle of photonic bandgap crystals</td>
</tr>
<tr>
<td>2</td>
<td>Photonic optical circuitry, photonic crystal</td>
</tr>
<tr>
<td>3</td>
<td>Ultraviolet, blue, green, red, infrared semiconductor lasers</td>
</tr>
<tr>
<td>4</td>
<td>Quantum confined structure, quantum cascade lasers, Molecular beam epitaxy (MBE), and MOCVD crystal growth techniques</td>
</tr>
<tr>
<td>5</td>
<td>Semiconductor quantum dots as fluorescent tags for medical research, chemical synthesis and functionalization of quantum dots</td>
</tr>
<tr>
<td>6</td>
<td>Excitonic effects for enhancement of solar-to-electrical conversion efficiency</td>
</tr>
<tr>
<td>7</td>
<td>Plasmonic optical circuitry/waveguides, surface plasmon resonance</td>
</tr>
<tr>
<td>8</td>
<td>Local field enhancement in metallic nanoparticles, array of nanoparticles, nanoshells, nanorods</td>
</tr>
<tr>
<td>9</td>
<td>Surface enhanced Raman spectroscopy, subwavelength aperture plasmonics</td>
</tr>
<tr>
<td>10</td>
<td>Negative index material for plasmonic imaging, the invisible cloak</td>
</tr>
<tr>
<td>11</td>
<td>Optical characterization techniques and methodologies, confocal microscopy, near-field microscopy (NSOM)</td>
</tr>
<tr>
<td>12</td>
<td>Atomic force microscopy, nanoscopy such as STED, IPALM</td>
</tr>
</tbody>
</table>
| 13   | Optical lithography technique, two-
Other Pertinent Course Information

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

Academic Integrity

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

"An Aggie does not lie, cheat, or steal, or tolerate those who do."
Texas A&M University
Departmental Request for a Change in Course
Undergraduate ♦ Graduate ♦ Professional
• Submit original form and attachments •

Form Instructions
1. Course request type: □ Undergraduate  □ Graduate  □ First Professional (DDS, MD, JD, Pharm.D, DVM)
2. Request submitted by (Department or Program Name): Department of Educational Psychology
3. Course prefix, number and complete title of course: EPSY 621: Clinical Neuropsychology

Attach a brief supporting statement for changes made in items 4, 8, 9, and 10 below.

4. Change requested
   a. Prerequisite(s): From: Approval of instructor and department head  To: Graduate classification; approval of department head
   b. Withdrawal (reason):
   c. Cross-list with:

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

d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.

e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.

5. Is this an existing core curriculum course? □ Yes  □ No

6. If grade type is changing for existing course, indicate the new grade type: □ Grade  □ S/U  □ P/F (CLMD)

7. If this course will be stacked, please indicate the course number of the stacked course:
   □ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-control-basics-for-distance-education).

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

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

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

11. a. As currently in course inventory:

<table>
<thead>
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<th>Prefix</th>
<th>Course #</th>
<th>Title (excluding punctuation)</th>
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<th>Admin. Unit</th>
<th>HCE Code</th>
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b. Change to:

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<th>Course #</th>
<th>Title (excluding punctuation)</th>
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<th>CH# and Fund Code</th>
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<th>Level</th>
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Approval recommended by:

Victor Williams, Ph.D.  Sep 30/14
Department Head or Program Chair (Type Name & Sign)  Date

George Cunningham, Ph.D.
Chair, College Review Committee  Date

George Cunningham, Ph.D.
Dean of College  Date

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

Submitted to Coordinating Board by:

Associate Director, Curricular Services  Date

Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu
Curricular Services – 08/14
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
• Submit original form and attachments •

Form Instructions
1. Course request type: □ Undergraduate □ Graduate □ First Professional (one-way course) □ Other (explain)
2. Request submitted by (Department or Program Name): Department of Poultry Science
3. Course prefix, number and complete title of course: FSTC 611 Poultry Processing and Distribution Technology

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

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

   d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.

   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.

5. Is this an existing core curriculum course? □ Yes □ No
6. If grade type is changing for existing course, indicate the new grade type: □ Grade □ S/U □ P/F (CLMD)
7. If this course will be stacked, please indicate the course number of the stacked course: FSTC 405
8. I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).


10. Complete proposed course title and proposed catalog course description (not to exceed 50 words): FSTC 611 Poultry Further Processing. (3-0). Credit 3. Egg and poultry meat processing; egg markets, egg processing, grading, packaging, safety, quality and consumer acceptance of shell eggs; poultry meat processing (specifically turkeys and broilers), meat quality, markets, consumer acceptance of poultry meat and safety. Cross-listed with POSC 611.

11. a. As currently in course inventory:
   
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<thead>
<tr>
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   b. Change to:
   
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<th>Course #</th>
<th>Title (excluding punctuation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSTC</td>
<td>611</td>
<td>Poultry Further Processing</td>
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<thead>
<tr>
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<th>Lab</th>
<th>Other</th>
<th>SCH</th>
<th>CIP and Fund Code</th>
<th>Admin Unit</th>
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   Approval recommended by:
   David J. Caldwell

   Department Head or Program Chair (Type Name & Sign) 9/23/14
   Chair, College Review Committee 10/17/14

   Clinton Alfred
   Department Head or Program Chair (Type Name & Sign) 9/24/14
   Dean of College 10/17/14

   Submitted to Coordinating Board by:

   Chair, GC or UCC

   Date

   Effective Date

   Associate Director, Curricular Services

   Date

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

   [Signature]
   Graduate Student 9/24/14
Supporting statement for change to Item 10 below.

The course title and course description for POSC/FSTC 611 and hours were changed to reflect the topics covered in POSC/FSTC 405 that was created for Fall 2015 and that POSC/FSTC 611 will be stacked with. POSC/FSTC 405 is a 3 hour course with no lab. POSC/FSTC 611 will cover the same topics as the undergraduate section with an additional class project for POSC/FSTC 611.
Fall 2015
Egg and Poultry Meat Processing Syllabus
POSC/FSTC 405
POSC/FSTC 611

Professor: Dr. Alvarado
Room: 338E Kleberg
Office: 979-845-4818
Email: calvarado@poultry.tamu.edu
Office Hours: by appointment

**Lecture Notes are required and can be purchased at Copy Corner (2307 Texas Ave S  # B
College Station, TX 77840-4737 (979) 693-0640)

Texts (Highly Recommended):
  LLC. Boca Raton, Florida.
  Food Products Press, New York.

Resources:
The following are suggested sources for information during the semester and can be found at the
campus library:
• Egg and Poultry-Meat Processing (Stadelman et al., 1988)
• Food Microbiology (several available, Jay, Frazier)
  Journal, British Poultry Science, Journal of Food Science, Food Technology

NOTE: Cell phones and other technology usage are not allowed in class. There is no
exception to this rule! Notes will be provided via Copy Corner and additional lecture
material is also available online (e-learning). Additional resources are listed above and
certain additional information will also be provided online (e-learning).

Scheduled Meeting Times:
TBD

Course Description:
A course in egg and poultry meat processing. The focus of the first half of this course
will be egg markets, egg processing, grading, packaging, safety, quality and consumer
acceptance of shell eggs. The remainder of the course will focus on poultry meat processing
(specifically turkeys and broilers), meat quality, markets, consumer acceptance of poultry meat
and safety. Prerequisites: junior or senior classification or approval of instructor.
Learning Outcomes:
To provide the students with an appreciation and general knowledge of shell eggs and poultry meat processing and the overall importance of the poultry industry so they can be more informed consumers and employees in their chosen occupation. At the end of the course students will be able to:

- Understand and analyze the principles of poultry meat and egg processing
- Identify the complexities of poultry meat and egg processing markets
- Apply principles of poultry science to everyday life as consumers by discussing quality and consumer acceptance of eggs and poultry meat

Assessment of Objectives:
- Multiple choice, True/false, matching and mostly short answer and discussion exams will be used to gauge understanding of poultry science
- Interactive websites or additional readings followed by discussions or written assignments will be used to measure student understanding of material
- Written assignments to include experiences and reflections after viewing retail poultry meat and eggs in local grocery stores and supermarkets.

Course Requirements and Grading Scale:
Your grade in this course is based on the points accumulated from assignments, major exams, and the final examination. The grading scale will NOT be raised for any reason!! A bell curve or other preconceived grading scales will not be used in the course.
You (the student) will be responsible for all material covered in class and any assigned reading for each major examination. The final exam will be comprehensive in the scope of its coverage and ALL students must take the final exam.

POS/FSTC 405 Class Grading Scale:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Major Exams (3)</td>
<td>60%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
<tr>
<td>Assignments</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

90-100%          A  
80-89%            B  
70-79%            C  
60-69%            D  
59 and below      F

Extra Credit:
There will be no extra credit offered in this class.
POSC/FSTC 611 Project:
During the first week of classes, please send me a short biography of yourself. Please indicate your goals (working as well as life goals) and what interests you have in Poultry Science specifically related to foods (chicken, turkeys, eggs). This can be a personal interest or a work-related interest. I would like to come up with a project that can help you or your company and/or can help our department with extension material or teaching material related to poultry processing. Therefore, this project will be individualized to fit your interests and needs. The project final report will be due the final class period and will consist of 3-5 pages which include an introduction, problem or justification, results/discussion, and at least 5 references from scientific journals or trade journals. Details of the project and the report will be clarified with individual discussions with Dr. Alvarado.

POSC/FSTC 611 Class Grading Scale:
<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Exams (3)</td>
<td>60%</td>
</tr>
<tr>
<td>Project</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

- 90-100%       A
- 80-89%        B
- 70-79%        C
- 60-69%        D
- 59 and below  F

Attendance Policy:
Class attendance is viewed as the student’s responsibility and a reflection of maturity. Therefore, class attendance is HIGHLY RECOMMENDED! See [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07) for more information about attendance and make-up policies per Texas A&M rules.
**Make-up Policy:**

If an absence is excused, the instructor will either provide the student an opportunity to make up any quiz, exam or other work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. If the instructor has a regularly scheduled make-up exam, students are expected to attend unless they have a university approved excuse.

The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial absence. The reasons absences are considered excused by the university are listed below. See Student Rule 7 for details ([http://studentrules.tamu.edu/rule07](http://studentrules.tamu.edu/rule07)). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.

1. Participation in an activity that is required for a class and appears on the university authorized activity list at [https://studentactivities.tamu.edu/app/sponsauth/index](https://studentactivities.tamu.edu/app/sponsauth/index)
2. Death or major illness in a student's immediate family.
3. Illness of a dependent family member.
4. Participation in legal proceedings or administrative procedures that require a student's presence.
5. Religious holy day. NOTE: Prior notification is NOT required.
6. Injury or illness that is too severe or contagious for the student to attend class.
   a) Injury or illness of three or more class days:
      1. Student will provide a medical confirmation note from his or her medical provider within one week of the last date of
      2. the absence (see Student Rules 7.1.6.1)
   b) Injury or illness of less than three class days:
      3. Student will provide one or both of these (at instructor’s discretion), within one week of the last date of the absence:
         (i) Texas A&M University Explanatory Statement for Absence from Class form available at [http://attendance.tamu.edu](http://attendance.tamu.edu) or
         (ii) Confirmation of visit to a health care professional affirming date and time of visit.
7. Required participation in military duties.
8. Mandatory admission interviews for professional or graduate school that cannot be rescheduled.
9. 7.1.9 Mandatory participation as a student-athlete in NCAA-sanctioned competition.
10. 7.1.10 In accordance with Title IX of the Educational Amendments of 1972, Texas A&M University shall treat pregnancy (childbirth, false pregnancy, termination of pregnancy and recovery therefrom) and related conditions as a justification for an excused absence for so long a period of time as is deemed medically necessary by the student’s physician. Requests for excused absence related to pregnancy should be directed to the instructor; questions about Title IX should be directed to the University Title IX Coordinator.

Other absences may be excused at the discretion of the instructor with prior notification and proper documentation. In cases where prior notification is not feasible (e.g., accident or
emergency) the student must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class.

**Expectation of Students:**
- Attendance, participation, willingness to learn, courtesy, interest, honesty

**Special Accommodations for Students:**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu).

**Academic Dishonesty and Conduct Rules:**
"An Aggie does not lie, cheat or steal, or tolerate those who do."
For additional information, please visit: [http://aggiehonor.tamu.edu/](http://aggiehonor.tamu.edu/)

Academic Integrity – As commonly defined, PLAGIARISM consists of passing off as one’s own ideas, words, writing, 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. Anyone suspected of plagiarism will be dealt with according to University policy which may result in an “F” in the course and even expulsion. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Catalog.
Topics for Class Lectures:

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<th>Topic</th>
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<tr>
<td>Week 1: Introduction to class</td>
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<tr>
<td></td>
<td>Week 2: Shell Egg Formation and Structure</td>
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<tr>
<td></td>
<td>Shell Egg Processing and Composition</td>
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<tr>
<td></td>
<td>Week 3: Shell Egg Quality – Deterioration and Preservation</td>
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<tr>
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<td>Shell Eggs and Consumer acceptability</td>
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<td>Week 4: Egg Food Safety (ASSIGNMENT 1 DUE)</td>
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<td>Week 5: Poultry Meat Industry Overview</td>
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<td>Week 6: Live Production Impacts</td>
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<td>Stunning,</td>
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<td></td>
<td>Slaughter, and Defeathering, Evisceration and Chilling, Cut-up,</td>
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<td>Portioning</td>
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<td>Week 8: Packaging</td>
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<td><strong>EXAM 2</strong></td>
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<td>Week 9: Conversion of Muscle to Meat</td>
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<td></td>
<td>Week 10: Quality Defects</td>
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<tr>
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<td>Week 11: Consumer Acceptance of Poultry Meat (ASSIGNMENT 2 DUE)</td>
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<td><strong>EXAM 3</strong></td>
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<td>Week 12: Cooking Principles and Technology</td>
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<td>Week 13: Food Safety</td>
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<td>Week 14: Sanitation</td>
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**FINAL EXAM (Comprehensive)**

Dr. Alvarado reserves the right to change this schedule if needed, but advanced notice will be given when possible to the class.
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
• Submit original form and attachments •

Form Instructions
1. Course request type:
   - [ ] Undergraduate • [✓] Graduate • [ ] First Professional (DDS, MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name):
   - George Bush School of Government and Public Service
3. Course prefix, number and complete title of course:
   - INTA 662 Nuclear Security Threat Assessment and Analysis
4. Change requested
   a. Prerequisite(s): From: ___________________________ To: ___________________________
   b. Withdrawal (reason): ___________________________
   c. Cross-list with: ___________________________
      Cross-listed courses require the signature of both department heads.
   d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.
5. Is this an existing core curriculum course? [ ] Yes [ ] No
6. If grade type is changing for existing course, indicate the new grade type:
   - [ ] Grade [ ] S/U [ ] P/F (CLMD)
7. If this course will be stacked, please indicate the course number of the stacked course:
   - ___________________________
8. I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).
9. Complete current course title and current catalog course description:

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

11. a. As currently in course inventory:

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Approval recommended by:

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

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

Dean of College Date

Submitted to Coordinating Board by:

Chair, GC or UCC Date

Associate Director, Curricular Services

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 08/14
INTA 669 Nuclear Terrorism Threat Assessment & Analysis was submitted for approval in April 2013 and was approved through the President’s office in July 2013. The course is now listed in the 2014-15 Graduate Catalog.

The same course was submitted again in spring 2014 and approved as INTA 662 Nuclear Security Threat Assessment and Analysis. I am requesting that INTA 662 be omitted from the course inventory and that INTA 669 remain listed as the correct course. The course change is attached.
Hi Janeen,

INTA 662 received full approval in May 2014. As I’ve mentioned before, courses going through the approval process (this calendar year) are available for Fall 2015. This course has been added to COMPASS effective Fall 2015.

From 2014 Tracking Chart

|-------|----|--------------------------------------------------------|---------|---------|---------|------------|

INTA 669 received full approval in July 2013. This course was added to COMPASS effective Fall 2014.

From 2013 Tracking Chart

|-------|----|--------------------------------------------------------|-----------------------------|---------|---------|---------|------------|

Hope this helps.

Sandra Williams | Associate Director
Office of the Registrar, Division of Academic Affairs | Texas A&M University
0100 TAMU | College Station, Texas 77843
ph: 979-845-8201 | sandra-williams@tamu.edu | curricularservices.tamu.edu

It's Time for Texas A&M

INTA 662 Nuclear Threat Assessment is listed incorrectly in the drop down menu in ogspdss.tamu.edu when selecting courses for degree plans. It is listed as INTA 669 but it was turned in and approved as INTA 662, this is how it should be listed. It is also listed in the graduate catalog incorrectly (graduate catalog, page 526). Can you tell me who I need to contact to make this correction?

Thank you.

Janeen

Janeen H. Wood '90
Assistant to the Director
It doesn’t even have to be a memo. Just a page with an explanation. ☺

Sandra Williams | Associate Director
Office of the Registrar, Division of Academic Affairs | Texas A&M University
0100 TAMU | College Station, Texas 77843

ph: 979-845-8201 | sandra-williams@tamu.edu | curricularservices.tamu.edu

It’s Time for Texas A&M

Sandra, Sorry, answers keep bringing on questions. Can it be a simple memo from me? Thanks.
Janeen

Janeen H. Wood ’90
Assistant to the Director
Master’s Program for International Affairs
The Bush School of Government & Public Service
4220 TAMU
College Station, TX 77843-4220
979-458-2276
979-845-4155 fax
http://bush.tamu.edu

Hi Janeen,

Please attach a brief statement for the change. Once you receive college committee and dean approval, it goes to Graduate Council. Send it to .... gradcounciladmin@tamu.edu

Hope this helps.

Sandra Williams | Associate Director
Office of the Registrar, Division of Academic Affairs | Texas A&M University
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
Submit original form and attachments.

Form Instructions

1. Course request type:
   - Undergraduate
   - Graduate
   - First Professional

2. Request submitted by (Department or Program Name):
   - Marine Sciences

3. Course prefix, number and complete title of course:
   - MARS 625: GIS Modeling for Coastal Resources

4. Change requested
   - Prerequisite(s): From ___________________________ To: ___________________________
   - Withdrawal (reason): ___________________________
   - Cross-list with: ___________________________

5. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.

6. Is this an existing core curriculum course?
   - Yes
   - No

7. If grade type is changing for existing course, indicate the new grade type:
   - Grade
   - S/U
   - P/F

8. If this course will be stacked, please indicate the course number of the stacked course:
   - I verify that I have reviewed the FAQ for Export Control Basics for Distance Education

9. Complete current course title and current catalog course description: MARS 625. GIS USE IN COASTAL RESOURCES. (1-3). Credit 2. Basic concepts of design, planning, and implementation of Geographical Information Systems; computer hardware and software evaluation; practical experience in data entry, analysis and update of spatial and characteristic data; use of maps and remotely sensed data as data.
   - Prerequisite: Any computer science course or equivalent; graduate status or special approval.

10. Complete proposed course title and proposed catalog course description (not to exceed 50 words): MARS 625. GIS USE IN COASTAL RESOURCES. (2-2). Credit 3. Basic concepts of design, planning, and implementation of Geographical Information Systems; computer hardware and software evaluation; practical experience in data entry, analysis and update of spatial and characteristic data; use of maps and remotely sensed data as data.
    - Prerequisite: Any computer science course or equivalent; graduate status or approval of instructor.

11. As currently in course inventory:

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course #</th>
<th>Title (excluding punctuation)</th>
<th>Lect.</th>
<th>Lab</th>
<th>Other</th>
<th>SCH</th>
<th>CIP and Fund Code</th>
<th>Admin. Unit</th>
<th>EIC Code</th>
<th>Level</th>
</tr>
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<tbody>
<tr>
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<td>GIS COASTAL RESOURCES</td>
<td>1.00</td>
<td>3.00</td>
<td>0.00</td>
<td>2.00</td>
<td>1102020006</td>
<td>1810</td>
<td>010293</td>
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Change to:

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course #</th>
<th>Title (excluding punctuation)</th>
<th>Lect.</th>
<th>Lab</th>
<th>Other</th>
<th>SCH</th>
<th>CIP and Fund Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>EIC Code</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARS</td>
<td>625</td>
<td>GIS COASTAL RESOURCES</td>
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<td>2.00</td>
<td>0</td>
<td>3.00</td>
<td>1102020006</td>
<td>1810</td>
<td>15</td>
<td>-</td>
<td>16</td>
</tr>
</tbody>
</table>

Approval recommended by:

[Signature]

Chair, Department of Marine Sciences

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

Chair, College Review Committee

Dean of College

Submitted to Coordinating Board by:

[Signature]

Chair, GC or UCC

Associate Director, Curricular Services

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

Curricular Services – 08/14
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
• Submit original form and attachments •

To whom it may concern-

As outlined above, I am requesting a change in credit hours for MARS 625: GIS Modeling for Coastal Resources. The request increases the SCHs from 2 to 3 hours. The increase to 3 hours will better reflect the course content, contact hours, and overall expectations of students enrolled in the course.

If I can answer any additional questions regarding this request please do not hesitate to contact me.

Thanks for your time and consideration.

Wesley E. Highfield, Ph.D.
Assistant Professor
Department of Marine Sciences
Texas A&M University at Galveston
Galveston, TX 77553-6175
Phone: 409-740-4726
e-mail: highfield@tamug.edu

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tam.usd.edu.
Curricular Services – 08/14
Texas A&M University
Departmental Request for a Change in Course
Undergraduate ♦ Graduate ♦ Professional
- Submit original form and attachments -

MARS 625: GIS Modeling for Coastal Resources
FALL 2014
Tuesday 11:00 -- 2:50, SAGC 600

Instructor: Dr. Wesley Highfield  Teaching Assistant: Ms. Helen Walters
Office: OCSB 364  e-mail: waltersh@tamu.edu
Office Hours: By appointment/request
E-mail: highfiew@tamu.edu
Phone: 409-740-4726

Course Description
This is an introductory course in geographic information systems (GIS). The course is concerned with development of thinking in terms of GIS for the management of coastal and other natural resource data. The emphasis will be on learning the fundamentals and application of GIS. To do this requires both software expertise and critical thinking. This course will require a time commitment, willingness to think/problem solve, and attention to detail.

Required Text
There is no required text. You will need to use the laboratory computers with GIS software. I have also secured a free, one-year license of ArcGIS for each of you enrolled in the class that can be installed on your personal computer (PC only—sorry Mac users). Much of the information needed for the software implementation of a GIS can be found on the web and/or through the software’s help menu. Two optional texts are Getting to Know ArcGIS Desktop, a tutorial workbook and The GIS 20: Essential Skills, both a workbook and reference text. You might wish to purchase one or both, but neither is required.

Course Requirements
1) Class attendance and participation
2) Weekly laboratory exercises
3) A final exam to determine your mastery of GIS, its fundamental usage, and spatial problem solving within a GIS.
4) A comprehensive final project

Grading
The weighting of course grades are as follows:
• Weekly lab exercises 35%
• Final project 35%
• Final exam 30%

I will follow the traditional grading scale of: A=90-100, B=80-89, C=70-79, D=60-69, F=<60

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 08/14
Weekly lab exercises will be assigned and submitted via e-campus. If you are unsure how to navigate e-learning please familiarize yourself with the interface. You will typically have one week to complete and submit the weekly assignments and late work will not be accepted without an approved excuse.

As demonstrated above, the final project is a large proportion of your grade. I would strongly suggest that you to begin thinking about this early in the course, preferably more than a week before the proposals are due and definitely more than a week before the project is due. You will be given a week of class time to work on your project with feedback/help, but this should be a time to finalize/troubleshoot not begin your project work. The bar for projects has been set high by previous courses.

Tentative Topics by Week

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9-2</td>
<td>Introduction to GIS/Introduction to ArcGIS</td>
</tr>
<tr>
<td>2</td>
<td>9-9</td>
<td>Spatial Data / Data Structures and Types</td>
</tr>
<tr>
<td>3</td>
<td>9-16</td>
<td>Coordinate Systems, Projections, and Transformations</td>
</tr>
<tr>
<td>4</td>
<td>9-23</td>
<td>Attribute Data and Data Queries</td>
</tr>
<tr>
<td>5</td>
<td>9-30</td>
<td>Creating Data: Vector Data Development</td>
</tr>
<tr>
<td>6</td>
<td>10-7</td>
<td>Joining Data: Table and Spatial Joins</td>
</tr>
<tr>
<td>7</td>
<td>10-14</td>
<td>Vector Analysis I: Geoprocessing</td>
</tr>
<tr>
<td>8</td>
<td>10-21</td>
<td>Vector Analysis II: Geocoding (Project Proposals Due)</td>
</tr>
<tr>
<td>9</td>
<td>10-28</td>
<td>Raster Analysis I: Environments &amp; Map Algebra</td>
</tr>
<tr>
<td>10</td>
<td>11-4</td>
<td>Raster Analysis II: Interpolations, Etc.</td>
</tr>
<tr>
<td>11</td>
<td>11-11</td>
<td>Imagery: Image Registration and Band Composites</td>
</tr>
<tr>
<td>12</td>
<td>11-18</td>
<td>Wrap-Up and Problem Solving / Project Work</td>
</tr>
<tr>
<td>13</td>
<td>11-25</td>
<td>Project Work</td>
</tr>
<tr>
<td>14</td>
<td>12-2</td>
<td>Project Presentations</td>
</tr>
<tr>
<td>12-17</td>
<td>Final Exam: 11am-1pm</td>
<td></td>
</tr>
</tbody>
</table>

Expected Learning Outcomes
1. Enter and display raw data (latitude/longitude) coordinates to a GIS map
2. Couple non-spatial attribute data to spatial data
3. Understand various GIS data structures/formats
4. Obtain, import and use GIS data from various secondary sources
5. Convert between data types/formats as needed
6. Enter raw imagery (not georeferenced) into GIS and rectify to an existing layer
7. Develop the knowledge to understand and perform spatial queries
8. Develop the knowledge to understand Boolean logic and perform attribute queries
9. Develop visualization techniques to represent trends and quantities
10. Create new shapefiles through geocoding and head-up digitizing
11. Understand basic operations of geoprocessing and vector-based GIS analysis
12. Understand basic grid operations and raster-based GIS analysis
13. Use GIS as the foundation for an original project that demonstrates mastery of GIS
Americans with Disabilities Act (ADA) Policy Statement
The Americans with Disabilities Act (ADA) is a federal non-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this law 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, Seibel Student Center, or call (409)740-4587.

Aggie Honor System
Aggie Honor Code: "An Aggie does not lie, cheat, or steal or tolerate those who do."
Upon accepting admission to Texas A&M University at Galveston, 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 excuse any member of the TAMUG community from the requirements or the processes of the TAMUG Honor System.

Plagiarism
Plagiarism consists of passing off as one's own ideas, words, writings, etc., which belong to another. 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". I take academic dishonesty very seriously and if I discover, I WILL pursue it.

Statement on Absences
Information concerning absences is contained in the University Student Rules Section 7 (see: http://www.tamug.edu/stulife/Academic%20Rules/Rule%207.pdf). The University views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments.

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, GPR 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.

Statement on Course Evaluations
The PICA (Personalized Instructor/Course Appraisal) is an online course evaluation for Texas A&M. We highly encourage you to complete an evaluation for each course on your schedule. Student input is a critical component used to improve curriculum and teaching. Each faculty member values your input to improve his/her methodology. Your comments can also significantly impact the mix and membership of faculty. The PICA website is available at http://pica.tamu.edu, your howdy portal, or by scanning
Texas A&M University  
Departmental Request for a Change in Course  
Undergraduate • Graduate • Professional  
• Submit original form and attachments •

Form Instructions
1. Course request type:  
   - Undergraduate  
   - Graduate  
   - First Professional (DO, MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name):  
   Department of Poultry Science
3. Course prefix, number and complete title of course:  
   POSC 611 Poultry Processing and Distribution Technology

4. Change requested:
   a. Prerequisite(s):  
      From:  
      To:  
   b. Withdrawal (reason):  
      
   c. Cross-list with:  
      Cross-listed courses require the signature of both department heads:
   d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.

5. Is this an existing core curriculum course?  
   - Yes  
   - No

6. If grade type is changing for existing course, indicate the new grade type:  
   - Grade  
   - S/U  
   - P/F (CLMD)

7. If this course will be stacked, please indicate the course number of the stacked course:  
   POSC 405

8. I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

9. Complete current course title and current catalog course description:  
   POSC 611. Poultry Processing and Distribution Technology. (3-2).  
   Credit 4. Poultry and egg composition, mechanisms of poultry and egg quality preservation, effects of storage environments, time and product treatment; evaluation of commercial methods of product assembly, processing, distribution and quality control; evaluation of physical, microbiological, functional and chemical methods of quality determination. Cross-listed with FSTC 611.

10. Complete proposed course title and proposed catalog course description (not to exceed 50 words):  
    POSC 611 Poultry Further Processing. (3-0).  
    Credit 3. Egg and poultry meat processing markets, egg processing, grading, packaging, safety, quality and consumer acceptance of shell eggs; poultry meat processing (specifically turkeys and broilers), meat quality, markets, consumer acceptance of poultry meat and safety. Cross-listed with FSTC 611.

11. As currently in course inventory:
    
    | Prefix | Course # | Title (excluding punctuation) |
    |--------|----------|-----------------------------|
    | POSC   | 611      | POUL PROC & DIST TECH       |

    Lect. Lab Other SCH CIP and Fund Code Admin. Unit HCL Code Level
    3.00  2.00  4.00  0110010005   2350  0  3  6  3  2  6

    Change to:
    
    | Prefix | Course # | Title (excluding punctuation) |
    |--------|----------|-----------------------------|
    | POSC   | 611      | POULTRY FURTHER PROCESSING  |

    Lect. Lab Other SCH CIP and Fund Code Admin. Unit Acad. Year HCL Code Level
    3.00  0.00  3.00  0110010005   2350  15  -16  0  0  3  6  3  2

   Approval recommended by:
   David J. Caldwell  
   Department Head or Program Chair (Type Name & Sign)  
   Date 9/3/14

   Chair, College Review Committee  
   Date 10/17/14

   Clinton Arledge  
   Department Head or Program Chair (Type Name & Sign)  
   Date 9/3/14

   Dean of College  
   Date 10/17/14

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

   Effective Date  

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu
Supporting statement for change to Item 10 below.

The course title and course description for POSC/FSTC 611 and hours were changed to reflect the topics covered in POSC/FSTC 405 that was created for Fall 2015 and that POSC/FSTC 611 will be stacked with. POSC/FSTC 405 is a 3 hour course with no lab. POSC/FSTC 611 will cover the same topics as the undergraduate section with an additional class project for POSC/FSTC 611.
Fall 2015
Egg and Poultry Meat Processing Syllabus
POSC/FSTC 405
POSC/FSTC 611

Professor: Dr. Alvarado
Room: 338E Kleberg
Office: 979-845-4818
Email: calvarado@poultry.tamu.edu
Office Hours: by appointment

**Lecture Notes are required and can be purchased at Copy Corner (2307 Texas Ave S  # B
College Station, TX 77840-4737 (979) 693-0640)

Texts (Highly Recommended):
  LLC. Boca Raton, Florida.
  Food Products Press, New York.

Resources:
The following are suggested sources for information during the semester and can be found at the
 campus library:
- *Egg and Poultry-Meat Processing* (Stadelman et al., 1988)
- *Food Microbiology* (several available, Jay, Frazier)
  Journal, British Poultry Science, Journal of Food Science, Food Technology

NOTE: Cell phones and other technology usage are not allowed in class. There is no
exception to this rule! Notes will be provided via Copy Corner and additional lecture
material is also available online (e-learning). Additional resources are listed above and
certain additional information will also be provided online (e-learning).

Scheduled Meeting Times:
TBD

Course Description:
A course in egg and poultry meat processing. The focus of the first half of this course
will be egg markets, egg processing, grading, packaging, safety, quality and consumer
acceptance of shell eggs. The remainder of the course will focus on poultry meat processing
(specifically turkeys and broilers), meat quality, markets, consumer acceptance of poultry meat
and safety. Prerequisites: junior or senior classification or approval of instructor.
Learning Outcomes:
To provide the students with an appreciation and general knowledge of shell eggs and poultry meat processing and the overall importance of the poultry industry so they can be more informed consumers and employees in their chosen occupation. At the end of the course students will be able to:

- Understand and analyze the principles of poultry meat and egg processing
- Identify the complexities of poultry meat and egg processing markets
- Apply principles of poultry science to everyday life as consumers by discussing quality and consumer acceptance of eggs and poultry meat

Assessment of Objectives:
- Multiple choice, True/false, matching and mostly short answer and discussion exams will be used to gauge understanding of poultry science
- Interactive websites or additional readings followed by discussions or written assignments will be used to measure student understanding of material
- Written assignments to include experiences and reflections after viewing retail poultry meat and eggs in local grocery stores and supermarkets.

Course Requirements and Grading Scale:
Your grade in this course is based on the points accumulated from assignments, major exams, and the final examination. The grading scale will NOT be raised for any reason!! A bell curve or other preconceived grading scales will not be used in the course.

You (the student) will be responsible for all material covered in class and any assigned reading for each major examination. The final exam will be comprehensive in the scope of its coverage and ALL students must take the final exam.

**POSC/FSTC 405 Class Grading Scale:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Major Exams (3)</td>
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<tr>
<td>Final Exam</td>
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</tr>
<tr>
<td>Assignments</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100%</td>
<td>A</td>
</tr>
<tr>
<td>80-89%</td>
<td>B</td>
</tr>
<tr>
<td>70-79%</td>
<td>C</td>
</tr>
<tr>
<td>60-69%</td>
<td>D</td>
</tr>
<tr>
<td>59 and below</td>
<td>F</td>
</tr>
</tbody>
</table>

Extra Credit:
There will be no extra credit offered in this class.
POSC/FSTC 611 Project:
During the first week of classes, please send me a short biography of yourself. Please indicate your goals (working as well as life goals) and what interests you have in Poultry Science specifically related to foods (chicken, turkeys, eggs). This can be a personal interest or a work-related interest. I would like to come up with a project that can help you or your company and/or can help our department with extension material or teaching material related to poultry processing. Therefore, this project will be individualized to fit your interests and needs. The project final report will be due the final class period and will consist of 3-5 pages which include an introduction, problem or justification, results/discussion, and at least 5 references from scientific journals or trade journals. Details of the project and the report will be clarified with individual discussions with Dr. Alvarado.

POSC/FSTC 611 Class Grading Scale:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Exams (3)</td>
<td>60%</td>
</tr>
<tr>
<td>Project</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

90-100%          A  
80-89%            B  
70-79%            C  
60-69%            D  
59 and below     F  

Attendance Policy:
Class attendance is viewed as the student’s responsibility and a reflection of maturity. Therefore, class attendance is HIGHLY RECOMMENDED! See http://student-rules.tamu.edu/rule07 for more information about attendance and make-up policies per Texas A&M rules.
**Make-up Policy:**

If an absence is excused, the instructor will either provide the student an opportunity to make up any quiz, exam or other work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. If the instructor has a regularly scheduled make up exam, students are expected to attend unless they have a university approved excuse.

The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial absence. The reasons absences are considered excused by the university are listed below. See Student Rule 7 for details (http://stUDENTRULES.TAMU.EDU/Rule07). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.

1) Participation in an activity that is required for a class and appears on the university authorized activity list at https://studentactivities.tamu.edu/app/sponsorship/index

2) Death or major illness in a student's immediate family.

3) Illness of a dependent family member.

4) Participation in legal proceedings or administrative procedures that require a student's presence.

5) Religious holy day. NOTE: Prior notification is NOT required.

6) Injury or illness that is too severe or contagious for the student to attend class.
   a) Injury or illness of three or more class days:
      1. Student will provide a medical confirmation note from his or her medical provider within one week of the last date of
      2. the absence (see Student Rules 7.1.6.1)
   b) Injury or illness of less than three class days:
      3. Student will provide one or both of these (at instructor's discretion), within one week of the last date of the absence:
         (i.) Texas A&M University Explanatory Statement for Absence from Class form available at http://attendance.tamu.edu or
         (ii.) Confirmation of visit to a health care professional affirming date and time of visit.

7) Required participation in military duties.

8) Mandatory admission interviews for professional or graduate school that cannot be rescheduled.

9) 7.1.9 Mandatory participation as a student-athlete in NCAA-sanctioned competition.

10) 7.1.10 In accordance with Title IX of the Educational Amendments of 1972, Texas A&M University shall treat pregnancy (childbirth, false pregnancy, termination of pregnancy and recovery therefrom) and related conditions as a justification for an excused absence for so long a period of time as is deemed medically necessary by the student's physician. Requests for excused absence related to pregnancy should be directed to the instructor; questions about Title IX should be directed to the University Title IX Coordinator.

Other absences may be excused at the discretion of the instructor with prior notification and proper documentation. In cases where prior notification is not feasible (e.g., accident or
emergency) the student must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class.

**Expectation of Students:**
- Attendance, participation, willingness to learn, courtesy, interest, honesty

**Special Accommodations for Students:**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu).

**Academic Dishonesty and Conduct Rules:**
"An Aggie does not lie, cheat or steal, or tolerate those who do."
For additional information, please visit: [http://aggiehonor.tamu.edu/](http://aggiehonor.tamu.edu/)

Academic Integrity – As commonly defined, PLAGIARISM consists of passing off as one’s own ideas, words, writing, 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. Anyone suspected of plagiarism will be dealt with according to University policy which may result in an “F” in the course and even expulsion. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Catalog.
Topics for Class Lectures:

---EGGS---
Week 1: Introduction to class
  The Egg Industry Overview
Week 2: Shell Egg Formation and Structure
  Shell Egg Processing and Composition
Week 3: Shell Egg Quality – Deterioration and Preservation
  Shell Eggs and Consumer acceptability
Week 4: Egg Food Safety (ASSIGNMENT 1 DUE)
EXAM 1

---PROCESSING---
Week 5: Poultry Meat Industry Overview
Week 6: Live Production Impacts
Week 7: Poultry Processing - Feed Withdrawal and Immobilization, Stunning,
  Slaughter, and Defeathering, Evisceration and Chilling, Cut-up, Portioning
Week 8: Packaging
EXAM 2

Week 9: Conversion of Muscle to Meat
Week 10: Quality Defects
Week 11: Consumer Acceptance of Poultry Meat (ASSIGNMENT 2 DUE)
EXAM 3

Week 12: Cooking Principles and Technology
Week 13: Food Safety
Week 14: Sanitation

FINAL EXAM (Comprehensive)

Dr. Alvarado reserves the right to change this schedule if needed, but advanced notice will be
given when possible to the class.
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
• Submit original form and attachments •

Form Instructions
1. Course request type:
   □ Undergraduate □ Graduate □ First Professional (DDS, MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name): Department of Poultry Science
3. Course prefix, number and complete title of course: POSC 628 Advanced Poultry Meat Processing

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

5. Is this an existing core curriculum course?
   □ Yes □ No

6. If grade type is changing for existing course, indicate the new grade type:
   □ Grade □ S/U □ P/F (CLMD)

7. If this course will be stacked, please indicate the course number of the stacked course:
   POSC 406
   □ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-control-basics-for-distance-education).

8. Complete current course title and current catalog course description: POSC 628 Advanced Poultry Meat Processing. Farm-to-table review of quality and safety effects of processing steps converting chicken broilers into poultry meat and derived products; discussion of current research and events influencing the poultry processing industry; preparation of research proposals addressing needs in the field. Prerequisite: Graduate classification.

9. Complete proposed course title and proposed catalog course description (not to exceed 50 words): POSC 628 Advanced Poultry Further Processing. The science and practice of value-added products; physical, chemical, microbiological, and functional characteristics of value-added poultry products as they affect consumer acceptance, efficiency of production, and regulatory approval.

11. a. As currently in course inventory:

<table>
<thead>
<tr>
<th>Prefix</th>
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<tr>
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<td>628</td>
<td>ADV Poultry Meat Process</td>
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Approval recommended by:
David J. Caldwell
Department Head or Program Chair (Type Name & Sign) 9/23/14
Chair, College Review Committee 10/17/14
Dean of College 10/17/14

Submitted to Coordinating Board by:
Chair, GC or UCC

Associate Director, Curricular Services

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu
Graduate Studies 09/14
Support statement for changes being made to POSC 628

The changes made to POSC 628 in Item 10 are a reflection of the changes in course description that were made to POSC 406 which this course is stacked with. This change in course title and description covers the topics that will be covered in POSC 406 but at a graduate level.
Spring 2016
Poultry Further Processing
Syllabus
POSC/FSTC 406
POSC 628

Professor: Dr. Alvarado
Room: 338E Kleberg
Office: 979-845-4818
Email: calvarado@poultry.tamu.edu
Office Hours: by appointment

**Lecture Notes are required and can be purchased at Copy Corner (2307 Texas Ave S  # B
College Station, TX 77840-4737 (979) 693-0640)

Texts (Highly Recommended):
  LLC. Boca Raton, Florida.
  Food Products Press, New York.

Resources:
The following are suggested sources for information during the semester and can be found at the
 campus library:
- *Egg and Poultry-Meat Processing* (Stadelman et al., 1988)
- *Poultry Products Technology* (Mountney, 1989) and
- *Meat Science* (Lawrie)
- *Principles of Meat Science* (Forrest and Judge)
- *Food Microbiology* (several available, Jay, Frazier)
- *The Microbiology of Poultry Meat Products* (Cunningham and Cox)
  Journal, British Poultry Science, Journal of Food Science, Food Technology

NOTE: Cell phones and other technology usage are not allowed in class. There is no
exception to this rule! Notes will be provided via Copy Corner and additional lecture
material is also available online (e-learning). Additional resources are listed above and
certain additional information will also be provided online (e-learning).

Scheduled Meeting Times:
TBD

Laboratory:
Tuesday or Wednesday 3:00-4:50 PM; Room 025 Kleberg or Poultry Farm on 2818 and Luther
St. You MUST attend your scheduled time.
Course Description:
The science and practice of value-added products; physical, chemical, microbiological, and functional characteristics of value-added poultry products as they affect consumer acceptance, efficiency of production, and regulatory approval. Prerequisites: POSC 405 and junior or senior classification or approval of instructor.

Learning Outcomes:
To provide the students with an appreciation and general knowledge of poultry meat and egg products and the overall importance of the poultry industry so they can be more informed consumers and employees in their chosen occupation. At the end of this course, students will be able to:

- Understand and analyze the principles of poultry meat and egg further processing
- Identify the complexities of poultry meat and egg further processing markets
- To apply principles of poultry science to everyday life by conducting hands-on further processing techniques

Assessment of Objectives:
- Multiple choice, True/false, matching and mostly short answer and discussion exams will be used to gauge understanding of poultry science
- Interactive websites or additional readings followed by discussions or written assignments will be used to measure student understanding of material
- Written laboratory assignments with an introduction, methods, results and discussions (including data interpretation) will be required to ensure hands-on knowledge is obtained and related to lecture material

Course Requirements and Grading Scale:
Your grade in this course is based on the points accumulated in the laboratory, major exams, and the final examination. The grading scale will NOT be raised for any reason!! A bell curve or other preconceived grading scales will not be used in the course.

You (the student) will be responsible for all material covered in class and any assigned reading for each major examination. The final exam will be comprehensive in the scope of its coverage and ALL students must take the final exam.

Class Grading Scale for POSC 406/FSTC 406:

<table>
<thead>
<tr>
<th>Major Exams (3)</th>
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<tr>
<td>Laboratory</td>
<td>50%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

90-100% A
80-89%  B
70-79%  C
60-69%  D
59 and below F
Class Grading Scale for POSC 628:

<table>
<thead>
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<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Exams (3)</td>
<td>60%</td>
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<tr>
<td>Project</td>
<td>20%</td>
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<td>Final Exam</td>
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90-100% A
80-89% B
70-79% C
60-69% D
59 and below F

Extra Credit:
There will be no extra credit offered in this class.

POSC 628 Project:
During the first week of classes, please send me a short biography of yourself. Please indicate your goals (working as well as life goals) and what interests you have in Poultry Science specifically related to value-added poultry products (chicken, turkeys, eggs). This can be a personal interest or a work-related interest. I would like to come up with a project that can help you or your company and/or can help our department with extension material or teaching material related to value-added poultry products. Therefore, this project will be individualized to fit your interests and needs. The project final report will be due the final class period and will consist of 3-5 pages which include an introduction, problem or justification, results/discussion, and at least 5 references from scientific journals or trade journals. Details of the project and the report will be clarified with individual discussions with Dr. Alvarado.

Attendance Policy:
Class attendance is viewed as the student’s responsibility and a reflection of maturity. Therefore, class attendance is HIGHLY RECOMMENDED! See http://student-rules.tamu.edu/rule07 for more information about attendance and make-up policies per Texas A&M rules.

Make-up Policy:
If an absence is excused, the instructor will either provide the student an opportunity to make up any quiz, exam or other work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. If the instructor has a regularly scheduled make up exam, students are expected to attend unless they have a university approved excuse.

The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial absence. The reasons absences are considered excused by the university are listed below. See Student Rule 7 for details (http://studentrules.tamu.edu/rule07). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify
and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.

1) Participation in an activity that is required for a class and appears on the university authorized activity list at https://studentactivities.tamu.edu/app/sponsauth/index

2) Death or major illness in a student's immediate family.

3) Illness of a dependent family member.

4) Participation in legal proceedings or administrative procedures that require a student's presence.

5) Religious holy day. NOTE: Prior notification is NOT required.

6) Injury or illness that is too severe or contagious for the student to attend class.
   a) Injury or illness of three or more class days:
      1. Student will provide a medical confirmation note from his or her medical provider within one week of the last date of
      2. the absence (see Student Rules 7.1.6.1)
         b) Injury or illness of less than three class days:
      3. Student will provide one or both of these (at instructor's discretion), within one week of the last date of the absence:
         (i.) Texas A&M University Explanatory Statement for Absence from Class form available at http://attendance.tamu.edu or
         (ii.) Confirmation of visit to a health care professional affirming date and time of visit.

7) Required participation in military duties.

8) Mandatory admission interviews for professional or graduate school that cannot be rescheduled.

9) 7.1.9 Mandatory participation as a student-athlete in NCAA-sanctioned competition.

10) 7.1.10 In accordance with Title IX of the Educational Amendments of 1972, Texas A&M University shall treat pregnancy (childbirth, false pregnancy, termination of pregnancy and recovery therefrom) and related conditions as a justification for an excused absence for so long a period of time as is deemed medically necessary by the student's physician. Requests for excused absence related to pregnancy should be directed to the instructor; questions about Title IX should be directed to the University Title IX Coordinator.

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<td>Week 1: Introduction to class</td>
</tr>
<tr>
<td></td>
<td>Further Processed Products – Gelation, Emulsion and Foam</td>
</tr>
<tr>
<td>Week 2: Breakers and Liquid Egg Preservation – Pasteurization, Drying, Freezing</td>
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</tr>
<tr>
<td>Week 3: Egg Food Safety</td>
<td><strong>EXAM 1</strong></td>
</tr>
</tbody>
</table>

| **MEAT**                                                              | Week 4: Poultry Meat Industry Overview                           |
|                                                                      | Consumer Demands of RTE products                                 |
| Week 5: Live Production Impacts                                      | **EXAM 2**                                                      |
|                                                                        | Conversion of Muscle to Meat                                     |
| Week 6: Meat Products and Protein Functionality                      |                                                                 |

| Week 7: Emulsion Products and Mechanical Deboning                     |                                                                 |
| Week 8: Functional Ingredients                                       |                                                                 |
| Week 9: Batter and Breading                                          |                                                                 |
| Week 10: Further Processed Poultry Meat Quality                      |                                                                 |
| Week 11: Curing and Smoking                                          |                                                                 |
|                                                                        | Cooking Principles and Technology                                |
| **EXAM 3**                                                            |                                                                 |
| Week 12: Packaging                                                   |                                                                 |
| Week 13: Food Safety                                                 |                                                                 |
| Week 14: Sanitation                                                  |                                                                 |
| **FINAL EXAM (Comprehensive)**                                       |                                                                 |

Dr. Alvarado reserves the right to change this schedule if needed, but advanced notice will be given when possible to the class.
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
Submit original form and attachments

Form Instructions
1. Course request type:  □ Undergraduate  ✔ Graduate  □ First Professional (MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name): Department of Educational Psychology
3. Course prefix, number and complete title of course: SPSY 612: Individual Assessment of Children's Intelligence

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

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

   d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.

   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.

5. Is this an existing core curriculum course?  □ Yes  □ No

6. If grade type is changing for existing course, indicate the new grade type:  □ Grade □ S/U □ P/F (CLMD)

7. If this course will be stacked, please indicate the course number of the stacked course:
   I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

8. Complete current course title and current catalog course description:
   Individual Assessment of Children's Intelligence: Educational and clinical applications of individual assessment; diagnostic measures of intelligence, language abilities, perception and achievement; videotaping of student test administration is required for purposes of supervision and self-evaluation. Limited to 12 students per semester.

9. Complete proposed course title and proposed catalog course description (not to exceed 50 words):
   Individual Assessment of Children's Intelligence: Educational and clinical applications of individual assessment; diagnostic measures of intelligence, achievement, language, and perception; videotaping of student test administration is required for purposes of supervision and self-evaluation. Limited to 12 students per semester.

10. Approval recommended by:
   Victor Wilson, Ph.D.
   Department Head or Program Chair (Type Name & Sign) Date
   George Cunningham, Ph.D.
   Chair, College Review Committee Date
   George Cunningham, Ph.D.
   Dean of College Date
   Mark Zoran, Ph.D.
   Chair, GC or UCC Date

11. a. As currently in course inventory:

   Prefix  Course #  Title (excluding punctuation)
   Lect  Lab  Other  SCH  CIP and Fund Code  Admin. Unit  HIC Code

   0 0 3 6 3 2

   b. Change to:

   Prefix  Course #  Title (excluding punctuation)
   Lect  Lab  Other  SCH  CIP and Fund Code  Admin. Unit  HIC Code
   -  -  -  0 0 3 6 3 2

   Approval recommended by: ___________________________
   Department Head or Program Chair (Type Name & Sign) Date

Submitted to Coordinating Board by: ___________________________
Associate Director, Curricular Services Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 08/14
Texas A&M University
Departmental Request for a Change in Course
Undergraduate + Graduate + Professional
• Submit original form and attachments •

Form Instructions
1. Course request type: □ Undergraduate  ☑ Graduate  □ First Professional (D.D.S, M.D, J.D., Pharm.D, D.V.M)
2. Request submitted by (Department or Program Name): Department of Educational Psychology
3. Course prefix, number and complete title of course: SPSY 614: Integrated Assessment Practicum

Change requested
4. a. Prerequisite(s): From: ____________________________ To: ____________________________
5. b. Withdrawal (reason): ____________________________
6. c. Cross-list with: ____________________________

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

d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.

Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.

5. Is this an existing core curriculum course? □ Yes  □ No
6. If grade type is changing for existing course, indicate the new grade type: □ Grade □ S/U □ P/F (CLMD)
7. If this course will be stacked, please indicate the course number of the stacked course:

I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

8. Complete course title and current catalog course description:

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

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

11. a. As currently in course inventory:

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Approvals recommended by:

Victor Wilson, Ph.D. □ Department Head or Program Chair (Type Name & Sign) Date

George Cunningham, Ph.D. □ Chair, College Review Committee Date

George Cunningham, Ph.D. □ Dean of College Date

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

Submitted to Coordinating Board by:

Associate Director, Curricular Services Date Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu
Curricular Services – 08/14
Texas A&M University
Departmental Request for a Change in Course
Undergraduate □ Graduate □ Professional
- Submit original form and attachments -

Form Instructions
1. Course request type:
   □ Undergraduate □ Graduate □ First Professional (DDS, MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name):
   Department of Educational Psychology
3. Course prefix, number and complete title of course:
   SPSY 617: Emotional Disturbance in Children

   Attach a brief supporting statement for changes made to items 4a through 10 below.

4. Change requested
   a. Prerequisite(s): From:
      SPSY 610; SPSY 612.                                 To:               SPSY 610; SPSY 612; SPSY 642
   b. Withdrawal (reason): ____________________________
   c. Cross-list with: ____________________________

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

   d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.

   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.

5. Is this an existing core curriculum course?
   □ Yes   □ No

6. If grade type is changing for existing course, indicate the new grade type:
   □ Grade    □ S/U   □ P/F (CLMD)

7. If this course will be stacked, please indicate the course number of the stacked course:
   ________________

   I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

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

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

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

11. a. As currently in course inventory:

   Prefix  Course #  Title (excluding punctuation)

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

   Submitted to Coordinating Board by:
   Mark Zoran, Ph.D.
   Chair, GC or UCC  Date

   Associate Director, Curricular Services  Date  Effective Date

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Curricular Services – 08/14
Texas A&M University
Departmental Request for a Change in Course
Undergraduate + Graduate + Professional
- Submit original form and attachments -

Form Instructions

1. Course request type:
   - [ ] Undergraduate
   - [ ] Graduate
   - [ ] First Professional (DDS, MD, JD, PharmD, DVM)

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

3. Course prefix, number and complete title of course:
   SPSY 628: Consultation Theory and Techniques

4. Change requested
   a. Prerequisite(s): From: SPSY 612 and SPSY 614 or approval of instructor; approval of department head.
   To: Approval of instructor; approval of department head.
   b. Withdrawal (reason):
   c. Cross-list with:
   Cross-listed courses require the signature of both department heads.

d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.

e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.

5. Is this an existing core curriculum course?
   - [ ] Yes
   - [ ] No

6. If grade type is changing for existing course, indicate the new grade type:
   - [ ] Grade
   - [ ] S/U
   - [ ] P/F (CLMD)

7. If this course will be stacked, please indicate the course number of the stacked course:
   I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpard.tamu.edu/resources/export-
   controls/export-controls-basics-for-distance-education).

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

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

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

11. a. As currently in course inventory:

<table>
<thead>
<tr>
<th>Lec.</th>
<th>Lab</th>
<th>Other</th>
<th>SCH</th>
<th>CIP and Fund Code</th>
<th>Admin. Unit</th>
<th>HCLE Code</th>
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<td></td>
</tr>
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b. Change to:

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<th>Lab</th>
<th>Other</th>
<th>SCH</th>
<th>CIP and Fund Code</th>
<th>Admin. Unit</th>
<th>HCLE Code</th>
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<td>0 0 3 6 3 2</td>
<td></td>
</tr>
</tbody>
</table>

Approval recommended by:

Victor Williams, Ph.D.
Department Chair or Program Chair (Type Name & Sign) Date

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

George Cunningham, Ph.D.
Chair, College Review Committee Date

George Cunningham, Ph.D.
Dean of College Date

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

Submitted to Coordinating Board by:

Associate Director, Curricular Services Date

Questions regarding this form should be directed to Sandra Williams at 845-8261 or sandra-williams@tamu.edu.
Curricular Services – 08/14
Texas A&M University
Department Request for a Change in Course
Undergraduate • Graduate • Professional
Submit original form and attachments

Form Instructions
1. Course request type: ☐ Undergraduate ☑ Graduate ☐ First Professional (DDS, MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name): Department of Educational Psychology
3. Course prefix, number and complete title of course: SPSY 638: Systems Consultation and Prevention Science

Attach a brief supporting statement for changes made to items 4a through 4d and 10 below.

4. Change requested
   a. Prerequisite(s): From: ______________________ To: ______________________
      Cross-listed courses require the signature of both department heads.
   b. Withdrawal (reason): _______________________________________________________
   c. Cross-list with: ______________________
   d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.
5. Is this an existing core curriculum course? ☐ Yes ☐ No
6. If grade type is changing for existing course, indicate the new grade type: ☐ Grade ☐ S/U ☐ P/F (CLMD)
7. If this course will be stacked, please indicate the course number of the stacked course:__________________________________________
   I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).
8. Complete course title and current catalog course description:
9. Complete proposed course title and proposed catalog course description (not to exceed 50 words):
10. Complete proposed course title and proposed catalog course description (not to exceed 50 words):

a. As currently in course inventory:

   Prefix Course # Title (excluding punctuation) Lec. Lab Other SCH CHF and Fund Code Admin. Unit HCE Code Level
   ____________ ____________ _______________________________ ____________ ____________ ____________ ____________

b. Change to:

   Prefix Course # Title (excluding punctuation) Lec. Lab Other SCH CHF and Fund Code Admin. Unit Acd. Year HCE Code Level
   ____________ ____________ _______________________________ ____________ ____________ ____________ ____________

Approval recommended by:
Victor Willson, Ph.D. ___________________________ Date 10/26/14
Department Head or Program Chair (Type Name & Sign)
Department Head or Program Chair (Type Name & Sign) (If cross-listed course) Date 10/26/14

Submitted to Coordinating Board by:
Mark Zoran, Ph.D. ___________________________ Date 10/26/14
Chair, GC or UCC

George Cunningham, Ph.D. ___________________________ Date 10/26/14
Chair, College Review Committee
Dean of College

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 08/14
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
• Submit original form and attachments •

Form Instructions
1. Course request type: □ Undergraduate  ☑ Graduate  □ First Professional (e.g., MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name): Department of Educational Psychology
3. Course prefix, number and complete title of course: SPSY 641: Child Therapy for School Behavior Problems
4. Change requested
   a. Prerequisite(s): From: ___________________________ To: ___________________________
   b. Withdrawal (reason):
   c. Cross-list with: ___________________________
      Cross-listed courses require the signature of both department heads.
   d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.
5. Is this an existing core curriculum course? □ Yes □ No
6. If grade type is changing for existing course, indicate the new grade type: □ Grade □ S/U □ P/F (CLMD)
7. If this course will be stacked, please indicate the course number of the stacked course:
   □ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-control-basics-for-distance-education).
8. □
9. Complete current course title and current catalog course description:
   ___________________________________________
10. Complete proposed course title and proposed catalog course description (not to exceed 50 words):
   ___________________________________________
11. a. As currently in course inventory:

   Prefix  Course #  Title (excluding punctuation)
   Lct.  Lab  Other  SCH  CIP and Fund Code  Admin. Unit  HCE Code  Level
   □  □  □  □  □  □  □  □

   b. Change to:

   Prefix  Course #  Title (excluding punctuation)
   Lct.  Lab  Other  SCH  CIP and Fund Code  Admin. Unit  Acad. Year  HCE Code  Level
   □  □  □  □  □  □  □  □  □

   Approval recommended by: ___________________________
   Victor Williams, Ph.D.
   Department Head or Program Chair (Type Name & Sign) Date

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

   Submitted to Coordinating Board by: ___________________________
   Associate Director, Curricular Services

   Chair, College Review Committee Date
   Chair, GC or UCC Date

   Chair, College Review Committee Date
   Dean of College Date

   Chair, College Review Committee Date

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

Form instructions
1. Course request type: □ Undergraduate □ Graduate □ First Professional (MD, MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name): Department of Educational Psychology
3. Course prefix, number and complete title of course: SPSY 657: Bilingual Psychoeducational Assessment

Attach a brief supporting statement for changes made to items 4a through 4d, and 10 below.

4. Change requested
   a. Prerequisite(s): From: __________________________ To: __________________________
   b. Withdrawal (reason):
   c. Cross-listed with:
   Cross-listed courses require the signature of both department heads.
   d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.

5. Is this an existing core curriculum course? □ Yes □ No

6. If grade type is changing for existing course, indicate the new grade type: □ Grade □ S/U □ P/F (CLMD)

7. If this course will be stacked, please indicate the course number of the stacked course: □ : verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-control-basics-for-distance-education).

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

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

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

   a. As currently in course inventory:

   Prefix  Course #  Title (excluding punctuation)
   __________  __________  __________

   Lect.  Lab  Other  SCH  CIP and Fund Code  Admin. Unit  FICE Code  Level
   __________  __________  __________  __________  __________  __________  __________  __________

   b. Change to:

   Prefix  Course #  Title (excluding punctuation)
   __________  __________  __________

   Lect.  Lab  Other  SCH  CIP and Fund Code  Admin. Unit  Acad. Year  FICE Code  Level
   __________  __________  __________  __________  __________  __________  __________  __________  __________

   Approval recommended by:

   Victor Wilson, Ph.D.  George Cunningham, Ph.D.
   Department Head or Program Chair (Type Name & Sign)  Chair, College Review Committee
   Date  Date

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

   Mark Zoran, Ph.D.  Chair, GC or UCC
   Submitted to Coordinating Board by:
   Date  Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu
Curricular Services – 08/14
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional

Form Instructions
1. Course request type: ☐ Undergraduate ☑ Graduate ☐ First Professional (MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name): Department of Educational Psychology
3. Course prefix, number and complete title of course: SPSY 683: Field Experience/Externship in School Psychology

Attach a brief supporting statement for changes made to items 4d and 10b below.

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

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

   d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.

   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.

5. Is this an existing core curriculum course? ☐ Yes ☑ No

6. If grade type is changing for existing course, indicate the new grade type:
   ☐ Grade ☐ S/U ☑ P/F (CLMD)

7. If this course will be stacked, please indicate the course number of the stacked course:

☐ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-control-basics-for-distance-education).

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

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

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

11. a. As currently in course inventory:

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<th>Title (excluding punctuation)</th>
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<th>Lab</th>
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<th>SCH</th>
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<th>Admin. Unit</th>
<th>HCE Code</th>
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b. Change to:

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<th>Title (excluding punctuation)</th>
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Approval recommended by:

Victor Wilson, Ph.D.
Department Head or Program Chair (Type Name & Sign) Date

George Cunningham, Ph.D.
Chair, College Review Committee Date

George Cunningham, Ph.D.
Dean of College Date

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

Submitted to Coordinating Board by:

Associate Director, Curricular Services Date Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 08/14
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
Submit original form and attachments

Form Instructions
1. Course request type: 
   - Undergraduate
   - Graduate
   - First Professional (DDS, MD, JD, PharmD, DVM)
2. Request submitted by (Department or Program Name): Department of Educational Psychology
3. Course prefix, number and complete title of course: SPSY 684: Professional Internship
4. Change requested
   a. Prerequisite(s): From: Completion of required substantive coursework; approval of department head. To: Completion of required substantive coursework; approval of instructor and department head.
   b. Withdrawal (reason):
   c. Cross-list with: Cross-listed courses require the signature of both department heads.
   d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.
5. Is this an existing core curriculum course? 
   - Yes
   - No
6. If grade type is changing for existing course, indicate the new grade type: 
   - Grade
   - S/U
   - P/F (CLMD)
7. If this course will be stacked, please indicate the course number of the stacked course:
   - I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://ypr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).
8. Complete current course title and current catalog course description:
9. Complete proposed course title and proposed catalog course description (not to exceed 50 words):
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<td>3 2</td>
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</table>
   b. Change to:
   
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<tr>
<td>Lect.</td>
<td>Lab</td>
<td>Other</td>
</tr>
<tr>
<td>0 0</td>
<td>3 6</td>
<td>3 2</td>
</tr>
</tbody>
</table>
   Approval recommended by: George Cunningham, Ph.D.
   Department Head or Program Chair (Type Name & Sign) Date

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

   Submitted to Coordinating Board by:
   Associate Director, Curricular Services Date
   Chair, GC or UCC Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu
Curricular Services – 08/14
Texas A&M University  
**Departmental Request for a Change in Course**  
Undergraduate • Graduate • Professional  
*Submit original form and attachments*  

<table>
<thead>
<tr>
<th>Form Instructions</th>
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</thead>
<tbody>
<tr>
<td>1. Course request type:</td>
<td>□ Undergraduate  ✔ Graduate  □ First Professional</td>
</tr>
<tr>
<td>2. Request submitted by (Department or Program Name):</td>
<td>Veterinary Pathobiology</td>
</tr>
<tr>
<td>3. Course prefix, number and complete title of course:</td>
<td>VPAT 640 Advanced Mechanisms of Disease</td>
</tr>
<tr>
<td>4. Change requested</td>
<td>No changes</td>
</tr>
</tbody>
</table>
| a. Prerequisite(s): | From:  
To: |
| b. Withdrawal (reason): | No changes  |
| c. Cross-list with: | No changes  |
| d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title. |  |
| e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. | Attach a course syllabus.  |
| 5. Is this an existing core curriculum course? | □ Yes  ✔ No  |
| 6. If grade type is changing for existing course, indicate the new grade type: | ☑ Grade  
S/U  
P/F (CLMD)  |
| 7. If this course will be stacked, please indicate the course number of the stacked course: | VPAT 642  |
| 8. I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-control-basics-for-distance-education). |  |
| 10. Complete proposed course title and proposed catalog course description (not to exceed 50 words): | Advanced Mechanisms of Disease. (2-0). Credit 2. Concepts of pathogenesis of disease processes. Prerequisite: DVM degree or approval of instructor.  |
| 11. As currently in course inventory: |  |
| Prefix | Course # | Title (excluding punctuation)  |
| VPAT | 640 | Advanced Mechanisms of Disease  |
| Lect. | Lab | Other | SCH | CIP and Fund Code | Admin. Unit | FICE Code | Level  |
| 3.00 | 0.00 | 0.00 | 3.00 | 2u. 0910. 0002 | 2907 | 0 0 3 6 3 2 | 6  |
| b. Change to:  |
| Prefix | Course # | Title (excluding punctuation)  |
| VPAT | 640 | Advanced Mechanisms of Disease  |
| Lect. | Lab | Other | SCH | CIP and Fund Code | Admin. Unit | Acad. Year | FICE Code | Level  |
| 2.00 | 0.00 | 0.00 | 2.00 | 2u. 0910. 0002 | 2907 | 15 - 16 | 0 0 3 6 3 2 | 6  |
| Approval recommended by: |  |
| Department Head or Program Chair (Type Name & Sign) | Date | Chair, College Review Committee | Date |
| Dean of College | 9-30-14 |
| Submitted to Coordinating Board by: | Chair, GC or UCC | Date | Effective Date |  |
| Associate Director, Curricular Services | Date |  |

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
VPAT 640: Mechanisms of Disease
Fall 2015

**General Course Description and Objectives:**
This course serves as an overview of general pathology concepts ranging from inflammation and immunity to cellular adaptation, apoptosis, and neoplasia and the pathophysiology of these processes. Upon completion of this course the student will have a general understanding of mechanisms of disease due to infectious and non-infectious etiologies. The student will also be able to read and evaluate current literature in these areas.

**Instructors:**
Gwendolyn J. Levine, DVM, Diplomate, ACVP (Clinical Pathology) (Course Coordinator)
Clinical Assistant Professor, Veterinary Pathobiology
Office: VMA 210B
e-mail: gilevine@cvm.tamu.edu

Mary Nabit, DVM, PhD, Diplomate, ACVP (Clinical Pathology)
Assistant Professor, Veterinary Pathobiology
Office: Clinical Pathology Lab, Rm 2022B; Telephone: (979) 845-9172
e-mail: mnabity@cvm.tamu.edu

Raquel Rech, DVM, MS, PhD, Diplomate, ACVP (Anatomic Pathology)
Clinical Assistant Professor, Veterinary Pathobiology
Office: Necropsy Rm 131; Telephone (979) 845-6948
e-mail: rrech@cvm.tamu.edu

Angela Arenas, DVM, PhD, Diplomate, ACVP (Anatomic Pathology)
Research Assistant Professor, Veterinary Pathobiology
Office: VMD 54YB Telephone: (979) 862-2220
e-mail: aarenas@cvm.tamu.edu

**Prerequisites:**
DVM degree (or equivalent), or approval of the Course Coordinator

**Credit and contact hours**
2 credit hours
28 contact hours

**Meeting time and place:**
Thursday, 10am – 11:50 a.m.
Bldg VMD 508 Room 50x
Office hours are available by appointment
Note: This class must be taken in conjunction with VPAT 642, which meets on Tuesdays, 10-11:50am.

**Textbook and Course Materials:**
The principal reference text is Robbins & Cotran Pathologic Basis of Disease, 9th edition by Kumar, Abbas, and Aster, Saunders 2014/2015 (PBD). An additional reference book is Pathologic Basis of
Veterinary Disease, 5th edition by Zachary and McGavin, Elsevier, 2012 (McGavin). This course will also focus on articles from the current literature illustrating topics of discussion. The primary journals that articles will be pulled from include: Cell, Science, Nature, Veterinary Pathology, Journal of Veterinary Diagnostic Investigation, Journal of Comparative Pathology, American Journal of Pathology, New England Journal of Medicine, Toxicologic Pathology, and Veterinary Clinical Pathology. Articles will be sent via e-mail the week prior to discussion.

**Course Organization:**
The instructor will present a brief overview of each topic based on the reference text, followed by participant-led discussions of the articles. Discussions will be partly based on relevant questions written by participants on the assigned articles and/or text to be discussed. These questions will be submitted to the instructor of the respective class by 5 p.m. on the day prior to the class session.

**Guidelines for questions:**
Each student must submit up to 3 questions for each class period (the number of questions to be submitted is at the discretion of the instructor). Submitted questions should be multiple-choice, using 4 distractors (A-D). The question should be a single line, if possible, and the distractors should be single words or short phrases. Please avoid negative questions (e.g., All of the following...EXCEPT)

**Evaluation (Grading):**
Grades will be determined by attendance, preparation for class, submission of questions, participation in the discussions, and a final examination as outlined below:

<table>
<thead>
<tr>
<th>Component</th>
<th>Measure</th>
<th>Score</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributions to Textbook/Article Discussions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submission of relevant, quality questions</td>
<td>% of class periods submitted</td>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>Instructor evaluation of daily participation</td>
<td>Scale: 1-5</td>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>Attendance</td>
<td>% of class periods attended</td>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td></td>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>TOTAL SCORE:</td>
<td></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

The final exam will be composed of multiple-choice questions. Scheduling of the final exam will be in accordance with the schedule published by the Office of the Registrar or based on a unanimous vote by the class.

**Grades:**
Final grades will be determined based on the mean and standard deviation (SD) of the total scores. The criterion most favorable to the student will be applied.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total score ≥90%</td>
<td>A</td>
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<tr>
<td>Total score ≥80% and &lt;90%</td>
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<td>Total score ≥50% and &lt;80%</td>
<td>C</td>
</tr>
<tr>
<td>Total score ≥60% and &lt;70%</td>
<td>D</td>
</tr>
<tr>
<td>Total score &lt;60%</td>
<td>F</td>
</tr>
</tbody>
</table>
Below is a list of topics for each week along with assigned textbook readings. It is expected that participants read all assigned materials prior to class. The topic schedule is subject to change pending the needs of the class and interests.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Instructor</th>
<th>Topic</th>
<th>Assigned Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current articles</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Associated with Defects in Enzymes through Glycogen Storage Diseases</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current articles</td>
</tr>
<tr>
<td>3</td>
<td>9/17</td>
<td>MN</td>
<td>Primary, secondary, and tertiary hemostasis</td>
<td>PBD: 116-120: Hemostasis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>McGavin: 68-75: Hemostasis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current articles</td>
</tr>
<tr>
<td>4</td>
<td>9/24</td>
<td>MN</td>
<td>Shock</td>
<td>PBD: 131-134</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>McGavin: 86-88</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current articles</td>
</tr>
<tr>
<td>5</td>
<td>10/1</td>
<td>MN</td>
<td>Epigenetics</td>
<td>PBD: 1-5: Noncoding DNA through IncRNA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current articles</td>
</tr>
<tr>
<td>6</td>
<td>10/8</td>
<td>RR</td>
<td>Acute inflammation</td>
<td>PBD: 69-82</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(leukocyte migration and phagocytosis)</td>
<td>Current articles</td>
</tr>
<tr>
<td>7</td>
<td>10/15</td>
<td>RR</td>
<td>Chronic Inflammation</td>
<td>PBD: 93-100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>McGavin: 121-134</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current articles</td>
</tr>
<tr>
<td>8</td>
<td>10/22</td>
<td>RR</td>
<td>Diseases of the Immune System</td>
<td>PBD: 185-211</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current articles</td>
</tr>
<tr>
<td>9</td>
<td>10/29</td>
<td>RR</td>
<td>Autoimmune diseases and Immunodeficiency syndromes</td>
<td>PBD: 211-256</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>McGavin: 271-284</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current articles</td>
</tr>
<tr>
<td>10</td>
<td>11/5</td>
<td>GL</td>
<td>Cell Cycle; Molecular Basis of Cancer</td>
<td>PBD: 25-29: Maintaining Cell Populations; 280-289: Molecular Basis of Cancer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>through Proto-oncogenes, Oncogenes, and Oncoproteins</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current articles</td>
</tr>
<tr>
<td>11</td>
<td>11/12</td>
<td>GJL</td>
<td>Tumor Suppressor Genes, Metabolic Alterations, Cancer cells are like</td>
<td>PBD: 290-305: Insensitivity to Growth Inhibition: Tumor Suppressor Genes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Stem Cells</td>
<td>through Limitless Replicative Potential</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current articles</td>
</tr>
<tr>
<td></td>
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<tr>
<td>---</td>
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<td>---</td>
<td>---</td>
</tr>
<tr>
<td>13</td>
<td>11/25</td>
<td>No Class Thanksgiving</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>12/3</td>
<td>AA</td>
<td>Infectious Disease: Viral Infections</td>
<td>McGavin: 198-234 Current articles</td>
</tr>
<tr>
<td>15</td>
<td>12/11</td>
<td></td>
<td>Final Exam: 12:30-2:30pm</td>
<td></td>
</tr>
</tbody>
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Your presence and participation is expected at all class meetings. The University and College have published guidelines defining excused vs. unexcused absence. If an absence is excused, the instructor will either provide the student an opportunity to make up any quiz, exam or other work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial absence. The reasons absences are considered excused by the university are listed below. See Student Rule 7 for details (http://student-rules.tamu.edu/rule07). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.

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2) Death or major illness in a student's immediate family.
3) Illness of a dependent family member.
4) Participation in legal proceedings or administrative procedures that require a student's presence.
5) Religious holy day. NOTE: Prior notification is NOT required.
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   b) Injury or illness of less than three class days: Student will provide one or both of these (at instructor's discretion), within one week of the last date of the absence: (i.) Texas A&M University Explanatory Statement for Absence from Class form available at http://attendance.tamu.edu or (ii.) Confirmation of visit to a health care professional affirming date and time of visit.
7) Required participation in military duties.
8) Mandatory admission interviews for professional or graduate school that cannot be rescheduled.

Other absences may be excused at the discretion of the instructor with prior notification and proper documentation. In cases where prior notification is not feasible (e.g., accident or emergency) the student must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class.

If an examination is missed due to an excused absence, a makeup will be offered. The make-up examination must be completed promptly (within one week of the absence), at a time and place
determined by the instructor. Unexcused absence from an examination, or failure to complete a makeup examination, will result in a grade of "zero" (no grading points) for the examination.

**Copyright Notice:**
All handouts used in this course are copyrighted. Handouts include (but are not limited to) the syllabus, quizzes, examinations, laboratory problems, take-home problem sets, in-class materials, review sheets, and computer module programs. Students do not have the right to copy any of the handouts without express written permission of the course instructors.

**Academic Integrity Statement**
"An Aggie does not lie, cheat, or steal or tolerate those who do." TAMU Honor Council Rules and Procedures are on the web http://aggiehonor.tamu.edu. "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."

**Americans with Disabilities Act**
"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 that you have a disability requiring accommodation, please contact the Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu)."
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional

Form Instructions
1. Course request type:  □ Undergraduate  ✔ Graduate  □ First Professional (Pharm, Med, Vet, VetMed)
2. Request submitted by (Department or Program Name): Veterinary Pathobiology
3. Course prefix, number and complete title of course: VPAT 642 Mechanisms of Metabolic Disease

4. Change requested
   a. Prerequisite(s): From:  No change  To:  No change
   b. Withdrawal (reason):  no change
   c. Cross-list with:  no change

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

   d. Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.

   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.

5. Is this an existing core curriculum course?

6. If grade type is changing for existing course, indicate the new grade type:  ✔ Grade  ☐ S/U  ☐ P/F (CLMD)

7. If this course will be stacked, please indicate the course number of the stacked course:  ✔ VPAT 640

8. Verify that I have reviewed the FAQ for Export Control Basics for Distance Education (https://vp.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

9. Complete current course title and current catalog course description:
   Mechanisms of Metabolic Disease. (3-0). Credit 3. Characteristics and mechanisms of diseases caused either by deficiency, imbalance, excess of specific nutrients or chemicals, or by regulatory disturbances of metabolism. Prerequisite: DVM degree or approval of department head.

10. Complete proposed course title and proposed catalog course description (not to exceed 50 words):
   Mechanisms of Metabolic Disease. (2-0). Credit 2. Characteristics and mechanisms of diseases caused either by deficiency, imbalance, excess of specific nutrients or chemicals, or by regulatory disturbances of metabolism. Prerequisite: DVM degree or approval of department head.

11. a. As currently in course inventory:

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course #</th>
<th>Title (excluding punctuation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPAT</td>
<td>642</td>
<td>Mechanisms of Metabolic Disease</td>
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</table>

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
<th>Other</th>
<th>SCH</th>
<th>CP and Fund Code</th>
<th>Admin. Unit</th>
<th>ECE Code</th>
<th>Level</th>
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<td>2907</td>
<td>0 3 6 3 2 6</td>
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</table>

   b. Change to:

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course #</th>
<th>Title (excluding punctuation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPAT</td>
<td>642</td>
<td>Mechanisms of Metabolic Disease</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
<th>Other</th>
<th>SCH</th>
<th>CP and Fund Code</th>
<th>Admin. Unit</th>
<th>ECE Code</th>
<th>Level</th>
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<td>24.0910.0002</td>
<td>2907</td>
<td>15 - 16</td>
<td>0 3 6 3 2</td>
</tr>
</tbody>
</table>

   Approval recommended by:  
   [Signature]  
   [Date]  

   Department Head or Program Chair (Type Name & Sign)  Date
   Chair, College Review Committee  9-30-14

   Department Head or Program Chair (Type Name & Sign)  Date
   Dean of College  9-30-14

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

   Associate Director, Curricular Services  Date

   Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 08/14
VPAT 642: Mechanisms of Metabolic Disease
Fall 2015

General Course Description and Objectives:
This course serves as an overview of general pathology concepts ranging from inflammation and immunity to cellular adaptation, apoptosis, and neoplasia and the pathophysiology of these processes. Upon completion of this course, the student will have a general understanding of mechanisms of disease due to inflammatory and non-inflammatory causes.

Instructors:

Mary Nabity, DVM, PhD, Diplomate, ACVP (Clinical Pathology)
Assistant Professor, Veterinary Pathobiology
Office: Clinical Pathology Lab, Rm 2022B; Telephone: (979) 845-9172
e-mail: mnabity@cvm.tamu.edu

Gwendolyn J. Levine, DVM, Diplomate, ACVP (Clinical Pathology)
Clinical Assistant Professor, Veterinary Pathobiology
Office: VMA 210B
e-mail: gjlevine@cvm.tamu.edu

Raquel Rech, DVM, MS, PhD, Diplomate, ACVP (Anatomic Pathology)
Clinical Assistant Professor, Veterinary Pathobiology
Office: Necropsy Rm 131; Telephone (979) 845-6948
e-mail: rech@cvm.tamu.edu

Angela Arenas, DVM, PhD, Diplomate, ACVP (Anatomic Pathology)
Research Assistant Professor, Veterinary Pathobiology
Office: VMD 54YB; Telephone: (979) 862-2220
e-mail: aarenas@cvm.tamu.edu

Prerequisites:
DVM degree (or equivalent), or approval of the Course Coordinator.

Credit and contact hours:
2 credit hours (28 contact hours)

Meeting time and place:
Tuesday, 10 – 11:50 a.m.
Bldg VMD 508 Room 50x
Office hours are available by appointment
Note: This class must be taken in conjunction with VPAT 640, which meets on Thursdays, 10-11:50 a.m.

Textbook and Course Materials:
Additional readings will include articles from the current literature for each topic. Articles will be sent via e-mail the week prior to discussion.

**Course Organization:**
The instructor will present a brief overview of each topic based on the reference text, followed by participant-led discussions of the articles. Discussions will be partly based on relevant questions written by participants on the assigned articles and/or text to be discussed. These questions will be submitted to the instructor of the respective class by 5 p.m. on the day prior to the class session.

**Guidelines for questions:**
Each student must submit up to 3 questions for each class period (the number of questions to be submitted is at the discretion of the instructor). Submitted questions should be multiple-choice, using 4 distractors (A-D). The question should be a single line, if possible, and the distractors should be single words or short phrases. Please avoid negative questions (e.g., All of the following...EXCEPT)

**Evaluation (Grading):**
Grades will be determined by attendance, preparation for class, submission of questions, participation in the discussions, and a final examination as outlined below:

<table>
<thead>
<tr>
<th>Component</th>
<th>Measure</th>
<th>Score</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributions to Textbook/Article Discussions</td>
<td>Submission of relevant, quality questions</td>
<td>% of class periods submitted</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Instructor evaluation of daily participation</td>
<td>Scale: 1-5</td>
<td>25%</td>
</tr>
<tr>
<td>Attendance</td>
<td>% of class periods attended</td>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td></td>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>TOTAL SCORE:</td>
<td></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

The final exam will be composed of multiple-choice questions. Scheduling of the final exam will be in accordance with the schedule published by the Office of the Registrar or based on a unanimous vote by the class.

**Grades:**
Final grades will be determined based on the mean and standard deviation (SD) of the total scores. The criterion most favorable to the student will be applied.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total score ≥80%</td>
<td>A</td>
</tr>
<tr>
<td>Total score ≥80% and &lt;90%</td>
<td>B</td>
</tr>
<tr>
<td>Total score ≥70% and &lt;80%</td>
<td>C</td>
</tr>
<tr>
<td>Total score ≥60% and &lt;70%</td>
<td>D</td>
</tr>
<tr>
<td>Total score &lt;60%</td>
<td>F</td>
</tr>
</tbody>
</table>

Below is a list of topics for each week along with assigned textbook readings. It is expected that participants read all assigned materials prior to class. The topic schedule is subject to change pending the needs of the class and interests.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Instructor</th>
<th>Topic</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9/1</td>
<td>GL</td>
<td>Cellular Housekeeping, Lysosomes, Cell Signaling</td>
<td>PBD: 6-24: Cellular Housekeeping through Interaction with the Extracellular Matrix</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Current articles: lysosomes, cell signaling</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Current articles: Apoptosis, Necroptosis</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9/15</td>
<td>MN</td>
<td>Circulatory system, endothelial properties &amp; edema</td>
<td>PBD: 113-116: Edema &amp; Effusions and Hyperemia; 121: Endothelium McGavin: 60-68: Circulatory system through Abnormal fluid distribution Current articles</td>
</tr>
<tr>
<td>5</td>
<td>9/29</td>
<td>MN</td>
<td>Genes and Genetic Disorders</td>
<td>PBD: 137-149: Genes/Human diseases through Defects in Receptor Proteins; 157-182 Current articles: Genetic defects in veterinary medicine</td>
</tr>
<tr>
<td>6</td>
<td>10/6</td>
<td>MN</td>
<td>Vitamin D/Calcium/Phosphorus regulation</td>
<td>PBD: 438-442 Current articles</td>
</tr>
<tr>
<td>7</td>
<td>10/13</td>
<td>RR</td>
<td>Acute inflammation (mediators of inflammation)</td>
<td>PBD: 82-93 Current articles</td>
</tr>
<tr>
<td>8</td>
<td>10/20</td>
<td>No Class</td>
<td>(ACVP meeting)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>10/27</td>
<td>MN</td>
<td>Hypertrophy, Atrophy, &amp; Metaplasia; Tissue Repair and Regeneration</td>
<td>PBD: 32-38: Cell responses to stress through metaplasia; pgs. 100-110: Tissue Repair Current articles: Angiogenesis and/or regeneration</td>
</tr>
<tr>
<td>10</td>
<td>11/3</td>
<td>RR</td>
<td>Hypersensitivity</td>
<td>Current articles</td>
</tr>
<tr>
<td>11</td>
<td>11/10</td>
<td>RR</td>
<td>Autoimmune diseases</td>
<td>Current articles</td>
</tr>
<tr>
<td>12</td>
<td>11/17</td>
<td>GL</td>
<td>Tumor Suppressor Genes, Metabolic Alterations, Cancer cells are like Stem Cells</td>
<td>PBD: 290-305: Insensitivity to Growth Inhibition: Tumor Suppressor Genes through Limitless Replicative Potential</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Invasion and Metastasis and Evasion of Host Defense</td>
<td>PBD: 305-314: Angiogenesis through Evasion of Host Defense</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current articles: Invasion and Metastasis; Tumor Immunology</td>
<td>Chapter 8 PBD: 341-354</td>
<td>McGavin: 147-164</td>
</tr>
<tr>
<td>----</td>
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<td>------------------------------------------------------------</td>
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</tr>
<tr>
<td>13</td>
<td>11/24</td>
<td>AA General principles of Microbial Pathogenesis</td>
<td>McGavin: 164-198</td>
<td>Current articles: Bacterial Infections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mechanisms of Microbial Infections</td>
<td>McGavin: 237-241</td>
<td>Fungal, protozoan, prions</td>
</tr>
<tr>
<td>14</td>
<td>12/1</td>
<td>AA Infectious Disease: Bacterial Infections</td>
<td>McGavin: 164-198</td>
<td>Current articles: Bacterial Infections</td>
</tr>
<tr>
<td>15</td>
<td>12/8</td>
<td>AA Infectious Disease: Fungal, protozoan, prions</td>
<td>McGavin: 237-241</td>
<td>Fungal, protozoan, prions</td>
</tr>
<tr>
<td></td>
<td>12/11</td>
<td>Final Exam: 12:30-2:30 p.m.</td>
<td>McGavin: 164-198</td>
<td>Current articles: Bacterial Infections</td>
</tr>
</tbody>
</table>

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Other absences may be excused at the discretion of the instructor with prior notification and proper documentation. In cases where prior notification is not feasible (e.g., accident or emergency) the
student must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class.

If an examination is missed due to an excused absence, a makeup will be offered. The make-up examination must be completed promptly (within one week of the absence), at a time and place determined by the instructor. Unexcused absence from an examination, or failure to complete a makeup examination, will result in a grade of “zero” (no grading points) for the examination.

**Copyright Notice:**
All handouts used in this course are copyrighted. Handouts include (but are not limited to) the syllabus, quizzes, examinations, laboratory problems, take-home problem sets, in-class materials, review sheets, and computer module programs. Students do not have the right to copy any of the handouts without express written permission of the course instructors.

**Academic Integrity Statement**
"An Aggie does not lie, cheat, or steal or tolerate those who do." TAMU Honor Council Rules and Procedures are on the web http://aggiehonor.tamu.edu. "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."

**Americans with Disabilities Act**
"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 that you have a disability requiring accommodation, please contact the Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu)."
Curriculum Changes
To: LaRhesa Johnson, Graduate Student Specialist IV, Office of Graduate and Professional Studies
From: Cydney Donnell, Associate Department Head Finance
Re: Proposed Curriculum Change for Master of Real Estate (MRE) Degree

Upon review of curriculum and the current resource constraints, we are recommending a reduction in the number of credit hours for the MRE degree from 38 to 36 hours.

Please note that Texas A&M documentation shows a requirement for 38 credit hours while the Texas Higher Education Coordinating Board documentation shows a 37 credit hour requirement. I have spoken with administrators on campus and we have determined that this must be an oversight from many years past.

I understand that the next Graduate Council meeting is November 6th so if you could verify that this item is on the agenda, I would be appreciative. After I will check with you about process for putting on Faculty Senate agenda. Thank you.
Texas A&M University
Request for a Change in Curriculum
Undergraduate • Graduate • Professional

1. Program request type: ☑ Undergraduate ☑ Graduate ☐ First Professional (e.g., DVM, JD, MD, etc.)

2. Request change for: ☑ Degree Program ☐ Minor ☐ Certificate

3. Request submitted by (Department or Program Name):
Department of Finance

4. Program Designation and Name (e.g., B.A. in History, Minor in History, Certificate in European Union):
Master of Real Estate

5. Brief description of change:
Current program requires 38 credit hours for degree completion. Requesting to reduce to 36 credit hours

6. Rationale for change:
Based on curriculum review, it has been determined that the program hours may be reduced. The change is a better use of departmental resources and reduces the cost of the program.

7. a. Proposed curriculum attached. ☑ Yes ☐ No
   b. Current catalog curriculum with handwritten edits attached. ☑ Yes ☐ No
   c. Current Howdy degree evaluation with handwritten edits attached. ☐ Yes ☑ No

   Please make sure the attached proposed curriculum, catalog and Howdy degree evaluation match.

8. a. Will degree program hours change (increase/decrease) due to the proposed curriculum changes? ☑ Yes ☐ No
   b. If yes, degree program hours will change from: 37 to: 36
   c. If yes, is the Texas Higher Education Coordinating Board form attached?
      http://www.thecb.state.tx.us/index.cfm?objectid=A0F9F7EA-9A92-4F11-2756AD3BBFF01D60
      ☑ Yes ☐ No

9. If proposed changes affect other unit(s), are letters of support attached? ☐ Yes ☑ No

IMPORTANT NOTE: Curriculum changes submitted through the approval process and fully approved by February (December-UCC/GC, January-Faculty Senate, February-President) will be effective in the next academic year. Changes requiring approval beyond the University should complete the internal approval process early in the fall semester whenever possible in order to ensure timely implementation.

Approval recommended by:

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

Questions regarding this form should be directed to Curricular Services at 845-820 or sandra-williams@tamu.edu
Curricular Services – 04/14
# Master of Real Estate Degree

## Proposed Curriculum

<table>
<thead>
<tr>
<th>Course Number and Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGEC 603 - Land Economics</td>
<td>3</td>
</tr>
<tr>
<td>FINC 670 - Real Property Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FINC 672 - Real Property Finance</td>
<td>3</td>
</tr>
<tr>
<td>FINC 673 - Real Property Valuation I</td>
<td>3</td>
</tr>
<tr>
<td>FINC 675 - Analysis of Real Estate Decisions</td>
<td>3</td>
</tr>
<tr>
<td>FINC 676 - Commercial Real Estate Law</td>
<td>3</td>
</tr>
<tr>
<td>FINC 677- Real Estate Development Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FINC 684 - Professional Internship</td>
<td>3</td>
</tr>
<tr>
<td>FINC 685 - Directed Studies</td>
<td>1</td>
</tr>
<tr>
<td>FINC 685 - Directed Studies</td>
<td>1</td>
</tr>
<tr>
<td>FINC Elective</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 36

## Current Curriculum

<table>
<thead>
<tr>
<th>Course Number and Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGEC 603 - Land Economics</td>
<td>3</td>
</tr>
<tr>
<td>FINC 670 - Real Property Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FINC 672 - Real Property Finance</td>
<td>3</td>
</tr>
<tr>
<td>FINC 673 - Real Property Valuation I</td>
<td>3</td>
</tr>
<tr>
<td>FINC 674 - Real Property Valuation II</td>
<td>3</td>
</tr>
<tr>
<td>FINC 675 - Analysis of Real Estate Decisions</td>
<td>3</td>
</tr>
<tr>
<td>FINC 676 - Commercial Real Estate Law</td>
<td>3</td>
</tr>
<tr>
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</tr>
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<td>3</td>
</tr>
<tr>
<td>FINC 685 - Directed Studies</td>
<td>1</td>
</tr>
<tr>
<td>FINC 685 - Directed Studies</td>
<td>1</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 38
graduation fee to the Fiscal Department no later than the Friday of the second week of the fall or spring semester or the Friday of the first week of the first summer term. The electronic application for degree can be accessed via the student’s Howdy portal. Cancillations made after the application deadline will not receive a refund of the diploma fee. Students who have completed all their degree requirements will not be allowed to cancel their graduation. The Registrar attempts each semester to balance the size of each ceremony. Thus, the makeup of the ceremony by colleges does change from semester to semester. Graduation times are posted each semester on the website of the Office of the Registrar. A student should check the website at graduation.tamu.edu to determine the date and time of the graduation ceremony.

The Degree of Master of Real Estate

Through its Department of Finance, the Mays Business School offers a non-thesis program leading to the degree of Master of Real Estate (MRE). This program of study in the Mays Business School uses appropriate education offerings throughout the University.

This professional curriculum is primarily designed to provide broad preparation for the practice of commercial real estate consulting, valuation, brokerage, development, lending and capital markets, investment, asset management and corporate real estate. In addition, a student may avail himself/herself of traditional University strengths in a wide range of supporting areas and departments to prepare for careers in these fields.

Most holders of a bachelor's degree in business administration will normally be prepared to go directly into graduate courses leading to the MRE degree. Others may be required to take preprofessional courses to fulfill prerequisites and the Common Body of Knowledge (CBK) requirements.

Residence (See Residence Requirements, page 34.)

A student must complete 12 credit hours in resident study at Texas A&M University to satisfy the residence requirement for the Master of Real Estate degree.

Students who are employed full-time while completing their degree may fulfill total residence requirements by completion of less-than-full time course loads each semester. In order to be considered for this, the student is required to submit a Petition for Waivers and Exceptions along with verification of his/her employment to the Office of Graduate and Professional Studies.

Student’s Advisory Committee

The MRE student's advisory committee consists of the Director of Real Estate Programs or the Head of the Department of Finance within Mays Business School. The Director or Department Head has the responsibility of approving the proposed degree plans for the MRE students. When necessary, recommendations in cases of academic deficiency will be made to the Office of Graduate and Professional Studies.

Degree Plan

The degree plan must be completed and processed by the Mays MRE Program office and filed with the Office of Graduate and Professional Studies following the deadline imposed by the student's college and no later than dates announced in the
OGAPS calendar of deadlines for graduation. It is recommended that students who are planning to take additional courses after the completion of the Mays MRE core courses meet with the academic counselor in the Mays MRE Program office. Additional coursework may be added to the approved degree plan by petition. No changes can be made to the degree plan once the student's Request for Final Examination or Request for Final Examination Exemption is approved by the Office of Graduate and Professional Studies.

Credit Requirement. 36

A minimum of 36 semester credit hours of approved courses is required for the Master of Real Estate degree. Elective courses beyond the 3 semester credit hours included in the program would add to the total number of hours in the program.

Transfer of Credit

A student who has earned 12 hours of graduate credit in residence at Texas A&M University may be authorized to transfer courses in excess of the limits prescribed above upon the advice of the advisory committee and with the approval of the Office of Graduate and Professional Studies. Graduate and/or upper-level undergraduate courses taken in residence at an accredited U.S. institution or approved international institution with a final grade of B or greater, might be considered for transfer credit if, at the time the courses were completed, the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution. Otherwise, the limitations stated in the preceding section apply. Coursework in which no formal grades are given or in which grades other than letter grades (A or B) are earned (for example, CR, P, S, U, H, etc.) is not accepted for transfer credit. Courses appearing on the degree plan with grades of D, F or U may not be absolved by transfer work. Credit for thesis research or the equivalent is not transferable. Credit for coursework submitted for transfer from any college or university must be shown in semester credit hours or equated to semester credit hours. An official transcript from the university at which the transfer coursework was taken must be sent directly to the Office of Admissions.

Courses used toward a degree at another institution may not be applied for graduate credit. If the course to be transferred was taken prior to the conferral of a degree at the transfer institution, a letter from the Registrar at that institution stating that the course was not applied for credit towards the degree must be submitted to the Office of Graduate and Professional Studies.

Grades for courses completed at other institutions are not included in computing the GPR, with the exception of courses taken at the Texas A&M Health Science Center.

Limitations on the Use of Transfer, Extension and Certain Other Courses

Some departments may have more restrictive requirements for transfer work. If otherwise acceptable, certain courses may be used toward meeting credit-hour requirements for the master's degree under the following limitations.

1. The maximum number of credit hours which may be considered for transfer credit is the greater of 12 hours or one-third (1/3) of the total hours of a degree plan. The following restrictions apply:
• Graduate and/or upper-level undergraduate courses taken in residence at an accredited U.S. institution, or approved international institution with a final grade of B or greater will be considered for transfer credit if, at the time the courses were completed, the student was in degree-seeking status at Texas A&M University, or the student was in degree-seeking status at the institution at which the courses were taken; and if the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution.
• Courses previously used for another degree are not acceptable for degree plan credit.

2. The maximum number of credit hours taken in post-baccalaureate non-degree (G6) classification at Texas A&M University which may be considered for application to the degree plan is 12.

3. Any combination of 684, 685, 690 and 695 may not exceed 25 percent of the total credit hour requirement shown on the individual degree plan:
   • A maximum of 3 hours of 684 (Professional Internship) and/or
   • Up to 4 hours of 685 (Directed Studies), and
   • Up to 3 hours of 690 (Theory of Research), and
   • Up to 3 hours of 695 (Frontiers in Research).

4. A maximum of 2 hours of Seminar (681).

5. A maximum of 9 hours of advanced undergraduate courses (300- or 400-level).

6. For graduate courses of three weeks' duration or less, taken at other institutions, up to 1 hour of credit may be obtained for each five-day week of coursework. Each week of coursework must include at least 15 contact hours.

7. No credit hours of 691 (Research) may be used.

8. Continuing education courses may not be used for graduate credit.

9. Extension courses are not acceptable for credit.

Exceptions will be permitted only in unusual cases and when petitioned by the student's advisory committee and approved by the Office of Graduate and Professional Studies.

Foreign Languages
A foreign language is not required for the Master of Real Estate degree.

Internship
A student who undertakes a professional internship in partial fulfillment of master's degree requirements after completing all course requirements for the master's degree must return to the campus for an examination. An examination is not to be administered until all other requirements for the degree, including any internship, have been substantially completed.

Time Limit
All degree requirements must be completed within a period of seven consecutive years for the degree to be granted. A course will be considered valid until seven years after the end of the semester in which it is taken. Graduate credit for coursework which is more than seven calendar years old at the time of the final examination (oral or written) may not be used to satisfy degree requirements.
Final Examination

A final oral examination is not required for the Master of Real Estate degree.

Application for Degree

Graduate degrees are conferred at the close of each regular semester and 10-week summer semester. A candidate for an advanced degree who expects to complete his/her work at the end of a given semester must apply for graduation by submitting the electronic application for degree to the Office of the Registrar and by paying the required graduation fee to the Fiscal Department no later than the Friday of the second week of the fall or spring semester or the Friday of the first week of the first summer term. The electronic application for degree can be accessed via the student’s Howdy portal. A cancellation made after the application deadline will not receive a refund of the diploma fee. Students who have completed all their degree requirements will not be allowed to cancel their graduation. The Registrar attempts each semester to balance the size of each ceremony. Thus, the makeup of the ceremony by colleges does change from semester to semester. Graduation times are posted each semester on the website of the Office of the Registrar. A student should check the website at graduation.tamu.edu to determine the date and time of the graduation ceremony.

The Degree of Master of Recreation and Resources Development

The Master of Recreation and Resources Development (MRRD) degree is designed for a student who wants professional graduate training with a management orientation in recreation resources. It is intended to emphasize the problem solving skills involved in the use of science and technology to benefit humanity, not as a research degree.

Individuals with a baccalaureate degree from a college or university of recognized standing, or qualified Texas A&M University seniors during their last semester, may apply for admission to graduate studies to pursue the non-thesis degree of Master of Recreation and Resources Development. The candidate’s advisory committee shall specify prerequisite work where necessary.

The student must demonstrate problem solving capabilities. Degree candidates may gain such capabilities by completing a professional internship that is designed to provide meaningful, applied, practical experiences, and which may vary in duration from three to nine months depending upon departmental requirements.

The degree may be earned in the Recreation, Park and Tourism Sciences department in the College of Agriculture and Life Sciences.

Residence (See Residence Requirements, page 34.)

A student must complete 12 credit hours in resident study at Texas A&M University to satisfy the residence requirement for the Master of Recreation and Resources Development degree.

Students who are employed full-time while completing their degree may fulfill total residence requirements by completion of less-than-full time course loads each semester. In order to be considered for this, the student is required to submit a Petition for Waivers and Exceptions along with verification of his/her employment to the Office of Graduate and Professional Studies.
Texas Higher Education Coordinating Board
Request to Change Semester Credit Hours

Directions: An institution shall use this form to request a change in the number of semester credit hours (SCH) required for a degree program already on the institution's program inventory in accordance with Coordinating Board Rules, Chapter 5, Subchapter C, Section 5.55 – Revisions to Approved Programs.

Options:

1) Revisions that reduce the number of SCH require notification of change and affirmation that the reduction does not fall below the minimum requirements of the Southern Association of Colleges and Schools Commission on Colleges, program accreditors, and licensing bodies, if applicable.

2) Revisions that increase the number of SCH require detailed written documentation describing the compelling academic reason for the increase in the number of required hours.

NOTE: No request or notification is needed if revisions to the degree program curriculum do not result in a change in SCH.

Options 1 and 2 require the signature of the Provost or Chief Academic Officer.

Please submit Request to Change Semester Credit Hour via the Online Submission Portal:
https://www1.thecb.state.tx.us/apps/proposals/

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

Administrative Information

1. Institution: Texas A&M University

2. Program Name – As it appears on the Coordinating Board’s program inventory (e.g., Bachelor of Business Administration degree with a major in Accounting):

Master of Real Estate degree in Land Economics and Real Estate

3. Program CIP Code: 52.1501.00

4. Contact Person: Provide contact information for the person who can answer specific questions about the program.

   Name: Cydney Donnell
   Title: Associate Director Finance and Program Director
   E-mail: cdonnell@mays.tamu.edu
   Phone: 979-458-4104
Notification/Request for Change in Semester Credit Hours (SCH):

Current SCH: _____ 37_____ 

Proposed SCH: _____ 36______ 

Implementation Date: 9/1/15 

Complete Option 1 or 2 as appropriate 

Option 1: Reduction in Semester Credit Hours 

Is the change in the number of SCH compatible with the requirements of accreditation for the program? 

a. Southern Association of Colleges and Schools Commission on Colleges 
   ☑ YES ☐ NO 

b. Program Accreditor(s) 
   ☑ YES ☐ NO ☐ NA 

   Name of Program Accreditor: ____________________________ 

   ☑ YES ☐ NO ☐ NA 

   Name of Licensing Body(ies): ____________________________ 

Option 2: Increase in Semester Credit Hours 

Provide detailed documentation, such as changes in accrediting agency or licensing body requirements, workforce needs, or academic professional standards and needs, describing a compelling reason for the change in the number of SCH: 

Signature of Compliance 

I hereby certify that all of the above changes have been approved in accordance with the procedures outlined in Coordinating Board Rules, Chapter 5, Subchapter C, Section 5.55. 

Provost/Chief Academic Officer ____________________________ Date ____________________________
Texas A&M University
Request for a Change in Curriculum
Undergraduate • Graduate • Professional

1. Program request type:  
   □ Undergraduate  □ Graduate  □ First Professional (ex. DVM, JD, MD, etc.)

2. Request change for:  
   □ Degree Program  □ Minor  □ Certificate

3. Request submitted by (Department or Program Name):  
   Department of Sociology

   Program Designation and Name  
   (e.g. B.A. in History, Minor in History, Certificate in European Union):  
   B.A. 3+2 in Sociology

5. Brief description of change:  
The changes to the degree evaluation are for the joint degree program in the Bachelor of Arts in Sociology and the Masters in Public Service and Administration. The changes also include putting the program description in the undergraduate catalog. The changes to the undergraduate catalog are made in addition to previously-submitted edits.

6. Rationale for change:  
The purpose of the changes is to clarify the Bachelor of Arts degree program after the student is admitted to the joint program with the Bush School, and to align the details with those of other Liberal Arts degrees. The changes also align the amount of credits needed for the joint program with the state’s minimum amount of credits.

7. a. Proposed curriculum attached.  
   □ Yes  □ No

b. Current catalog curriculum with handwritten edits attached.  
   □ Yes  □ No

c. Current Howdy degree evaluation with handwritten edits attached.  
   □ Yes  □ No

   Please make sure the attached proposed curriculum, catalog and Howdy degree evaluation match.

8. a. Will degree program hours change (increase/decrease) due to the proposed curriculum changes?  
   □ Yes  □ No

b. If yes, degree program hours will change from:  
   to:  

   c. If yes, is the Texas Higher Education Coordinating Board form attached?  
   □ Yes  □ No

   http://www.thecb.state.tx.us/index.cfm?objectid=A0F9E7FA-9A92-4F11-2756AD3B8FF01D60

9. If proposed changes affect other unit(s), are letters of support attached?  
   □ Yes  □ No

IMPORTANT NOTE: Curriculum changes submitted through the approval process and fully approved by February (December-UC/GC, January-Faculty Senate, February-President) will be effective in the next academic year. Changes requiring approval beyond the University should complete the internal approval process early in the fall semester whenever possible in order to ensure timely implementation.

Approval recommended by:

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

Dean of College  
Date

Chair, College Review Committee  
Date

Chair, GC or UCC  
Date

Questions regarding this form should be directed to Curricular Services at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 04/14
Five-Year Joint Degree Program

The Sociology Department, in conjunction with the Bush School of Government and Public Service, offers a joint degree program that enables students to receive both their Sociology undergraduate (BA or BS) degree and a Master of Public Service and Administration (MPSA) degree in five years. Students admitted into this program will be enrolled in Bush School graduate courses with an undergraduate classification for the fall of their fourth year, and will be re-classified as degree-seeking Master’s degree students upon completing 120 credits, typically at the end of the spring of their fourth year. These credit hours must include all specific course prerequisites either for a Bachelor of Arts or Bachelor of Science in Sociology, as well as the courses required by the College of Liberal Arts and by Texas A&M University for an undergraduate degree. Students will be required to complete the same two-year, 48 hour curriculum as other students admitted to the Bush School’s MPSA program.
# Bachelor of Arts Curriculum

**Sociology.** 33 hours; no more than 33 hours of SOCI can be applied to the degree. The following SOCI courses are required. A grade of C or higher is required for a course to be counted in the major field. No more than 3 hours of SOCI 484 credit may be applied to the Bachelor of Arts degree in Sociology.

<table>
<thead>
<tr>
<th>Credit</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>SOCI 205: Introduction to Sociology</td>
</tr>
<tr>
<td>3</td>
<td>SOCI 220: Methods of Social Research</td>
</tr>
<tr>
<td>3</td>
<td>SOCI 230: Classical Sociological Theory</td>
</tr>
<tr>
<td>3</td>
<td>SOCI 420: Advanced Methods of Social Research</td>
</tr>
<tr>
<td>3</td>
<td>SOCI 430: Contemporary Sociological Theory</td>
</tr>
<tr>
<td>9</td>
<td>Sociology electives from SOCI 206-SOCI 499 or courses crosslisted with SOCI electives</td>
</tr>
<tr>
<td>3</td>
<td>BUSH 631</td>
</tr>
<tr>
<td>3</td>
<td>BUSH 632 or 635 or PSAA 630</td>
</tr>
<tr>
<td>3</td>
<td>Approved PSAA elective or track requirement</td>
</tr>
</tbody>
</table>

**College and University Requirements.** Other courses may qualify for the following categories. Students should consult the approved list of courses available in the Undergraduate Student Services Office in the College of Liberal Arts or from departmental advisors. The following lists incorporate University Core Curriculum requirements. No course may be counted in more than one category, except for International and Cultural Diversity.

<table>
<thead>
<tr>
<th>Credit</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Communication</td>
</tr>
<tr>
<td></td>
<td>1. ENGL 104 (C or better required for credit)</td>
</tr>
<tr>
<td></td>
<td>2. One course from ENGL 203, ENGL210; COMM 203, COMM 205, COMM 243</td>
</tr>
<tr>
<td></td>
<td>*Note: ENGL 203 may be used for Rule B or C, but not both.</td>
</tr>
<tr>
<td>6</td>
<td>Literature in English (6 hours): To be selected from approved college list.</td>
</tr>
<tr>
<td>14</td>
<td>Foreign Language: Four-course sequence in French, German, Russian, Spanish, Italian, Greek or Latin, or another language if approved by the department. Some students may take fewer credits, depending on their prior proficiency in the language. Credits earned for the Bachelor of Arts language requirement will not satisfy other core requirements.</td>
</tr>
<tr>
<td>6</td>
<td>Mathematics: At least 3 hours with the [KMTH] attribute. 3 hours may be in logic.</td>
</tr>
<tr>
<td>9</td>
<td>Life and Physical Sciences: Select only courses with the [KLPS] attribute.</td>
</tr>
<tr>
<td>9</td>
<td>Language, Philosophy, and Culture, and Creative Arts: To be selected from the University Core Curriculum.</td>
</tr>
<tr>
<td>6</td>
<td>Social and Behavior Sciences: To be selected from the University Core Curriculum, except SOCI 100-SOCI 499.</td>
</tr>
<tr>
<td>12</td>
<td>American History and Government/Political Science:</td>
</tr>
<tr>
<td></td>
<td>1. POLS 206 and POLS 207 (6 hours).</td>
</tr>
<tr>
<td></td>
<td>2. Two courses in American history (6 hours).</td>
</tr>
</tbody>
</table>
International and Cultural Diversity: To be selected from approved list. This course may also be used to satisfy any other requirement.

10 General Electives (SOCl courses may not be used as elective hours).

3 PSAA 601
3 PSAA 611
3 PSAA 621

120 hour minimum

*Please note that university requirements specify that all students must take at least two courses in their major that are designated as fulfilling a writing requirement (W). See the section on general requirements for baccalaureate degrees for more information.

**A minimum of 36 credit hours of 300- and 400-level coursework must be completed at Texas A&M University. At least 12 of these credits must come from the student’s major.
Other Departmental, College and University Requirements. The following requirements incorporate College and University requirements, but may be more stringent (noted).

Credit  Course

Communication:
1. ENGL 104
2. ENGL 210 (departmental requirement).

Mathematics:
6. MATH 131-147 (except MATH 150, MATH 167, MATH 365, MATH 366); PHIL 240.

Literature in English (6 hours): To be selected from the approved college list.

Language, Philosophy and Culture and Creative Arts: To be selected from the approved college list.

Social and Behavioral Sciences: To be selected from the approved list of courses in such areas as cultural anthropology, geography, political science, sociology, applied ethics and economics. Courses in psychology may not be used to satisfy this requirement.

Life and Physical Sciences.

International and Cultural Diversity: To be selected from approved list. This course may also be used to satisfy any other requirement.

American History and Government/Political Science.

Minor Field of Study. A minor is not required.

Electives: Sufficient elective hours (not in Psychology) to bring the total number of hours to 120. No more than 9 hours of any combination of military science, aerospace studies and physical activity may be counted.

Residency Requirement: Complete a minimum of 36 hours of 300- and 400-level coursework at Texas A&M.

120 hour minimum

*See page 17 for University Core Curriculum.

Minor in Psychology

A Psychology minor (15 hours) is available for non-psychology majors. The minor must be declared before the student has completed 90 credit hours. Nine hours of Psychology courses above the 200 level must be taken at Texas A&M; substitutions will not be allowed. A grade of "C" or higher is required in each course that is applied toward the minor. To enroll in most of the PSYC courses above the 200 level, students must have completed PSYC 107 and must have 60 or more hours of completed coursework. Finally, PSYC 484/PSYC 485/PSYC 491 will not count toward the minor.

Required courses (15 hours):
- PSYC 107 Introduction to Psychology (3 hours)
- PSYC 200-499, other than PSYC 484, PSYC 485 and PSYC 491 (3 hours)
- PSYC 300-499, other than PSYC 484, PSYC 485 and PSYC 491 (9 hours)

Curricula in Sociology

Sociology is the scientific study of society. The discipline examines all aspects of human behavior, especially those involving interpersonal relationships and the development of social structures.

The Department of Sociology offers courses in such areas as the family, racial and ethnic relations, demography, social stratification and inequality, social psychology, complex organizations, community, environment, criminology, the sociology of religion, global sociology and social change.
Sociological training is useful in a broad variety of occupations. Our coursework provides an understanding of the forces behind individual opinions and beliefs, organizational behavior, social trends and world events. These skills are critical to marketing, law, human resources, journalism, government and strategic management. Sociology is the best form of training for entry into the helping professions like social services and law enforcement, and it provides an outstanding foundation for business and industry.

Teacher Certification

Students desiring certification to teach sociology in Texas secondary schools must complete a social studies composite totaling 76 hours with a sociology emphasis. Students must complete 33 hours in sociology; 9 hours in political science; 6 hours in economics; 10 hours in geography; and 18 hours in history.

Sociology majors desiring certification must include the following among their sociology courses: one of SOCI 317, SOCI 323 or SOCI 403; one of SOCI 316 or SOCI 424; and SOCI 411. Students should consult an undergraduate Sociology advisor as early as possible to review the requirements of the social studies composite.

In addition to the social studies composite, students must also take: EDTC 345; INST 210; COMM 203; TEFB 322, TEFB 323, TEFB 324, TEFB 401, TEFB 404, TEFB 406, TEFB 407 and TEFB 423. More complete information on requests for teacher certification may be found in the College of Education and Human Development section under secondary certification.

Bachelor of Arts

Sociology. 33 hours; no more than 33 hours of SOCI can be applied to the degree. The following SOCI courses are required. A grade of C or higher is required for a course to be counted in the major field. No more than 3 hours of SOCI 484 credit may be applied to the Bachelor of Arts degree in Sociology.

Credit Course
3 SOCI 205 Introduction to Sociology
3 SOCI 220 Methods of Social Research
3 SOCI 230 Classical Sociological Theory
3 SOCI 420 Advanced Methods of Social Research
3 SOCI 430 Contemporary Sociological Theory
18 Sociology electives from SOCI 206-SOCI 499

College and University Requirements. Other courses may qualify for the following categories. Students should consult the approved list of courses available in the Undergraduate Student Services Office in the College of Liberal Arts or from departmental advisors. The following lists incorporate University Core Curriculum requirements. No course may be counted in more than one category.

Credit Course
6 Communication:
1. ENGL 104 (C or better required for credit).
2. One course from ENGL 203, ENGL 210, COMM 203, COMM 205 or COMM 243.
6 Literature in English (6 hours); To be selected from approved college list.
14 Foreign Language: Four-course sequence in French, German, Russian, Spanish, Italian, Greek or Latin, or another language if approved by the department head.
Detail Requirements

Information for Degree Evaluation
This is NOT an official evaluation.

Program Evaluation

Limitation Correspondence: No more than 12 hours of correspondence earned through an accredited institution may be used for an undergraduate degree.

Limitation Combination: Maximum combination of 18 hours of 481, 482, 485 and/or 491 courses may be used for an undergraduate degree.

Limitation Only one course from MATH 141, 166 may be used in this degree program.

Limitation Only 13 hours of KINE 198-199; AERS 100-499; MLSC 100-499; NVSC 100-499; SOMS 100-499 may be used in this degree program to include hours counted toward Residency.

Limitation Only 3 hours of SOCI 484 may be used in this program.

Limitation No more than 33 hours of SOCI can be applied to the degree.

Program: BA SOCI - 3+2 Program
Campus: College Station
College: Liberal Arts
Degree: Bachelor of Arts
Level: Undergraduate
Majors: Sociology
Departments: Sociology

Catalog Term:
Evaluation Term:
Expected Graduation Date:
Request Number:
Results as of:
Minors:
Concentrations:

Fall 2014 - College Station
Fall 2014 - College Station

Met Credits Courses
Required Used Required Used
No 120.00 0.00 0

Program GPA:
Yes 0.00 0.00

Overall GPA:
No 2.00 0.00

Other Course Information
Transfer:
0.00 0

This is NOT an official evaluation.

Area: Major Coursework (33,000 credits) - Not Met
Met Condition Rule Subject Attribute Low High Required Required Term Subject Course Title Attribute Credits Grade Source Courses

No A. SOCI 205
Must make a grade of "C" or better.

No AND B. SOCI 220
Must make a grade of "C" or better.

No AND C. SOCI 230
Must make a grade of "C" or better.

No AND D. SOCI 420
Must make a grade of "C" or better.

No AND E. SOCI 430
Must make a grade of "C" or better.

No AND F. SOCI 440
Must make a grade of "C" or better.

Select from BUSH 631, 635, or 636, SOCI 100-499, 608, 616.

G. Bush 631
H. Bush 632 or 635 or PSAA 630
I. Approved PSAA elective or track requirement

https://compass-ssb.tamu.edu/pls/PROD/bwckapp.P_VerifyDispEvalViewOption

10/8/2014
unofficial evaluation

**Area: Communication (6.000 credits) - Not Met**

<table>
<thead>
<tr>
<th>Met</th>
<th>Condition Rule</th>
<th>Subject</th>
<th>Attribute</th>
<th>Low Credit</th>
<th>High Credit</th>
<th>Required Term Subject</th>
<th>Course Title</th>
<th>Attribute Credits</th>
<th>Grade</th>
<th>Source</th>
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<tbody>
<tr>
<td>No</td>
<td></td>
<td>ENGL 104</td>
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<td>Must have a grade of 'C' or better.</td>
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<tr>
<td>No</td>
<td>AND</td>
<td>Communication Rqmt 3hrs</td>
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<td></td>
<td>Select from ENGL 203, 210; COMM 203, 205, 243.</td>
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<td></td>
<td>C.</td>
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<td></td>
<td>Literature requirement 6 hrs.</td>
<td>Select two literature courses from the college-approved list.</td>
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</tbody>
</table>

unofficial evaluation

**Area: Mathematics (6.000 credits) - Not Met**

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<th>Subject</th>
<th>Attribute</th>
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<th>High Credit</th>
<th>Required Term Subject</th>
<th>Course Title</th>
<th>Attribute Credits</th>
<th>Grade</th>
<th>Source</th>
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<tbody>
<tr>
<td>No</td>
<td></td>
<td>Mathematics Rqmt 3hrs</td>
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<td>Select a course with the [UMAT] attribute, excluding MATH 102-104, 130, 150, 165, 365, 366.</td>
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<td>No</td>
<td>AND</td>
<td>Math/Logic Rqmt 3hrs</td>
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<td>Select a course with the [UMAT] attribute, excluding MATH 102-104, 130, 150, 165, 365, 366.</td>
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</table>

unofficial evaluation

**Area: Life and Physical Sciences (9.000 credits) - Not Met**

<table>
<thead>
<tr>
<th>Met</th>
<th>Condition Rule</th>
<th>Subject</th>
<th>Attribute</th>
<th>Low Credit</th>
<th>High Credit</th>
<th>Required Term Subject</th>
<th>Course Title</th>
<th>Attribute Credits</th>
<th>Grade</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
<td>Life/Physical Sciences 9hrs</td>
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<td>Select 9 hours from any courses with the Life and Physical Sciences attribute [KLPS].</td>
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unofficial evaluation

**Area: Foreign Language (14.000 credits) - Not Met**

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<th>Subject</th>
<th>Attribute</th>
<th>Low Credit</th>
<th>High Credit</th>
<th>Required Term Subject</th>
<th>Course Title</th>
<th>Attribute Credits</th>
<th>Grade</th>
<th>Source</th>
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</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
<td>Arabic 14hrs</td>
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<td>1. 8 hours. Take ARAB 101 and 102.</td>
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<td>2. 6 hours. Take ARAB 201 and 202.</td>
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<td>No</td>
<td>)OR(</td>
<td>Chinese 14hrs</td>
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<td>1. 8 hours. Take CHIN 101 and 102.</td>
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<td>2. 6 hours. Take CHIN 201 and 202.</td>
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<td>No</td>
<td>)OR(</td>
<td>French 14hrs</td>
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<td>1. 8 hours. Take FREN 101 and 102.</td>
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<td>2. 3 hours. Select from FREN 201 or 221.</td>
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<td>3. 3 hours. Select from FREN 202 or 222.</td>
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</tbody>
</table>

*Some students may take fewer credits, depending on their prior proficiency in the language. *Another language may be used if approved by a major department advisor. *Credits earned for the Bachelor of Arts requirement language requirement will not satisfy other core requirements.
No  )OR(  D.  German 14hrs
1. 8 hours. Take GERM 101 and 102.
2. 3 hours. Select from GERM 201 or 221.
3. 3 hours. Select from GERM 202 or 222.

No  )OR(  E.  Greek 14hrs
1. 8 hours. Take CLAS 101 and 102.
2. 3 hours. Take CLAS 211.
3. 3 hours. Select from CLAS 311 or 312.

No  )OR(  F.  Italian 14hrs
1. 8 hours. Take ITAL 101 and 102.
2. 6 hours. Take ITAL 201 and 202.

No  )OR(  G.  Japanese 14hrs
1. 8 hours. Take JAPN 101 and 102.
2. 6 hours. Take JAPN 201 and 202.

No  )OR(  H.  Latin 14hrs
1. 8 hours. Take CLAS 121 and 122.
2. 6 hours. Take CLAS 221 and 222.

No  )OR(  I.  Portuguese 14hrs
1. 8 hours. Take PORT 101 and 102.
2. 6 hours. Take PORT 201 and 202.

No  )OR(  J.  Russian 14hrs
1. 8 hours. Take RUSS 101 and 102.
2. 6 hours. Select from RUSS 201, 202, 221, 222.

No  )OR(  K.  Spanish 14hrs
1. 4 hours. Take SPAN 101.
2. 4 hours. Select from SPAN 102 or 140.
3. 3 hours. Select from SPAN 201 or 221.
4. 3 hours. Select from SPAN 202 or 222.

Total Credits and GPA 0.000 0.00

unofficial evaluation

Area : Lang. Phil. Cult. & Cr. Arts (15.000 credits) - Not Met

Met Condition Rule Subject Attribute Low High Required Required Term Subject Course Title Attribute Credits Grade Source Credits Courses

No  A.  Creative Arts 3hrs
Select from any course with the Creative Arts [KCRA] attribute.

No  AND  B.  Language, Philosophy & Culture
Select from any course with the Language, Philosophy, and Culture [KLPC] attribute.

No  AND  C.  Lang. Phil. Cult. & Cr. Arts
Select from any course with the Language, Philosophy, and Culture [KLPC] attribute or with the Creative Arts [KCRA] attribute.

No  AND  D.  Literature Requirement 6hrs
Select from COMM 221, 222; ENGL 203, 204, 205, 210, 212, 221, 222, 224, 228, 231, 233, 308, 310, 312, 320, 330, 331, 333, 334, 340, 350, 356, 362, 365, 375, 379, 390, 392, 394, 396; MODL 221, 222; or course for which one of these courses is a prerequisite.

Total Credits and GPA 0.000 0.00

unofficial evaluation

Area : Social and Behavioral Science (6.000 credits) - Not Met

Met Condition Rule Subject Attribute Low High Required Required Term Subject Course Title Attribute Credits Grade Source Credits Courses

No  A.  Social Science 3hrs
Select from any course with the Social and Behavioral Sciences (KSOC) attribute (except SOCI 100-499).

B. Social Science 3 hrs.
Select from any course with the Social and Behavioral Sciences (KSOC) attribute (except SOCI 100-499).

Area: Citizenship (12.000 credits) - Not Met
Description: Completion of 4 semesters of Upper-Level ROTC may be substituted for 3 hours of American History and 3 hours of Political Science.
Met: Condition Rule Subject Attribute Low High Required Required Term Subject Course Title Attribute Credits Grade Source

No
A. American History Reqmt 6hrs
Select from any course with the [KHIS] attribute.

No AND B. Political Science Reqmt 6hrs
Take POLS 205 and POLS 207.

Area: General Electives (19.000 credits) - Not Met
Met: Condition Rule Subject Attribute Low High Required Required Term Subject Course Title Attribute Credits Grade Source

No
A. General Electives 1.3hrs
PSAA 601

No AND B. General Electives II 1.3hrs
PSAA 611

No AND C. General Electives III 1.3hrs
PSAA 621

No AND D. General Electives IV 10hrs
10hrs any 100-499 (except SOCI)

Area: Work Not Applied - Met
Description: See advisor for acceptable substitutions.
Met: Condition Rule Subject Attribute Low High Required Required Term Subject Course Title Attribute Credits Grade Source

No
A. Courses not applied

Area: University Writing Requirement - Not Met
Met: Condition Rule Subject Attribute Low High Required Required Term Subject Course Title Attribute Credits Grade Source

No
A. Writing Requirement
Two courses required, only sections of SOCI 210, 220, 256, 322, 327
unofficial evaluation

<table>
<thead>
<tr>
<th>Area</th>
<th>Int'l &amp; Cult Diversity - Not Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Met</td>
<td>Condition Rule Subject Attribute Low High Required Required Term Subject Course Title Attribute Credits Grade S</td>
</tr>
<tr>
<td>No</td>
<td>A. Int'l &amp; Cultural Diversity 6hr Subjects with the International and Cultural Diversity attribute (ICID) (except sections of BUSN 289 with the UWRT attribute) These courses may also be used to satisfy other degree requirements.</td>
</tr>
</tbody>
</table>

unofficial evaluation

<table>
<thead>
<tr>
<th>Area</th>
<th>Residence Requirement - Not Met</th>
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<tbody>
<tr>
<td>Description</td>
<td>A minimum of 36 hours of 300-400 level coursework must be completed at Texas A&amp;M University. 12 hours must be in the major field.</td>
</tr>
<tr>
<td>Met</td>
<td>Condition Rule Subject Attribute Low High Required Required Term Subject Course Title Attribute Credits Grade S</td>
</tr>
<tr>
<td>No</td>
<td>A. Residence - Major 12hrs</td>
</tr>
<tr>
<td>No</td>
<td>AND B. Residence - 300-499 24hrs</td>
</tr>
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</table>

unofficial evaluation

<table>
<thead>
<tr>
<th>Area</th>
<th>GPR-Major - Not Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>A GPR of 2.00 must be maintained in all major field courses.</td>
</tr>
<tr>
<td>Met</td>
<td>Condition Rule Subject Attribute Low High Required Required Term Subject Course Title Attribute Credits Grade S</td>
</tr>
<tr>
<td>No</td>
<td>A. Major GPR 33+hrs Includes BUSN 231, 632, 641, PSAR 631, SOCI 100-499, 500, and all courses cross-listed with SOCI 100-499; BUSN 631, 632, 635; PSAR 631, and other PSAR elective or track requirements.</td>
</tr>
</tbody>
</table>

unofficial evaluation

Back to Display Options

Print
Texas A&M University
Request for a Change in Curriculum
Undergraduate • Graduate • Professional

1. Program request type: ☑ Undergraduate ☐ Graduate ☐ First Professional (e.g., DVM, JD, MD, etc.)

2. Request change for: ☑ Degree Program ☐ Minor ☐ Certificate

3. Request submitted by (Department or Program Name):
Department of Sociology

Program Designation and Name
(e.g., B.A. in History, Minor in History, Certificate in European Union):
B.S. 3+2 in Sociology

5. Brief description of change: The changes to the degree evaluation are for the joint degree program in the Bachelor of Science in Sociology and the Masters in Public Service and Administration. The changes also include putting the program description in the undergraduate catalog. The changes to the undergraduate catalog are made in addition to previously-submitted edits.

6. Rationale for change: The purpose of the changes is to clarify the Bachelor of Science degree program after the student is admitted to the joint program with the Bush School, and to align the details with those of other Liberal Arts degrees. The changes also align the amount of credits needed for the joint program with the state's minimum amount of credits.

7. Use the checkboxes below to make sure that all information is included.

   a. Proposed curriculum attached.
      ☑ Yes ☐ No

   b. Current catalog curriculum with handwritten edits attached.
      ☑ Yes ☐ No

   c. Current Howdy degree evaluation with handwritten edits attached.
      ☑ Yes ☐ No

   Please make sure the attached proposed curriculum, catalog and Howdy degree evaluation match.

8. a. Will degree program hours change (increase/decrease) due to the proposed curriculum changes?
      ☐ Yes ☑ No

   b. If yes, degree program hours will change from: ________ to: ________

   c. If yes, is the Texas Higher Education Coordinating Board form attached?
      ☐ Yes ☑ No

      http://www.thecb.state.tx.us/index.cfm?objectid=A0F9E7FA-9A92-4F11-2756AD3BBFF01D60

9. If proposed changes affect other unit(s), are letters of support attached?
      ☑ Yes ☐ No

IMPORTANT NOTE: Curriculum changes submitted through the approval process and fully approved by February (December-UCC/GE, January-Faculty Senate, February-President) will be effective in the next academic year. Changes requiring approval beyond the University should complete the internal approval process early in the fall semester whenever possible in order to ensure timely implementation.

Approval recommended by:

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

Dean of College Date

Chair, College Review Committee Date

Chair, GC or UCC Date

Questions regarding this form should be directed to Curricular Services at 845-8201 or sandra-williams@tamu.edu.
Curricular Services - 04/14
Five-Year Joint Degree Program

The Sociology Department, in conjunction with the Bush School of Government and Public Service, offers a joint degree program that enables students to receive both their Sociology undergraduate (BA or BS) degree and a Master of Public Service and Administration (MPSA) degree in five years. Students admitted into this program will be enrolled in Bush School graduate courses with an undergraduate classification for the fall of their fourth year, and will be re-classified as degree-seeking Master’s degree students upon completing 120 credits, typically at the end of the spring of their fourth year. These credit hours must include all specific course prerequisites either for a Bachelor of Arts or Bachelor of Science in Sociology, as well as the courses required by the College of Liberal Arts and by Texas A&M University for an undergraduate degree. Students will be required to complete the same two-year, 48 hour curriculum as other students admitted to the Bush School’s MPSA program.
Bachelor of Science Curriculum

**Sociology.** 33 hours; no more than 33 hours of SOCI can be applied to the degree. The following SOCI courses are required. A grade of C or higher is required for a course to be counted in the major field. No more than 3 hours of SOCI 484 credit may be applied to the Bachelor of Arts degree in Sociology.

<table>
<thead>
<tr>
<th>Credit</th>
<th>Course</th>
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<tbody>
<tr>
<td>3</td>
<td>SOCI 205: Introduction to Sociology</td>
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<tr>
<td>3</td>
<td>SOCI 220: Methods of Social Research</td>
</tr>
<tr>
<td>3</td>
<td>SOCI 230: Classical Sociological Theory</td>
</tr>
<tr>
<td>3</td>
<td>SOCI 420: Advanced Methods of Social Research</td>
</tr>
<tr>
<td>3</td>
<td>SOCI 430: Contemporary Sociological Theory</td>
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<tr>
<td>9</td>
<td>Sociology electives from SOCI 206-SOCI 499 or courses crosslisted with SOCI electives</td>
</tr>
<tr>
<td>3</td>
<td>BUSH 631</td>
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<tr>
<td>3</td>
<td>BUSH 632 or 635 or PSAA 630</td>
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<tr>
<td>3</td>
<td>Approved PSAA elective or track requirement</td>
</tr>
</tbody>
</table>

**College and University Requirements.** Other courses may qualify for the following categories. Students should consult the approved list of courses available in the Undergraduate Student Services Office in the College of Liberal Arts or from departmental advisors. The following lists incorporate University Core Curriculum requirements. No course may be counted in more than one category, except for International and Cultural Diversity.

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<th>Credit</th>
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<tr>
<td>6</td>
<td>Communication</td>
</tr>
<tr>
<td>1. ENGL 104 (C or better required for credit)</td>
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</tr>
<tr>
<td>2. One course from ENGL 203, ENGL210; COMM 203, COMM 205, COMM 243</td>
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<tr>
<td>*Note: ENGL 203 may be used for Rule B or C, but not both.</td>
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<tr>
<td>6</td>
<td>Literature in English (6 hours): To be selected from approved college list.</td>
</tr>
<tr>
<td>6</td>
<td>Mathematics: At least 3 hours with the [KMTH] attribute. 3 hours may be in logic.</td>
</tr>
<tr>
<td>21</td>
<td>Life and Physical Sciences: 9 credits must have the [KLPS] attribute. The remaining 12 credits will be selected from the approved college list.</td>
</tr>
<tr>
<td>9</td>
<td>Language, Philosophy, and Culture, and Creative Arts: To be selected from the University Core Curriculum.</td>
</tr>
<tr>
<td>6</td>
<td>Social and Behavior Sciences: To be selected from the University Core Curriculum, except SOCI 100-SOCI 499.</td>
</tr>
<tr>
<td>12</td>
<td>American History and Government/Political Science:</td>
</tr>
<tr>
<td>1. POLS 206 and POLS 207 (6 hours).</td>
<td></td>
</tr>
<tr>
<td>2. Two courses in American history (6 hours).</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>International and Cultural Diversity: To be selected from approved list. This course may also be used to satisfy any other requirement.</td>
</tr>
<tr>
<td>12</td>
<td>General Electives (SOCI courses may not be used as elective hours).</td>
</tr>
<tr>
<td>3</td>
<td>PSAA 601</td>
</tr>
</tbody>
</table>
*Please note that university requirements specify that all students must take at least two courses in their major that are designated as fulfilling a writing requirement (W). See the section on general requirements for baccalaureate degrees for more information.

**A minimum of 36 credit hours of 300- and 400-level coursework must be completed at Texas A&M University. At least 12 of these credits must come from the student's major.
Other Departmental, College and University Requirements. The following requirements incorporate College and University requirements, but may be more stringent (noted).

Credit

Course

2
1. ENGL 104.

3
2. ENGL 210 (departmental requirement).

Mathematics

6
MATH 131-167 (except MATH 150, MATH 167, MATH 365, MATH 366); PHIL 240.

6
Literature in English (6 hours): To be selected from the approved college list.

9
Language, Philosophy and Culture and Creative Arts: To be selected from the approved college list.

6
Social and Behavioral Sciences: To be selected from the approved list of courses in such areas as cultural anthropology, geography, political science, sociology, applied ethics and economics. Courses in psychology may not be used to satisfy this requirement.

21
Life and Physical Sciences.

6
International and Cultural Diversity: To be selected from approved list. This course may also be used to satisfy any other requirement.

12
American History and Government/POLITICAL SCIENCE.

19
Minor Field of Study: A minor is not required.

Electives: Sufficient elective hours (not in Psychology) to bring the total number of hours to 120. No more than 9 hours of any combination of military science, naval science, aerospace studies and physical activity may be counted.

36
Residency Requirement: Complete a minimum of 36 hours of 300- and 400-level course-work at Texas A&M.

120
hour minimum

Minor in Psychology

A Psychology minor (15 hours) is available for non-psychology majors. The minor must be declared before the student has completed 90 credit hours. Nine hours of Psychology courses above the 200 level must be taken at Texas A&M; substitutions will not be allowed. A grade of “C” or higher is required in each course that is applied toward the minor. To enroll in most of the PSYC courses above the 100 level, students must have completed PSYC 107 and must have 60 or more hours of completed coursework. Finally, PSYC 484/PSYC 485/PSYC 491 will not count toward the minor.

Required courses (15 hours):

- PSYC 107 Introduction to Psychology (3 hours)
- PSYC 200-499, other than PSYC 484, PSYC 485 and PSYC 491 (3 hours)
- PSYC 300-499, other than PSYC 484, PSYC 485 and PSYC 491 (9 hours)

Curricula in Sociology

Sociology is the scientific study of society. The discipline examines all aspects of human behavior, especially those involving interpersonal relationships and the development of social structures.

The Department of Sociology offers courses in such areas as the family, racial and ethnic relations, demography, social stratification and inequality, social psychology, complex organizations, community environment, criminology, the sociology of religion, global sociology and social change.
Sociological training is useful in a broad variety of occupations. Our coursework provides an understanding of the forces behind individual opinions and beliefs, organizational behavior, social trends and world events. These skills are critical to marketing, law, human resources, journalism, government and strategic management. Sociology is the best form of training for entry into the helping professions like social services and law enforcement, and it provides an outstanding foundation for business and industry.

Teacher Certification

Students desiring certification to teach sociology in Texas secondary schools must complete a social studies composite totaling 76 hours with a sociology emphasis. Students must complete 33 hours in sociology; 9 hours in political science; 6 hours in economics; 10 hours in geography; and 18 hours in history.

Sociology majors desiring certification must include the following among their sociology courses: one of SOCI 317, SOCI 323 or SOCI 403; one of SOCI 316 or SOCI 424; and SOCI 411. Students should consult an undergraduate Sociology advisor as early as possible to review the requirements of the social studies composite.

In addition to the social studies composite, students must also take: EDTC 345; INST 210; COMM 203; TEFB 322, TEFB 323, TEFB 324, TEFB 401, TEFB 404, TEFB 406, TEFB 407 and TEFB 425. More complete information on requests for teacher certification may be found in the College of Education and Human Development section under secondary certification.

Bachelor of Arts

Sociology: 33 hours; no more than 33 hours of SOCI can be applied to the degree. The following SOCI courses are required. A grade of C or higher is required for a course to be counted in the major field. No more than 3 hours of SOCI 484 credit may be applied to the Bachelor of Arts degree in Sociology.

Credit Course
3 SOCI 205 Introduction to Sociology
3 SOCI 220 Methods of Social Research
3 SOCI 230 Classical Sociological Theory
3 SOCI 420 Advanced Methods of Social Research
3 SOCI 430 Contemporary Sociological Theory
18 Sociology electives from SOCI 206-SOCI 499

College and University Requirements. Other courses may qualify for the following categories. Students should consult the approved list of courses available in the Undergraduate Student Services Office in the College of Liberal Arts or from departmental advisors. The following lists incorporate University Core Curriculum requirements. No course may be counted in more than one category.

Credit Course
6 Communication:
1. ENGL 104 (C or better required for credit).
2. One course from ENGL 203, ENGL 210; COMM 203, COMM 205 or COMM 243.
6 Literature in English (6 hours): To be selected from approved college list.
14 Foreign Language: Four-course sequence in French, German, Russian, Spanish, Italian, Greek or Latin, or another language if approved by the department head.
Detail Requirements

Information for Degree Evaluation

This is NOT an official evaluation.

Program Evaluation

Limitation Correspondence: No more than 12 hours of correspondence earned through an accredited institution may be used for an undergraduate degree.

Limitation Combination: Maximum combination of 18 hours of 481, 482, 485 and/or 491 courses may be used for an undergraduate degree.

Limitation Only one course from MATH 141, 166 may be used in this degree program.

Limitation Only 13 hours of KINE 198-199; AERS 100-499; MLSC 100-499; NVSC 100-499; SOMS 100-499 may be used in this degree program to include hours counted toward Residency.

Limitation Only 3 hours of SOCI 484 may be used in this program.

Limitation No more than 33 hours of SOCI can be applied to the degree.

Program: BS SOCI - 3+2 Program
Catalog Term: Evaluation Term: Fall 2014 - College Station
Fall 2014 - College Station

Campus: College Station
College: Liberal Arts
Degree: Bachelor of Science
Level: Undergraduate
Majors: Sociology
Departments: Sociology

Met Credits Courses

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<td>2.00</td>
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</table>

This is NOT an official evaluation.

Area: Major Coursework (33,000 credits) - Not Met

Met Condition Rule Subject Attribute Low High Required Required Term Subject Course Title Attribute Credits Grade Source Courses

No A. SOCI 205
Must make a grade of "C" or better.

No AND B. SOCI 220
Must make a grade of "C" or better.

No AND C. SOCI 230
Must make a grade of "C" or better.

No AND D. SOCI 420
Must make a grade of "C" or better.

No AND E. SOCI 430
Must make a grade of "C" or better.

No AND F. SOCI Remt 491
Select from BUSH 630, 635, or 636, SOCI 100-499, 608, 616.
Must make a grade of "C" or better.

G. Bush 631
H. Bush 632 or 635 or PSAA 630
I. Approved PSAA elective or - track requirement

https://compass-ssb.tamu.edu/pls/PROD/bwckcapp.P_VerifyDispEvalViewOption

10/8/2014
## Official Evaluation

### Area: Communication (6.000 credits) - Not Met

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*Note: ENGL 203 may be used for Rule B or C, but not both.*

### Area: Mathematics (6.000 credits) - Not Met

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### Area: Lang. Phil. Cult. & Cr. Arts (15.000 credits) - Not Met

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<th>Courses</th>
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</tbody>
</table>

Total Credits and GPA 0.000 .00
### Met Condition Rule Subject Attribute Low High Required Required Term Subject Course Title Attribute Credits Grade Source

| No | A. Creative Arts 3hrs
|    | Select from any course with the Creative Arts [KCRA] attribute. |
| No AND | B. Language, Philosophy & Culture
|    | Select from any course with the Language, Philosophy, and Culture [KLPC] attribute. |
| No AND | C. Lang. Phil. Cult. & Cr. Arts
|    | Select from any course with the Language, Philosophy, and Culture [KLPC] attribute or with the Creative Arts [KCRA] attribute. |
| No AND | D. Literature Requirement 6hrs
|    | Select from COMM 221, 222; ENGL 203, 204, 205, 212, 221, 222, 227, 228, 231, 232, 238, 312, 327, 329, 330, 333, 334-340, 352, 356, 362, 365, 367, 370, 390, 392-394 396; MODL 221, 222; or course for which one of these courses is a prerequisite. |

#### Total Credits and GPA 0.000 0.00

### Unofficial Evaluation

**Area:** Social and Behavioral Science (6.000 credits) - Not Met

| No | A. Social Science 6hrs
|    | Select from any course with the Social and Behavioral Sciences [KSOCS] attribute (except SOCI 100-499). |
| No | B. Social Science 5hrs
|    | Select from any course with the Social and Behavioral Sciences [KSOCS] attribute (except SOCI 100-499). |

#### Total Credits and GPA 0.000 0.00

### Unofficial Evaluation

**Area:** Citizenship (12.000 credits) - Not Met

**Description:** Completion of 4 semesters of Upper-Level ROTC may be substituted for 3 hours of American History and 3 hours of Political Science.

| No | A. American History Reqmt 6hrs
|    | Select from any course with the [KHIS] attribute. |
| No AND | B. Political Science Reqmt 6hrs
|    | Take POLS 206 and POLS 207. |

#### Total Credits and GPA 0.000 0.00

### Unofficial Evaluation

**Area:** General Electives (22.000 credits) - Not Met

| No | A. General Electives I 3hrs
|    | 1 hrs PSAA 601, 611, 612, 613 |
| No AND | B. General Electives II 3hrs
|    | 1 hrs PSAA 611 or 612 |
| No AND | C. General Electives III 3hrs
|    | 1 hrs any PSAA elective |

#### Total Credits and GPA 0.000 0.00
unofficial evaluation

Area: Work Not Applied - Met
Description: See advisor for acceptable substitutions.

Met: Condition Rule: Subject Attribute: Low High Required Required Term Subject Course Title Attribute Credits Courses

No: A. Courses not applied

unofficial evaluation

Area: University Writing Requirement - Not Met

Met: Condition Rule: Subject Attribute: Low High Required Required Term Subject Course Title Attribute Credits Courses

No: A. Writing Requirement
   Two courses required.
   Only *SOCI 205, 210, 212, 230, 315, 322, 329*
   *BUSN 204, 210, 230, 313, 322, 329* with the Writing attribute [UWRT] may be used to satisfy this requirement.
   These courses may also be used to satisfy major requirements.

unofficial evaluation

Area: Int'l & Cult Diversity - Not Met

Met: Condition Rule: Subject Attribute: Low High Required Required Term Subject Course Title Attribute Credits Courses

No: A. Int'l & Cultural Diversity 6hr
   Select from courses with the International and Cultural Diversity attribute [UIICD] (except sections of BUSN 289 with the UWRT attribute).
   These courses may also be used to satisfy other degree requirements.

unofficial evaluation

Area: Foreign Language - Not Met

Met: Condition Rule: Subject Attribute: Low High Required Required Term Subject Course Title Attribute Credits Courses

No: A. Foreign Language Requirement
   Complete one of the following:
   1. Two years of the same foreign language in High School.
   2. A two semester sequence of the same foreign language for University credit.

*Some students may take fewer credits depending on their prior proficiency in the language.*

Total Credits and GPA

unofficial evaluation
Detail Requirements

Area: Residence Requirement - Not Met
Description: A minimum of 36 hours of 300-400 level coursework must be completed at Texas A&M University. 12 hours must be in the major field.
Met

<table>
<thead>
<tr>
<th>Condition</th>
<th>Rule</th>
<th>Subject</th>
<th>Attribute</th>
<th>Low High Required</th>
<th>Required Term Subject</th>
<th>Course Title</th>
<th>Attribute Credits</th>
<th>Grade S</th>
<th>Credits</th>
<th>Courses</th>
<th>Total Credits and GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>A.</td>
<td>Residence - Major</td>
<td>12hrs</td>
<td></td>
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<td>0.000 .00</td>
</tr>
<tr>
<td>No</td>
<td>AND</td>
<td>B. Residence - 300-499</td>
<td>24hrs</td>
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<td></td>
<td></td>
<td>0.000 .00</td>
</tr>
</tbody>
</table>

unofficial evaluation

Area: GPR-Major - Not Met
Description: A GPR of 2.00 must be maintained in all major field courses.
Met

<table>
<thead>
<tr>
<th>Condition</th>
<th>Rule</th>
<th>Subject</th>
<th>Attribute</th>
<th>Low High Required</th>
<th>Required Term Subject</th>
<th>Course Title</th>
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<th>Grade S</th>
<th>Credits</th>
<th>Courses</th>
<th>Total Credits and GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>A.</td>
<td>Major GPR</td>
<td>33+hrs</td>
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<td>0.000 .00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Includes BUSH 63., 632, PSSA 641, RELS 726, SOCI 100-499, 615-616, WGST 315-323, and all courses cross-listed with SOCI 100-499, BUSH 631, 632, 635, PSSA 635, and other PSSA elective or track requirements.</td>
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</tr>
</tbody>
</table>

unofficial evaluation

Back to Display Options

Print
Special Consideration

Items
Texas A&M University  
New Certificate, Bachelors, Masters, or Doctoral Program  
Undergraduate • Graduate • Professional  
• Proposal Checklist •

Program request type:  
☐ Undergraduate  ☒ Graduate  ☐ First Professional (ex. DVM, JD, MD, etc.)

Requested by the Department or Unit of:  
Texas A&M Energy Institute

**Program Type, Level, Designation, Title, Description, Hours**

Program Type:  
☐ Certificate Program  ☒ Degree Program

Program Level:  
☐ UG Certificate  ☐ Grad Certificate  ☐ Bachelor  ☒ Master  ☐ Doctoral  ☐ Professional

Degree Designation (i.e., BS, BA, MA, MS, MAg, MEd, PhD, EdD, etc.)  
Executive Master of Science in Energy

Title of proposed program:  
Professional Master of Science in Energy Degree Program

Proposed CIP Code (if known):  
30.9999.04

Brief program description (provide a catalog description for undergraduate and graduate certificates):

The “Professional Master of Science in Energy” program is designed to introduce students/professionals to the multiple interdisciplinary facets of energy that range from overview of energy technologies (fossil-based, renewable, and non-fossil based), to multi-scale energy systems engineering methods, to materials for energy, to economics and finance, to business, to entrepreneurship, to law, and their interactions. The students/professionals will be exposed to (a) important energy challenges and opportunities, and (b) advances in theory, methods, technologies, and applications delivered by energy leaders from academia, industry, and government, through a module-based structure and a distinguished seminar series. Emphasis will be placed on creating the new generation of energy educated students and professionals who will be broadly educated on all components of energy through quantitative analytical methods and multi-scale systems based approaches.

<table>
<thead>
<tr>
<th>Minimum program semester credit hours (SCH)</th>
<th>Certificates - 12 hours*</th>
<th>Bachelors - 120 hours</th>
<th>Masters - 30 hours</th>
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</thead>
<tbody>
<tr>
<td>Proposed program hours:</td>
<td></td>
<td>32 with thesis: 36.5</td>
<td></td>
</tr>
<tr>
<td>*12 hours minimum to appear on transcript</td>
<td></td>
<td>without thesis</td>
<td></td>
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</tbody>
</table>

**Certificate Programs**  
☐ Embedded  
Students take coursework that will result in a degree and certificate being earned at the same time.

☐ Standalone  
Non-degree seeking students take coursework to earn a certificate only (no degrees are awarded).

**Off-Campus or Distance Delivery**

% of Program a student can take off-campus or through Distance Education  

<table>
<thead>
<tr>
<th>Program Start Date</th>
<th>SACSCOC Approval**</th>
<th>When Provost needs to inform SACSCOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ 25%</td>
<td>Notification Only</td>
<td>_________________________________</td>
</tr>
<tr>
<td>☐ 50%</td>
<td>Approval Required</td>
<td>6 months before first day of program</td>
</tr>
<tr>
<td>☐ 80%</td>
<td>Approval Required</td>
<td>6 months before first day of program</td>
</tr>
<tr>
<td>☐ 100%</td>
<td>Approval Required</td>
<td>6 months before first day of program</td>
</tr>
</tbody>
</table>

**Notification letter arranged through the Vice Provost for Academic Affairs and sent by TAMU President.**

**Program Delivery Mode**

☐ On-campus  
Texas A&M University, College Station Campus

☐ Broadcast / TTVN  

☐ Specific off-campus location**  

☐ Distance Education / Internet  
☒ In-State  ☒ Out-of-State  
Start Date  
Fall 2015

☐ Out-of-Country  
Will this program be offered with another institution?  
☐ Yes  ☒ No
If yes, contact the Vice Provost for Academic Affairs for additional reporting

Page 1  
Revised 04.11.2014
Texas A&M University
New Certificate, Bachelors, Masters, or Doctoral Program
Undergraduate • Graduate • Professional
• Proposal Checklist •
requirements.

***Is this an approved SACSCOC location?  ☐ Yes  ☐ No  If no, a program prospectus must be sent to SACSCOC.
Approved locations as of March 2012: TAMU-Galveston, TAMU-Qatar, University Center-The Woodlands, CityCentre-Houston, Dubai and Saudi Arabia.

Program Funding
Has program funding been finalized at the department or college level?  ☒ Yes ☐ No
If no, explain or attach budget: ______

Will new costs for the first five years of the program be under $2 million?  ☒ Yes ☐ No
If new costs exceed $2 million, coordinating board approval is required.
Submitted by (Contact Person):

Dr. Costas N. Georgiades  
georghiades@tamu.edu  
Name  
Email  
Interim Director of Texas A&M University Energy Institute  
979-845-7408  
Title  
Phone

Certification Statement

By signing below, the Dean of the College certifies the proposed program complies with coordinating board standards. If the program is delivered through Distance Education, the Dean of the College certifies that they are following the Principles of Good Practice for Academic Degree and Certificate Programs and Credit Courses Offered Electronically.

<table>
<thead>
<tr>
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<tbody>
<tr>
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</tr>
<tr>
<td>Dr. Costas N. Georgiades</td>
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<td>Signed, Program Chair (if joint program)</td>
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<thead>
<tr>
<th>Title</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair, University Curriculum Committee or Graduate Council</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Title</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair, University Curriculum Committee or Graduate Council</td>
<td></td>
</tr>
</tbody>
</table>

Additional Approvals Required: Faculty Senate and President.
New Program Request Form for Bachelor's and Master's Degrees

**Directions:** An institution shall use this form to propose a new bachelor's or master's degree program that is in the field of engineering or has costs exceeding $2 million for the first five years of operation. In completing the form, the institution should refer to the document *Standards for Bachelor's and Master's Programs*, which prescribes specific requirements for new degree programs. Note: This form requires signatures of (1) the Chief Executive Officer or Chief Academic Officer, certifying adequacy of funding for the new program and the notification of other institutions; (2) a member of the Board of Regents (or designee), certifying Board approval. NOTE: Preliminary notification is required for all engineering programs. Prior to submission of an engineering program proposal, the institution should notify the Division of Workforce, Academic Affairs and Research of its intent to request such a program.

For more information: Contact the Division of Workforce, Academic Affairs and Research at 512/427-6200.

<table>
<thead>
<tr>
<th>Administrative Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Institution:</strong> Texas A&amp;M University</td>
</tr>
</tbody>
</table>
| 2. **Program Name** — Show how the program would appear on the Coordinating Board's program inventory (e.g., *Bachelor of Business Administration degree with a major in Accounting*):  
  *Professional Master of Science in Energy* |
| 3. **Proposed CIP Code:** 30.9999.04 |
| 4. **Number of Required Semester Credit Hours (SCHs)** (If the number of SCHs exceeds 120 for a Bachelor's program, the institution must request a waiver documenting the compelling academic reason for requiring more SCHs):  
  16 per semester for a total of 32 credit hours for track with thesis, and a total of 36.5 credit hours for track without thesis |
| 5. **Brief Program Description** — Describe the program and the educational objectives:  
  The "*Professional Master of Science in Energy*" program is designed to introduce students/professionals to the multiple interdisciplinary facets of energy that range from overview of energy technologies (fossil-based, renewable, and non-fossil based), to multi-scale energy systems engineering methods, to materials for energy, to economics and finance, to business, to entrepreneurship, to law, and their interactions. The students/professionals will be exposed to (a) important energy challenges and opportunities, and (b) advances in theory, methods, technologies, and applications delivered by energy leaders from academia, industry, and government, through a module-based structure and a distinguished seminar series. Emphasis will be placed on creating the new generation of energy educated students and professionals who will be broadly educated on all components of energy through quantitative analytical methods and multi-scale systems based approaches. |
| 6. **Administrative Unit** — Identify where the program would fit within the organizational structure of the university (e.g., *The Department of Electrical Engineering within the College of Engineering*):  
  *Texas A&M Energy Institute* |
7. **Proposed Implementation Date** – Report the date that students would enter the program (MM/DD/YY): 09/01/2015

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

   **Name:** Dr. Costas N. Georgiades  
   **Title:** Interim Director of Texas A&M Energy Institute  
   **E-mail:** georghiades@tamu.edu  
   **Phone:** 979-845-7408  

   **AND**

   **Name:** Dr. Christodoulos A. Floudas  
   **Title:** Director of Texas A&M Energy Institute (Effective: February 1, 2015)  
   **E-mail:** floudas@princeton.edu, floudas@tamu.edu  
   **Phone:** 609-258-4595  

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**Program Information**

I. **Need**

   A. **Job Market Need** – Provide short- and long-term evidence of the need for graduates in the job market.

   The proposed **“Professional Master of Science in Energy”** program is highly innovative and unique (i.e., there is no such program in the US) and it is designed to introduce students/professionals to the multiple interdisciplinary facets of energy that range from overview of energy technologies (fossil-based, renewable, and non-fossil based), to multi-scale energy systems engineering methods, to materials for energy, to economics and finance, to business, to entrepreneurship, to law, to policy, and their interactions. Emphasis will be placed on creating the new generation of energy educated students and professionals who will be broadly educated on all components of energy through quantitative analytical methods and multi-scale systems based approaches.

   The energy sector has received the most prominent attention in both industry and academia. The explosive growth of shale gas, the increased production of petroleum, and the elevated interest in renewable energy sources, represent very strong emerging markets that promise to deliver many new job opportunities in the US and aim at making the US energy independent. The majority of advertised positions available for industrial, government positions, as well as for academic positions are for individuals with proper energy related background. Hence, the
proposed “Professional Master of Science in Energy” program will enhance educational opportunities currently unavailable to students and prepare the new class of leaders in energy

B. Student Demand – Provide short- and long-term evidence of demand for the program.

The student demand for enhanced education in the energy domain has been monotonically increasing in all academic institutions worldwide. The interests of incoming graduate students are primarily energy related and health related. Also, the interest of undergraduate students in energy related applications is enhanced. As a typical example of MSc programs in Energy, Imperial College has introduced a MSc in Sustainable Energy Futures program that has experienced significant interest and has reached a steady level of incoming class of over 50 students while it receives many applications for admission.

C. Enrollment Projections – Use this table to show the estimated cumulative headcount and full-time student equivalent (FTSE) enrollment for the first five years of the program. (Include majors only and consider attrition and graduation.)

For the proposed “Professional Master of Science in Energy” program, a student who takes the track with thesis needs to meet the requirement of 32 SCH. Given that 24 SCH equals 1 FTSE, then for one student we have 32/24=1.333 FTSE. A student who takes the track without thesis needs to meet the requirement of 36.5 SCH (this is 36.5/24=1.52FTSE).

<table>
<thead>
<tr>
<th>YEAR</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headcount</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>FTSE</td>
<td>26.67</td>
<td>40</td>
<td>53.33</td>
<td>66.67</td>
<td>66.67</td>
</tr>
</tbody>
</table>

II. Quality

A. Degree Requirements – Use this table to show the degree requirements of the program. (Modify the table as needed; if necessary, replicate the table for more than one option.)

**Professional Master of Science in Energy with Thesis**

<table>
<thead>
<tr>
<th>Category</th>
<th>Semester Credit Hours</th>
<th>Clock Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Core Curriculum (bachelor’s degree only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required Courses (Modules) One Module 1 is equal to 1.5 SCH</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Prescribed Electives (Modules) One Module 1 is equal to 1.5 SCH</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Free Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Semester Credit Hours</td>
<td>Clock Hours</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-----------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>General Education Core Curriculum (bachelor's degree only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required Courses (Modules) One Module 1 is equal to 1.5 SCH</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Prescribed Electives (Modules) One Module 1 is equal to 1.5 SCH</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Free Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (Specify, e.g., internships, clinical work)</td>
<td>Seminars: 2</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>36.5</td>
<td></td>
</tr>
</tbody>
</table>

Note: A Bachelor degree should not exceed 120 Semester Credit Hours (SCH) per Board rule 5.44 (a) (3). Those that exceed 120 SCH must provide detailed documentation describing the compelling academic reason for the number of required hours, such as programmatic accreditation requirements, statutory requirements, or licensure/certification requirements that cannot be met without exceeding the 120-hour limit.
B. **Curriculum** – Use these tables to identify the required courses and prescribed electives of the program. Note with an asterisk (*) courses that would be added if the program is approved. *(Add and delete rows as needed. If applicable, replicate the tables for different tracks/options.)*

The required and prescribed elective courses and their respective SCH are:

<table>
<thead>
<tr>
<th>Prefix &amp; Number</th>
<th>Required Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICPE-601</td>
<td>Environmental Issues of Energy Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-602</td>
<td>Reservoir Characterization and Modeling</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-603</td>
<td>Bioenergy</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-604</td>
<td>Energy Systems Engineering I</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-605</td>
<td>Energy Systems Engineering II</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-606</td>
<td>Introduction to Optimization</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-607</td>
<td>Energy Accounting</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-608</td>
<td>Beyond Science and Technology:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Role of Policy in the Future of Energy in the US</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-609</td>
<td>Introduction to U.S. Energy Law &amp; Policy</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-610</td>
<td>The Global Energy Future</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-611</td>
<td>Economics of Energy</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-612</td>
<td>Entrepreneurship in Energy</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-613</td>
<td>Natural and Shale Gas Monetization: Technologies, Fundamentals, Economics, and Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-614</td>
<td>CO2 Sequestration</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-681</td>
<td>Seminars</td>
<td>2.0</td>
</tr>
<tr>
<td>ICPE-691</td>
<td>Thesis – Fall semester</td>
<td>3.0</td>
</tr>
<tr>
<td>ICPE-691</td>
<td>Thesis – Spring semester +</td>
<td>3.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prefix &amp; Number</th>
<th>Prescribed Elective Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICPE-615</td>
<td>Smart Grid Fundamentals</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-616</td>
<td>Multi-functional Materials for Energy Conversion</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-617</td>
<td>Gas Separations for Energy: Fundamentals, Applications and New Directions</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-618</td>
<td>Carbon Capture, Utilization, and Storage</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-619</td>
<td>Nanomaterials Engineering and Energy Storage</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-620</td>
<td>Thermoelectric Materials and Devices</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-621</td>
<td>Thermoelectrics: Fundamentals of Electronic and Thermal Transport</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-622</td>
<td>Energy Efficiency in Buildings</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-623</td>
<td>Water-Energy-Food Nexus</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-624</td>
<td>Energy-Water Nexus</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-625</td>
<td>Integrated Risk Management for Exploration and Production Projects</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-626</td>
<td>Safety in Energy Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-627</td>
<td>Interfacial Phenomena of Energy Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-628</td>
<td>Multi-physics Geomechanics for Energy Applications</td>
<td>1.5</td>
</tr>
</tbody>
</table>
C. **Faculty** – Use these tables to provide information about Core and Support faculty. Add an asterisk (*) before the name of the individual who will have direct administrative responsibilities for the program. *(Add and delete rows as needed.)*

<table>
<thead>
<tr>
<th>Faculty Name &amp; Rank</th>
<th>Highest Degree &amp; Awarding Institution</th>
<th>Module Assigned</th>
<th>% Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akbulut, Mustafa</td>
<td>PhD Chemical Engineering; UCSB</td>
<td>ICPE-601 &amp; 627</td>
<td>10</td>
</tr>
<tr>
<td>Datta-Gupta, Akhil</td>
<td>PhD Petroleum Engineering; UT Austin</td>
<td>ICPE-602</td>
<td>5</td>
</tr>
<tr>
<td>King, Michael</td>
<td>PhD Physics; Syracuse University</td>
<td>ICPE-602</td>
<td>5</td>
</tr>
<tr>
<td>Holtzapple, Mark</td>
<td>PhD Chemical Engineering; U. Pennsylvania</td>
<td>ICPE-603</td>
<td>5</td>
</tr>
<tr>
<td>Capareda, Sergio</td>
<td>PhD Agricultural Engineering; Texas A&amp;M</td>
<td>ICPE-603</td>
<td>5</td>
</tr>
<tr>
<td>Floudas, Christodoulos</td>
<td>PHD Chemical Engineering; Carnegie Mellon</td>
<td>ICPE-604 &amp; 605</td>
<td>10</td>
</tr>
<tr>
<td>Pistikopoulos, Efstratios</td>
<td>PhD Chemical Engineering; Carnegie Mellon</td>
<td>ICPE-604 &amp; 605</td>
<td>10</td>
</tr>
<tr>
<td>Butenko, Sergiy</td>
<td>PhD Industrial Engineering; U. Florida</td>
<td>ICPE-606</td>
<td>5</td>
</tr>
<tr>
<td>Deer, Shannon</td>
<td>MSC Finance; Texas A&amp;M</td>
<td>ICPE-607</td>
<td>5</td>
</tr>
<tr>
<td>Veditz, Arnold</td>
<td>PhD Political Science; U. Houston</td>
<td>ICPE-608</td>
<td>5</td>
</tr>
<tr>
<td>Warren, Gina</td>
<td>JD Law; Rutgers University</td>
<td>ICPE-609</td>
<td>5</td>
</tr>
<tr>
<td>Eckstein, Gabriel</td>
<td>JD, LLM Law; American University</td>
<td>ICPE-610</td>
<td>5</td>
</tr>
<tr>
<td>McCarl, Bruce</td>
<td>PhD Management Science; Penn State Univ.</td>
<td>ICPE-611</td>
<td>5</td>
</tr>
<tr>
<td>Lester, Richard</td>
<td>PhD Strategic Management; Texas A&amp;M</td>
<td>ICPE-612</td>
<td>5</td>
</tr>
<tr>
<td>Elbashir, Nimir</td>
<td>PhD Chemical Engineering; Auburn Univ.</td>
<td>ICPE-613</td>
<td>5</td>
</tr>
<tr>
<td>El-Halwagi, Mahmoud</td>
<td>PhD Chemical Engineering; UCLA</td>
<td>ICPE-613&amp;624</td>
<td>10</td>
</tr>
<tr>
<td>Gibson, Richard</td>
<td>PhD Geophysics, MIT</td>
<td>ICPE-614</td>
<td>5</td>
</tr>
<tr>
<td>Kezunovic, Mladen</td>
<td>PhD Electrical Engineering, U. Kansas</td>
<td>ICPE-615</td>
<td>5</td>
</tr>
<tr>
<td>Singh, Chanan</td>
<td>PhD Electrical Engineering, U. Saskatchewan</td>
<td>ICPE-615</td>
<td>5</td>
</tr>
<tr>
<td>Xie, Le</td>
<td>PhD Electrical &amp; Computing Eng, Carnegie Mellon</td>
<td>ICPE-615</td>
<td>5</td>
</tr>
<tr>
<td>Balog, Robert</td>
<td>PhD Electrical Engineering, U. Illinois, Urbana</td>
<td>ICPE-615</td>
<td>5</td>
</tr>
<tr>
<td>Boyd, Jim</td>
<td>PhD Aerospace Engineering, Texas A&amp;M</td>
<td>ICPE-616</td>
<td>5</td>
</tr>
<tr>
<td>Lagoudas, Dimitris</td>
<td>PhD Applied Mathematics, Lehigh University</td>
<td>ICPE-616</td>
<td>5</td>
</tr>
<tr>
<td>Arroyave, Raymundo</td>
<td>PhD Materials Science, MIT</td>
<td>ICPE-616</td>
<td>5</td>
</tr>
<tr>
<td>Wilhite, Benjamin</td>
<td>PhD Chemical Engineering, Notre Dame</td>
<td>ICPE-617</td>
<td>5</td>
</tr>
<tr>
<td>Hasan, M.M. Faruque</td>
<td>PhD Chemical Engineering, National U. Singapore</td>
<td>ICPE-618</td>
<td>5</td>
</tr>
<tr>
<td>Lutkenhaus, Jodie</td>
<td>PhD Chemical Engineering, MIT</td>
<td>ICPE-619</td>
<td>5</td>
</tr>
<tr>
<td>Green, Micah</td>
<td>PhD Chemical Engineering, MIT</td>
<td>ICPE-619</td>
<td>5</td>
</tr>
<tr>
<td>Vaddiraju, Sreeram</td>
<td>PhD Chemical Engineering, U. Louisville</td>
<td>ICPE-620</td>
<td>5</td>
</tr>
<tr>
<td>Yu, Choongho</td>
<td>PhD Mechanical Engineering, U. Texas Austin</td>
<td>ICPE-621</td>
<td>5</td>
</tr>
<tr>
<td>Claridge, David</td>
<td>PhD Physics, Stanford University</td>
<td>ICPE-622</td>
<td>5</td>
</tr>
<tr>
<td>Culp, Charles</td>
<td>PhD Solid State Physics, Iowa State University</td>
<td>ICPE-622</td>
<td>5</td>
</tr>
<tr>
<td>Mohtar, Rabi</td>
<td>PhD Agricultural Technology, Michigan State U.</td>
<td>ICPE-623</td>
<td>5</td>
</tr>
<tr>
<td>Damnjanovic, Ivan</td>
<td>PhD Civil Engineering, U. Texas Austin</td>
<td>ICPE-625</td>
<td>5</td>
</tr>
<tr>
<td>Medica-Cetina, Zenon</td>
<td>PhD Stochastic Mechanics, Johns Hopkins U.</td>
<td>ICPE-625</td>
<td>5</td>
</tr>
<tr>
<td>Mannar, Sam</td>
<td>PhD Chemical Engineering, U. Oklahoma</td>
<td>ICPE-626</td>
<td>5</td>
</tr>
<tr>
<td>Sanchez, Marcelo</td>
<td>PhD Civil Engineering, U. Polit. de Catalunya</td>
<td>ICPE-628</td>
<td>5</td>
</tr>
</tbody>
</table>
D. **Students** – Describe general recruitment efforts and admission requirements. In accordance with the institution’s Uniform Recruitment and Retention Strategy, describe plans to recruit, retain, and graduate students from underrepresented groups for the program.

The **Professional Master of Science in Energy** program targets two broad categories. Category 1 consists of graduating seniors from diverse educational backgrounds (e.g., sciences, engineering, social sciences, business) and domestic and international institutions (e.g., US and Canada, Central and South America, Europe, Middle East, and Asia). Category 2 consists of recent graduates/professionals who have been in industry and/or government for less than 3-5-10+ years.

We will aim for a diverse, dynamic, and high quality student body. To attain this goal, we will advertise the proposed innovative **Professional Master of Science in Energy** program through the Energy Institute website, departmental websites, colleges’ websites, and the University website. In addition, we will provide material and ask all the department heads to assist us in advertising the program on campus, as well as provide material to many universities in the US, South America, Europe, Middle East and Asia.

E. **Library** – Provide the library director’s assessment of library resources necessary for the program. Describe plans to build the library holdings to support the program.

The library needs for the **Professional Master of Science in Energy** program are standard and do not require any special resources.

F. **Facilities and Equipment** – Describe the availability and adequacy of facilities and equipment to support the program. Describe plans for facility and equipment improvements/additions.

A few (i.e., 2-3) classrooms with capabilities for distance learning (e.g., video recording and conferencing) will be required for the program.

G. **Accreditation** – If the discipline has a national accrediting body, describe plans to obtain accreditation or provide a rationale for not pursuing accreditation.

No accreditation from a national accrediting body is needed.

H. **Evaluation** – Describe the evaluation process that will be used to assess the quality and effectiveness of the new degree program.

The Advisory and Evaluation Committee, (A&EC) will consist of the Heads of departments or Deans who have faculty members participating in the courses of the (ICPE): Drs. Karim (Chemical Engineering), Hill (Petroleum Engineering), Searcy (Biological & Agricultural Engineering), Malave (Industrial & Systems Engineering), Benjamin (Accounting, Mays Business School), Crocker (Dean, The Bush School of Government and Public Policy), Morriss (Dean of Law School), Rosson (Agricultural Economics), Griffin (Management, Mays Business School), Giardino (Geology and Geophysics), Singh (Electrical & Computer Engineering), Bowersox (Aerospace Engineering), Karaman (Materials Science & Engineering), Polycarpou (Mechanical Engineering), Wells (Architecture), Aukenrieth (Civil Engineering). Annually, one of the Heads/Deans will be selected to serve as the Lead of the A&EC.

The Executive Committee will consist of the Vice President for Research, VPR, the Deans of the College of Agriculture & Life Sciences; College of Engineering; College of Geosciences; and
College of Sciences, as well as External Assessors to be selected. Annually, one of the Deans/VPR will be selected to serve as the Lead of the Executive Committee.

The Texas A&M Energy Institute will develop an appropriate annual or biannual review process to evaluate the impact of the "Professional Master of Science in Energy" program. The review will include evaluations of graduate recruitment, retention, curriculum, research, and faculty teaching assessments. The annual or biannual review of the program will be conducted in a timely fashion to assure proper assessment of prior activities and appropriate feedback mechanism for improvement.

III. Costs and Funding

Five-Year Costs - Professional Master of Science in Energy Degree

Personnel
- Faculty: $600,000 (each year: 24 modules x $5,000 honorarium/module)
- Administration: $250,000
- Graduate Assistants: $0
- Other Personnel: $0

Facilities, Equipment & IT: $75,000
Supplies & Materials: $75,000
Library: $0
Other (seminars): $100,000 (each year: 6-8 speakers with honorarium, travel & accommodation expenses)

Total Costs: $1,100,000

Five year Funding/Income – Professional Master of Science in Energy Degree

Tuition and Program fee for in state students: $30,000
Tuition and Program fee for out of state students: $40,000

Year 1 (20 students): (a) funds for the honoraria will be provided by the Energy Institute;
(b) income from tuition and program fees = $700,000 (assuming equal number of in state and out of state students).

Year 2 (30 students): (a) funds for the honoraria will be provided by the Energy Institute;
(b) income from tuition and program fees = $1,050,000 (assuming equal number of in state and out of state students).

Year 3 (40 students): (a) funds for the honoraria will be provided by the Energy Institute;
(b) income from tuition and program fees = $1,400,000 (assuming equal number of in state and out of state students).

Year 4 (50 students): (a) funds for the honoraria will be provided by the Energy Institute;
(b) income from tuition and program fees = $1,750,000 (assuming equal number of in state and out of state students).

Year 5 (50 students): (a) funds for the honoraria will be provided by the Energy Institute;
(b) income from tuition and program fees = $1,750,000 (assuming equal number of in state and out of state students).
Signature Page

1. **Adequacy of Funding and Notification of Other Institutions** – The chief executive or chief academic officer shall sign the following statements:

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

   I certify that my institution has notified all public institutions within 50 miles of the teaching site of our intention to offer the program at least 30 days prior to submitting this request. I also certify that if any objections were received, those objections were resolved prior to the submission of this request.

   _____________________________  _____________________________
   Chief Executive Officer/Chief Academic Officer  Date

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

   On behalf of the Board of Regents, I approve the program.

   _____________________________  _____________________________
   Board of Regents (Designee)  Date of Approval
Proposal for the Creation of

"Inter-disciplinary Curricular Program in Energy", (ICPE)
(Graduate Curriculum: “Professional Master of Science in Energy” (Master of Science Degree and Certificate))
And
“Courses for the Graduate Curriculum of the
“Professional Master of Science in Energy”
(Master of Science Degree and Certificate)"

Professor Christodoulou A. Floudas
November 4, 2014

Part 1: “Inter-disciplinary Curricular Program in Energy”, (ICPE)

1. Rationale for the creation of (ICPE)

The proposed “Interdisciplinary Curricular Program in Energy”, (ICPE), led by the Texas A&M Energy Institute, aims at creating new educational initiatives and enhancing existing efforts towards meeting the challenges in the Energy domain. A primary goal of the Texas A&M Energy Institute and its proposed (ICPE) is to create innovative and interdisciplinary educational initiatives which will generate naturally synergistic efforts that will benefit the University. The proposed educational initiatives represent a multidisciplinary program and aim at addressing all facets of the Energy challenges that include (i) fossil-based, renewable, and non-fossil-based technologies for energy, (ii) materials for energy, (iii) multi-scale energy systems engineering, and (iv) economics, law, and policy for energy. As such, the proposed educational initiatives will involve faculty members from the whole Texas A&M University spanning the spectrum of (a) the College of Agriculture and Life Sciences; (b) the College of Engineering, (c) the College of Geosciences; (d) the College of Sciences; (e) the Bush School of Government and Public Policy; (f) the Mays Business School; (g) the College of Liberal Arts; and (h) the Law School.

1.1 Mission Statement of (ICPE)

The proposed “Interdisciplinary Curricular Program in Energy”, (ICPE), led by the Texas A&M Energy Institute, aims at creating transformative and integrative interdisciplinary educational initiatives that will address important Energy challenges.
1.2 Membership Criteria of (ICPE)

All faculty members of Texas A&M University who have educational interests in Energy will be welcome to participate in the (ICPE). As the Director of the Texas A&M Energy Institute, I will extend invitations to all such faculty members.

1.3 Executive Committee, (EC), of (ICPE)

The Executive Committee (EC) of the (ICPE) will consist of the Vice President for Research (VPR), the Deans of College of Agriculture & Life Sciences; College of Engineering; College of Geosciences; and College of Sciences, the Director of the Texas A&M Energy Institute and its Associate Director for External Relations. The Texas A&M Energy Institute and the proposed (ICPE) report to the VPR and the aforementioned Deans.

1.4 Leadership of (ICPE)

The leadership of the (ICPE) will be Professor C.A. Floudas (Director of Texas A&M Energy Institute, (EI); effective February 1, 2015) and Professor E.N. Pistikopoulos (Associate Director for External Relations of Texas A&M Energy Institute; effective February 1, 2015). Professors C.A. Floudas and E.N. Pistikopoulos have been working on all components of the proposed (ICPE) which includes the educational initiative “Professional Master of Science in Energy”. Professors C.A. Floudas, E.N. Pistikopoulos, and N. Karim (Head of Chemical Engineering) constitute the current graduate curriculum committee. The aforementioned educational initiative will offer (a) a “Certificate in Energy”, and (b) a “Professional Master of Science in Energy Degree”. During the 2014 summer, all course material for the proposed “Professional Master of Science in Energy” program was prepared to be presented subsequently to the Graduate Curriculum Council. During the 2014 Fall semester Professor C.A. Floudas has been visiting Texas A&M every two weeks to discuss, prepare material, and address any issues. Professor E.N. Pistikopoulos will join Texas A&M in early November 2014. Professors Floudas and Pistikopoulos will take the lead in mentoring the students. This mentoring will be complemented with the faculty members who will participate in teaching the courses and supervision of the thesis work.

2. Sponsoring Entities of (ICPE)

The advocates for the proposed (ICPE) are: (a) the College of Agriculture and Life Sciences; (b) the College of Engineering, (c) the College of Geosciences; (d) the College of Sciences; and (e) the Vice President for Research (VPR).
3. Administrative Unit

The proposed administrative unit is the Texas A&M Energy Institute.


The Advisory and Evaluation Committee, (A&EC) will consist of the Heads of departments or Deans who have faculty members participating in the courses of the (ICPE): Drs. Karim (Chemical Engineering), Hill (Petroleum Engineering), Searcy (Biological & Agricultural Engineering), Malave (Industrial & Systems Engineering), Benjamin (Accounting, Mays Business School), Crocker (Dean, The Bush School of Government and Public Policy), Moriss (Dean of Law School), Rosson (Agricultural Economics), Griffin (Management, Mays Business School), Giardino (Geology and Geophysics), Singh (Electrical & Computer Engineering), Bowersox (Aerospace Engineering), Karaman (Materials Science & Engineering), Polycarpou (Mechanical Engineering), Wells (Architecture), Autenrieth (Civil Engineering). Annually, one of the Heads/Deans will be selected to serve as the Lead of the A&EC.

5. Educational Aims of the Graduate Curricular Program

The proposed “Professional Master of Science in Energy” program will be run by the “Interdisciplinary Curricular Program in Energy”, (ICPE), led by the Texas A&M Energy Institute. It will involve faculty members from various departments and colleges that include (a) the College of Agriculture and Life Sciences; (b) the College of Engineering; (c) the College of Geosciences; (d) the College of Sciences; (e) the Bush School of Government and Public Policy; (f) the Mays Business School; (g) the College of Liberal Arts; and (h) the Law School. The faculty members will teach courses in their area of expertise in a shortened format, module, (i.e., each module will be of 22hrs duration which is equivalent to 1.5 student credit hours). A module will be of 1.5 weeks duration and have 5 teaching days.

The “Professional Master of Science in Energy” program is designed to introduce students/professionals to the multiple interdisciplinary facets of energy that range from overview of energy technologies (fossil-based, renewable, and non-fossil based), to multiscale energy systems engineering methods, to materials for energy, to economics and finance, to business, to entrepreneurship, to law, and their interactions. The students/professionals will be exposed to (a) important energy challenges and opportunities, and (b) advances in theory, methods, technologies, and applications delivered by energy leaders from academia, industry, and government, through a module-based structure and a distinguished seminar series. Emphasis will be placed on creating the new generation of energy educated students and professionals who will be broadly
educated on all components of energy through quantitative analytical methods and multi-
scale systems based approaches.

The aims of the “Professional Master of Science in Energy” program are:

1. Educate students/professionals with the broad spectrum of important energy issues, 
   energy technologies based on fossil and non-fossil resources, sustainable energy 
   technologies, and their interactions with energy economics, entrepreneurship, law, and 
policy.
2. Enhance the quantitative skills and knowledge of students/professionals for the 
   analysis, simulation, and optimization of energy systems, and prepare them for practical 
   applications.
3. Develop and enhance students’ skills for independent research in energy.
4. Educate and train the new generation of “energy experts” to leading and impactful 
careers in the multi-faceted energy industry, the energy business domain, the law 
sector, the public policy sector, and the government.
5. Integrate and synergize educational efforts in energy from all parts of Texas A&M 
University that include (a) the College of Agriculture and Life Sciences; (b) the College of 
Engineering, (c) the College of Geosciences; (d) the College of Sciences; (e) the Bush 
School of Government and Public Policy; (f) the Mays Business School; (g) the College of 
Liberal Arts; and (h) the Law School.

6. Structure of the Graduate Curricular Program

The “Professional Master of Science in Energy” program will grant (a) a “Professional 
Master of Science in Energy Degree”, and/or (b) a “Certificate in Energy”.

The “Professional Master of Science in Energy Degree” will be offered at two tracks. Track 
1 will be with research thesis, and Track 2 will be with only course work (i.e., without 
research thesis). The duration of Track 1and 2 will be about 10 months (i.e., September 1 – 
June 30).

Track 1 will typically require students to be in residence and work in research with Faculty 
Members affiliated with the Texas A&M Energy Institute. Track 2 will be offered to 
researchers/executives who may be in residence or take it on-line (distance learning).

The structure of the “Professional Master of Science in Energy” program will be based on 
(a) non-overlapping modules, (b) distinguished seminar series, and (c) research thesis (note 
that (c) is only for Track 1). A module will be of 1.5 weeks duration and have 5 teaching 
days. A module will have a total of 22hrs of lecture/lab material (22 contact hours) with
4.4hrs of lectures per teaching day. Hence, two weekly modules will be equivalent to a traditional course, and they correspond to 3.0 credits (i.e., a module will be equivalent to 1.5 credits, SCH). Seminars will be delivered by distinguished energy experts from academia, industry, and government. Research thesis topics will be provided and supervised by faculty members affiliated with the Texas A&M Energy Institute and its (ICPE) and (IRPE).

The Fall semester structure of Track 1 will have 8 modules, the distinguished seminar series, and research thesis work. The Spring semester structure of Track 1 will consist of 8 modules and research thesis work. The additional 2 months will be devoted towards the completion and defense of the research thesis work. The total number of credits will be 32 (i.e., 24 for the 16 modules, 2 for the seminars, and 6 for the research thesis work).

The Fall semester structure of Track 2 will have 10 modules and the distinguished seminars. The Spring semester structure of Track 2 will consist of 10 modules. Three additional modules will be offered upon completion of the Spring semester. The total number of credits will be 36.5 (i.e., 34.5 for the 23 modules, and 2 for the seminars).

The “Certificate in Energy” will be offered by taking 10 modules of the “Professional Master of Science in Energy” degree program either in residence or on-line. Seven modules will be from the required/foundational module list and three from the prescribed elective/specialized module list.

7. Target Audience

The target audience for the “Professional Master of Science in Energy” program can be classified into two broad categories. Category 1 consists of graduating seniors from diverse educational backgrounds (e.g., sciences, engineering, social sciences, business) and domestic and international institutions (e.g., US and Canada, Central and South America, Europe, Middle East, and Asia). Category 2 consists of recent graduates/professionals who have been in industry and/or government for less than 3-5-10+ years.

Content of Modules

The proposed modules for the Graduate Curriculum (see attached titles, names of instructors, descriptions, and syllabi) will address both the foundational components of the “Professional Master of Science in Energy” program, as well as introduce specialized components that address the wide spectrum of energy challenges along with its impact on economics, law and public policy.

Foundational Modules – Instructors - Semester
1. **Environmental Issues of Energy Systems**: Professor Akbulut (Fall)
2. **Reservoir Characterization and Modeling**: Professors Datta-Gupta and King (Fall)
3. **Bioenergy**: Professors Holtzapple and Capareda (Fall)
4. **Energy Systems Engineering I**: Professors Floudas and Pistikopoulos (Fall)
5. **Energy Systems Engineering II**: Professors Pistikopoulos and Floudas (Spring)
6. **Introduction to Optimization**: Professor Butenko (Fall)
7. **Energy Accounting**: Lecturer Deer (Fall)
8. **Beyond Science and Technology: The Role of Policy in the Future of Energy in the US**: Professor Vedlitz (Fall)
9. **Introduction to U.S. Energy Law & Policy**: Professor Warren (Spring)
10. **The Global Energy Future**: Professors Eckstein and Warren (Spring)
11. **Economics of Energy**: Professor McCarl (Spring)
12. **Entrepreneurship in Energy**: Professor Lester (Spring)
13. **Natural and Shale Gas Monetization: Technologies, Fundamentals, Economics, and Applications**: Professors Elbashir and El-Halwagi (Spring)
14. **CO2 Sequestration**: Professor Gibson (Spring)

**Specialized Modules – Instructors -Semester**

15. **Smart Grid Fundamentals**: Professors Kezunovic, Singh, Xie, and Balog (Fall)
16. **Multi-functional Materials for Energy Conversion**: Professors Boyd, Lagoudas, and Arroyave (Fall)
17. **Gas Separations for Energy: Fundamentals, Applications and New Directions**: Professor Wilhite (Fall)
18. **Carbon Capture, Utilization, and Storage**: Professor Hasan (Fall)
19. **Nanomaterials Engineering and Energy Storage**: Professors Lutkenhaus and Green (Spring)
20. **Thermoelectric Materials and Devices**: Professor Vaddiraju (Fall)
21. **Thermoelectrics: Fundamentals of Electronic and Thermal Transport**: Professor Yu (Spring)
22. **Energy Efficiency in Buildings**: Professors Claridge and Culp (Spring)
23. **Water-Energy-Food Nexus**: Professor Mohtar (Spring)
24. **Energy-Water Nexus**: Professor El-Halwagi (Fall)
25. **Integrated Risk Management for Exploration and Production Projects**: Professors Damnjanovic and Medina-Cetina (Spring)
26. **Safety in Energy Systems**: Professor Mannan (Spring)
27. **Interfacial Phenomena of Energy Systems**: Professor Akbulut (Spring)
28. **Multi-physics Geomechanics for Energy Applications (CO2, fracking, nuclear waste)**, Professor Sanchez (Fall)
Part 2: “Professional Master of Science in Energy” Degree

Request Form for “Professional Master of Science in Energy” Degree

In the subsequent sections I, II, and III, we provide the material for a new master’s degree program (i.e., “Professional Master of Science in Energy”). Note that the same material also applies for the “Certificate in Energy”.

I. Need

A. Job Market Need: The proposed “Professional Master of Science in Energy” program is highly innovative and unique (i.e., there is no such program in the US) and it is designed to introduce students/professionals to the multiple interdisciplinary facets of energy that range from overview of energy technologies (fossil-based, renewable, and non-fossil based), to multi-scale energy systems engineering methods, to materials for energy, to economics and finance, to business, to entrepreneurship, to law, to policy, and their interactions. Emphasis will be placed on creating the new generation of energy educated students and professionals who will be broadly educated on all components of energy through quantitative analytical methods and multi-scale systems based approaches.

The energy sector has received the most prominent attention in both industry and academia. The explosive growth of shale gas, the increased production of petroleum, and the elevated interest in renewable energy sources, represent very strong emerging markets that promise to deliver many new job opportunities in the US and aim at making the US energy independent. The majority of advertised positions available for industrial, government positions, as well as for academic positions are for individuals with proper energy related background. Hence, the proposed “Professional Master of Science in Energy” program will enhance educational opportunities currently unavailable to students and prepare the new class of leaders in energy.

B. Student Demand: The student demand for enhanced education in the energy domain has been monotonically increasing in all academic institutions worldwide. The interests of incoming graduate students are primarily energy related and health related. Also, the interest of undergraduate students in energy related applications is enhanced. As a typical example of MSc programs in Energy, Imperial College has introduced a MSc in Sustainable Energy Futures program that has experienced significant interest and has reached a steady level of incoming class of over 50 students while it receives many applications for admission.
C. Enrollment Projections

For the proposed "Professional Master of Science in Energy" program, a student who takes the track with thesis needs to meet the requirement of 32 SCH. Given that 24 SCH equals 1 FTSE, then for one student we have $\frac{32}{24} = 1.333$ FTSE. A student who takes the track without thesis needs to meet the requirement of 36.5 SCH, which corresponds to $\frac{36.5}{24} = 1.52$ FTSE.

<table>
<thead>
<tr>
<th>Year</th>
<th>New Students</th>
<th>Attrition</th>
<th>Graduation</th>
<th>Cumulative Headcount</th>
<th>Cumulative FTSE</th>
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<td>20</td>
<td>20</td>
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<td>40</td>
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<tr>
<td>3</td>
<td>40</td>
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<tr>
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<td>50</td>
<td>66.67</td>
</tr>
</tbody>
</table>

II. Quality

A. Degree Requirements: The proposed "Professional Master of Science in Energy" program has the following degree requirements (note that the lecture and lab hours is equal to the contact hours):

<table>
<thead>
<tr>
<th>Non-thesis SCH</th>
<th>Thesis SCH</th>
<th>Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Foundational Courses

ICPE-601: Environmental Issues of Energy Systems 1.5 1.5 22
ICPE-602: Reservoir Characterization and Modeling 1.5 1.5 22
ICPE-603: Bioenergy 1.5 1.5 22
ICPE-604: Energy Systems Engineering I 1.5 1.5 22
ICPE-605: Energy Systems Engineering II 1.5 1.5 22
ICPE-606: Introduction to Optimization 1.5 1.5 22
ICPE-607: Energy Accounting 1.5 1.5 22
ICPE-608: Beyond Science and Technology: The Role of Policy in the Future of Energy in the US 1.5 1.5 22
ICPE-609: Introduction to U.S. Energy Law & Policy 1.5 1.5 22
ICPE-610: The Global Energy Future 1.5 1.5 22
ICPE-611: Economics of Energy 1.5 1.5 22
ICPE-612: Entrepreneurship in Energy 1.5 1.5 22
ICPE-613: Natural and Shale Gas Monetization: Technologies,
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Credits</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamentals, Economics, and Applications</td>
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<td>1.5</td>
<td>22</td>
</tr>
<tr>
<td>ICPE-614: CO2 Sequestration</td>
<td>1.5</td>
<td>1.5</td>
<td>22</td>
</tr>
<tr>
<td><strong>b. Required Courses</strong></td>
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<td></td>
</tr>
<tr>
<td>ICPE-601: Environmental Issues of Energy Systems</td>
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<td>1.5</td>
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</tr>
<tr>
<td>ICPE-602: Reservoir Characterization and Modeling</td>
<td>1.5</td>
<td>1.5</td>
<td>22</td>
</tr>
<tr>
<td>ICPE-603: Bioenergy</td>
<td>1.5</td>
<td>1.5</td>
<td>22</td>
</tr>
<tr>
<td>ICPE-604: Energy Systems Engineering I</td>
<td>1.5</td>
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<tr>
<td>ICPE-605: Energy Systems Engineering II</td>
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<tr>
<td>ICPE-606: Introduction to Optimization</td>
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<tr>
<td>ICPE-607: Energy Accounting</td>
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<tr>
<td>ICPE-608: Beyond Science and Technology: The Role of Policy in the Future of Energy in the US</td>
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<td>1.5</td>
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<td>ICPE-609: Introduction to U.S. Energy Law &amp; Policy</td>
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<td>ICPE-610: The Global Energy Future</td>
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<tr>
<td>ICPE-611: Economics of Energy</td>
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<tr>
<td>ICPE-612: Entrepreneurship in Energy</td>
<td>1.5</td>
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<td>22</td>
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<tr>
<td>ICPE-613: Natural and Shale Gas Monetization: Technologies, Fundamentals, Economics, and Applications</td>
<td>1.5</td>
<td>1.5</td>
<td>22</td>
</tr>
<tr>
<td>ICPE-614: CO2 Sequestration</td>
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<td>1.5</td>
<td>22</td>
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<td><strong>c. Prescribed Elective Courses</strong></td>
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<td>(select 9 for non-thesis track; select 2 for thesis track)</td>
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<td>ICPE-615: Smart Grid Fundamentals</td>
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<tr>
<td>ICPE-616: Multi-functional Materials for Energy Conversion</td>
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<td>22</td>
</tr>
<tr>
<td>ICPE-617: Gas Separations for Energy: Fundamentals, Applications and New Directions</td>
<td>1.5</td>
<td>1.5</td>
<td>22</td>
</tr>
<tr>
<td>ICPE-618: Carbon Capture, Utilization, and Storage</td>
<td>1.5</td>
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<tr>
<td>ICPE-619: Nanomaterials Engineering and Energy Storage</td>
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<td>ICPE-620: Thermoelectric Materials and Devices</td>
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<tr>
<td>ICPE-621: Thermoelectrics: Fundamentals of Electronic and Thermal Transport</td>
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<td>ICPE-622: Energy Efficiency in Buildings</td>
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<td>ICPE-623: Water-Energy-Food Nexus</td>
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<td>ICPE-624: Energy-Water Nexus</td>
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<td>22</td>
</tr>
<tr>
<td>ICPE-625: Integrated Risk Management for Exploration and Production Projects</td>
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<td>ICPE-626: Safety in Energy Systems</td>
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<tr>
<td>ICPE-627: Interfacial Phenomena of Energy Systems</td>
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<td>ICPE-628: Multi-physics Geomechanics for Energy Applications</td>
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<td><strong>d. Thesis</strong></td>
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<td>ICPE-691: Thesis-Spring Semester+</td>
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### e. Seminars

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<td>ICPE-681:</td>
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**Total SCH Requirements**: 32

### B. Curriculum

The required and prescribed elective courses and their respective SCH are:

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<tr>
<th>Prefix &amp; Number</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ICPE-601</td>
<td>Environmental Issues of Energy Systems</td>
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</tr>
<tr>
<td>ICPE-602</td>
<td>Reservoir Characterization and Modeling</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-603</td>
<td>Bioenergy</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-604</td>
<td>Energy Systems Engineering I</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-605</td>
<td>Energy Systems Engineering II</td>
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</tr>
<tr>
<td>ICPE-606</td>
<td>Introduction to Optimization</td>
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</tr>
<tr>
<td>ICPE-607</td>
<td>Energy Accounting</td>
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<tr>
<td>ICPE-608</td>
<td>Beyond Science and Technology: The Role of Policy in the Future of Energy in the US</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-609</td>
<td>Introduction to U.S. Energy Law &amp; Policy</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-610</td>
<td>The Global Energy Future</td>
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</tr>
<tr>
<td>ICPE-611</td>
<td>Economics of Energy</td>
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<td>ICPE-612</td>
<td>Entrepreneurship in Energy</td>
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<td>Natural and Shale Gas Monetization: Technologies, Fundamentals, Economics, and Applications</td>
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<td>ICPE-614</td>
<td>CO2 Sequestration</td>
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<td>ICPE-681</td>
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<td>Thesis – Spring semester+</td>
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<td>ICPE-615</td>
<td>Smart Grid Fundamentals</td>
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<td>ICPE-616</td>
<td>Multi-functional Materials for Energy Conversion</td>
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<tr>
<td>ICPE-617</td>
<td>Gas Separations for Energy: Fundamentals, Applications and New Directions</td>
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<tr>
<td>ICPE-618</td>
<td>Carbon Capture, Utilization, and Storage</td>
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<tr>
<td>ICPE-619</td>
<td>Nanomaterials Engineering and Energy Storage</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-620</td>
<td>Thermoelectric Materials and Devices</td>
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<tr>
<td>ICPE-621</td>
<td>Thermoelectrics: Fundamentals of Electronic and Thermal Transport</td>
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<td>ICPE-622</td>
<td>Energy Efficiency in Buildings</td>
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<td>ICPE-623</td>
<td>Water-Energy-Food Nexus</td>
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<td>ICPE-624</td>
<td>Energy-Water Nexus</td>
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<tr>
<td>ICPE-625</td>
<td>Integrated Risk Management for Exploration and Production Projects</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-626</td>
<td>Safety in Energy Systems</td>
<td>1.5</td>
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<tr>
<td>ICPE-627</td>
<td>Interfacial Phenomena of Energy Systems</td>
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<tr>
<td>ICPE-628</td>
<td>Multi-physics Geomechanics for Energy Applications</td>
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### C. Faculty

<table>
<thead>
<tr>
<th>Faculty Name &amp; Rank</th>
<th>Highest Degree &amp; Awarding Institution</th>
<th>Module Assigned</th>
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<tbody>
<tr>
<td>Akbulut, Mustafa</td>
<td>PhD Chemical Engineering; UCSB</td>
<td>ICPE-601 &amp; 627</td>
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<td>Datta-Gupta, Akhil</td>
<td>PhD Petroleum Engineering; UT Austin</td>
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<td>King, Michael</td>
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<td>Holtzapple, Mark</td>
<td>PhD Chemical Engineering; U. Pennsylvania</td>
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<tr>
<td>Capareda, Sergio</td>
<td>PhD Agricultural Engineering; Texas A&amp;M</td>
<td>ICPE-603</td>
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<tr>
<td>Floudas, Christodoulos</td>
<td>PHD Chemical Engineering; Carnegie Mellon</td>
<td>ICPE-604 &amp; 605</td>
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<tr>
<td>Pistikopoulos, Efstratios</td>
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<td>ICPE-604 &amp; 605</td>
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<td>Butenko, Sergiy</td>
<td>PhD Industrial Engineering; U. Florida</td>
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<td>Deer, Shannon</td>
<td>MSC Finance; Texas A&amp;M</td>
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<td>Vedlitz, Arnold</td>
<td>PhD Political Science; U. Houston</td>
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<td>Warren, Gina</td>
<td>JD Law; Rutgers University</td>
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<td>Eckstein, Gabriel</td>
<td>JD, LLM Law; American University</td>
<td>ICPE-610</td>
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<tr>
<td>McCari, Bruce</td>
<td>PhD Management Science; Penn State Univ.</td>
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<td>Lester, Richard</td>
<td>PhD Strategic Management; Texas A&amp;M</td>
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<td>Elbashir, Nimir</td>
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<tr>
<td>El-Halwagi, Mahmoud</td>
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<tr>
<td>Gibson, Richard</td>
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<td>Kezunovic, Mladen</td>
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<td>Singh, Chanan</td>
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<td>Xie, Le</td>
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<td>Balog, Robert</td>
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<tr>
<td>Boyd, Jim</td>
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<td>Lagoudas, Dimitris</td>
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<td>Arroyave, Raymundo</td>
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<td>Wilhite, Benjamin</td>
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<td>Hasan, M.M. Faruque</td>
<td>PhD Chemical Engineering, National U. Singapore</td>
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<tr>
<td>Lutkenhaus, Jodie</td>
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<td>Green, Micah</td>
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<td>Vaddiraju, Sreeram</td>
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<tr>
<td>Yu, Choongho</td>
<td>PhD Mechanical Engineering, U. Texas Austin</td>
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<tr>
<td>Claridge, David</td>
<td>PhD Physics, Stanford University</td>
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<td>Culp, Charles</td>
<td>PhD Solid State Physics, Iowa State University</td>
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<td>Mohtar, Rabi</td>
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<td>Damnjanovic, Ivan</td>
<td>PhD Civil Engineering, U. Texas Austin</td>
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<td>Medica-Cetina, Zenon</td>
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<td>Mannan, Sam</td>
<td>PhD Chemical Engineering, U. Oklahoma</td>
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<td>Sanchez, Marcelo</td>
<td>PhD Civil Engineering, U. Polit. de Catalunya</td>
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</tr>
</tbody>
</table>

### D. Students

The "Professional Master of Science in Energy" program targets two broad categories. Category 1 consists of graduating seniors from diverse educational backgrounds (e.g., sciences, engineering, social sciences, business) and domestic and international institutions (e.g., US and Canada, Central and South
America, Europe, Middle East, and Asia). Category 2 consists of recent graduates/professionals who have been in industry and/or government for less than 3-5-10+ years.

We will aim for a diverse, dynamic, and high quality student body. To attain this goal, we will advertise the proposed innovative "Professional Master of Science in Energy" program through the Energy Institute website, departmental websites, colleges' websites, and the University website. In addition, we will provide material and ask all the department heads to assist us in advertising the program on campus, as well as provide material to many universities in the US, South America, Europe, Middle East and Asia.

E. Library

The library needs for the "Professional Master of Science in Energy" program are standard and do not require any special resources.

F. Facilities and Equipment

A few (i.e., 2-3) classrooms with capabilities for distance learning (e.g., video recording and conferencing) will be required for the program.

G. Accreditation

No accreditation from a national accrediting body is needed.

H. Evaluation

The Advisory and Evaluation Committee, (A&EC) will consist of the Heads of departments or Deans who have faculty members participating in the courses of the (ICPE): Drs. Karim (Chemical Engineering), Hill (Petroleum Engineering), Searcy (Biological & Agricultural Engineering), Malave (Industrial & Systems Engineering), Benjamin (Accounting, Mays Business School), Crocker (Dean, The Bush School of Government and Public Policy), Moriss (Dean of Law School), Rosson (Agricultural Economics), Griffin (Management, Mays Business School), Giardino (Geology and Geophysics), Singh (Electrical & Computer Engineering), Bowersox (Aerospace Engineering), Karaman (Materials Science & Engineering), Polycarpou (Mechanical Engineering), Wells (Architecture), Autenrieth (Civil Engineering). Annually, one of the Heads/Deans will be selected to serve as the Lead of the A&EC.

The Executive Committee will consist of the Vice President for Research, VPR, the Deans of the College of Agriculture & Life Sciences; College of Engineering; College of Geosciences; and College of Sciences, as well as External Assessors to be selected. Annually, one of the Deans/VPR will be selected to serve as the Lead of the Executive Committee.

The Texas A&M Energy Institute will develop an appropriate annual or biannual review process to evaluate the impact of the "Professional Master of Science in Energy" program. The review will include evaluations of graduate recruitment, retention, curriculum, research, and faculty teaching assessments. The annual or biannual review of the program will be conducted in a timely fashion to assure proper assessment of prior activities and appropriate feedback mechanism for improvement.
III. Costs and Funding

The proposed (ICPE) of the Texas A&M Energy Institute will require funds for the development of the "Professional Master of Science in Energy" program. At the beginning, funds will be utilized from the resources provided by the Vice President for Research to the Energy Institute.

The "Professional Master of Science in Energy" program will grant (a) a "Professional Master of Science in Energy Degree", and (b) a "Certificate in Energy".

The "Professional Master of Science in Energy" degree will be offered at two tracks. Track 1 will have course work (10 courses=20 modules out of which 2 courses=4 modules will be dedicated to research and thesis work; seminars) and a thesis requirement. Tracks 1 and 2 will last for 10 months (e.g., September 1-June 30). Track 2 will have only course work (23 modules; seminars). A course is equivalent to 2 modules and will be of 3 credits (i.e., each module will be 1.5 credits). The seminars will be of 2 credits. Track 1 will consist of 32 credit hours and Track 2 will have 36.5 credit hours. Track 1 will typically require students to be in residence and work in research with Faculty Members affiliated with the Texas A&M Energy Institute. Track 2 will be offered to researchers/executives who may be in residence or take it on-line (distance learning).

The "Certificate in Energy" will be offered by taking 10 modules (i.e., the equivalent of 5 courses) of the "Professional Master of Science in Energy" degree program either in residence or on-line.

The support and budget for the "Professional Master of Science in Energy" program will address (i) honorarium/unrestricted funds for the faculty members who will teach a module; (ii) funds for the "Distinguished Seminar Series: Energy Matters"; (iii) funds for course materials including the preparation of an "Professional Master of Science in Energy Handbook" and a "Student Information Packet"; (iv) funds for invited/outside researchers who will teach a module; (v) funds for preparation of on-line (distance learning) material (e.g., access to course notes, lecture slides; course work assignments); (vi) funds for support of a dedicated "Professional Master of Science in Energy" administrator; and (vii) availability of dedicated classroom(s) with distance learning capabilities, as well as a space for the "Professional Master of Science in Energy" students with desks, PCs, and kitchen facilities (e.g., MSc lounge).

The "Professional Master of Science in Energy" degree will charge (a) 2-semester tuition fee (state/out of state: to TAMU with an allocation (TBD) to the Energy Institute), and (b) a program fee (100% to the Energy Institute). The "Energy Certificate" will charge (a) 1-semester tuition fee (in state/out of state: to TAMU with an allocation (TBD) to the Energy Institute), and (b) a program fee (100% to the Energy Institute).

It is expected that the aforementioned charge structure will make the "Professional Master of Science in Energy" degree program self-sustained after the initial period.

In the initial period we expect about 20 students to enroll with a target of 50+ students in years 4+. 
Five-Year Costs - Professional Master of Science in Energy Degree

Personnel

Faculty $600,000 (for 5 years - each year: 24 modules x $5,000 honorarium/module)
Administration $250,000
Graduate Assistants 0
Other Personnel 0
Facilities, Equipment & IT $75,000
Supplies & Materials $75,000
Library 0
Other (seminars) $100,000 (each year: 6-8 speakers with honorarium, travel & accommodation expenses)

Total Costs $1,100,000

Five Year Funding/Income – Professional Master of Science in Energy Degree

Tuition and Program fee for in state students= $30,000
Tuition and Program fee for out of state students= $40,000

Year 1 (20 students): (a) funds for the honoraria will be provided by the Energy institute;
(b) income from tuition and program fees= $700,000 (assuming equal number of in state and out of state students).

Year 2 (30 students): (a) funds for the honoraria will be provided by the Energy institute;
(b) income from tuition and program fees= $1,050,000 (assuming equal number of in state and out of state students).

Year 3 (40 students): (a) funds for the honoraria will be provided by the Energy institute;
(b) income from tuition and program fees= $1,400,000 (assuming equal number of in state and out of state students).

Year 4 (50 students): (a) funds for the honoraria will be provided by the Energy institute;
(b) income from tuition and program fees= $1,750,000 (assuming equal number of in state and out of state students).

Year 5 (50 students): (a) funds for the honoraria will be provided by the Energy institute;
(b) income from tuition and program fees= $1,750,000 (assuming equal number of in state and out of state students).
Texas A&M University
New Certificate, Bachelors, Masters, or Doctoral Program
Undergraduate • Graduate • Professional
• Proposal Checklist •

Program request type: ☐ Undergraduate ☒ Graduate ☐ First Professional (ex, DVM, JD, MD, etc.)
Requested by the Department or Unit of : Texas A&M Energy Institute

Program Type, Level, Designation, Title, Description, Hours
Program Type: ☒ Certificate Program ☐ Degree Program
Program Level: ☐ UG Certificate ☒ Grad Certificate ☐ Bachelor ☐ Master ☐ Doctoral ☐ Professional
Degree Designation (i.e., BS, BA, MA, MS, MAg, MEd, PhD, EdD, etc.)

Title of proposed program: Certificate in Energy
Proposed CIP Code (if known): 30.9999.04

Brief program description (provide a catalog description for undergraduate and graduate certificates):
The “Certificate in Energy” program, through 10 modules of the “Professional Master of Science in Energy” program, is designed to introduce students/professionals to fundamentals and state of the art advances in the multiple interdisciplinary facets of energy.

Minimum program semester credit hours (SCH) Certificates - 12 hours* Bachelors - 120 hours Masters - 30 hours
Proposed program hours: 15
*12 hours minimum to appear on transcript

Certificate Programs ☐ Embedded ☒ Standalone

Students take coursework that will result in a degree and certificate being earned at the same time. Non-degree seeking students take coursework to earn a certificate only (no degrees are awarded).

Off-Campus or Distance Delivery
% of Program a student can take off-campus or through Distance Education
☐ 25% Program Start Date SACSCOC Approval** When Provost needs to inform SACSCOC
☐ 50% Notification Only 6 months before first day of program
☐ 80% Approval Required 6 months before first day of program
☐ 100% Approval Required 6 months before first day of program

**Notification letter arranged through the Vice Provost for Academic Affairs and sent by TAMU President.

Program Delivery Mode
☐ On-campus Location Texas A&M University, College Station Campus
☐ Broadcast / TTVN
☐ Specific off-campus location***
☐ Distance Education / Internet ☒ In-State ☒ Out-of-State Start Date Fall 2015
☐ Out-of-Country Will this program be offered with another institution? ☐ Yes ☐ No
If yes, contact the Vice Provost for Academic Affairs for additional reporting requirements.

***Is this an approved SACSCOC location? ☐ Yes ☐ No If no, a program prospectus must be sent to SACSCOC. Approved locations as of March 2012: TAMU-Galveston, TAMU-Qatar, University Center-The Woodlands, CityCentre-Houston, Dubai and Saudi Arabia.

Program Funding
Has program funding been finalized at the department or college level? ☐ Yes ☐ No
If no, explain or attach budget: _____

Page 1 Revised 04.11.2014
Will new costs for the first five years of the program be under $2 million? 
If new costs exceed $2 million, coordinating board approval is required. ☒ Yes ☐ No
Submitted by (Contact Person):

Dr. Costas N. Georgiades
Name
Interim Director of Texas A&M Energy Institute
Title
georghiades@tamu.edu
Email
979-845-7408
Phone

Certification Statement
By signing below, the Dean of the College certifies the proposed program complies with coordinating board standards. If the program is delivered through Distance Education, the Dean of the College certifies that they are following the Principles of Good Practice for Academic Degree and Certificate Programs and Credit Courses Offered Electronically.

<table>
<thead>
<tr>
<th>Signature, Department Head or Interdisciplinary Program Chair</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Costas N. Georgiades</td>
<td></td>
</tr>
</tbody>
</table>

| Signature, Department Head or Interdisciplinary Program Chair (if joint program) |
| Date |

<table>
<thead>
<tr>
<th>Typed or Printed Name</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Chair, College Review Committee</td>
<td></td>
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</tbody>
</table>

| Date |

| Chair, College Review Committee | Date |

| Date |

| Date |

| Dean of College | Date |

| Date |

Chair, University Curriculum Committee or Graduate Council
Date

Additional Approvals Required: Faculty Senate and President.
New Program Request Form for Certificate Programs

Directions: An institution shall use this form to propose a new bachelor’s or master’s degree program. In completing the form, the institution should refer to the document Standards for Bachelor’s and Master’s Programs, which prescribes specific requirements for new degree programs. Note: This form requires signatures of (1) the Chief Executive Officer, certifying adequacy of funding for the new program; (2) a member of the Board of Regents (or designee), certifying Board approval, and (3) if applicable, a member of the Board of Regents or (designee), certifying that criteria have been met for staff-level approval. NOTE: Preliminary authority is required for all engineering programs. An institution that does not have preliminary authority for a proposed engineering program shall submit a separate request for preliminary authority prior to submitting the degree program request form. That request shall address criteria set in Coordinating Board rules Section 5.24 (a).

Administrative Information

1. Institution: Texas A&M University

2. Program Name – Show how the program would appear on the Coordinating Board’s program inventory (e.g., Bachelor of Business Administration degree with a major in Accounting):
   Certificate in Energy

3. Proposed CIP Code: 30.9999.04

4. Brief Program Description – Describe the program and the educational objectives:

   The “Certificate in Energy” program is designed to introduce students/professionals to the multiple interdisciplinary facets of energy that range from overview of energy technologies (fossil-based, renewable, and non-fossil based), to multi-scale energy systems engineering methods, to materials for energy, to economics and finance, to business, to entrepreneurship, to law, and their interactions.

   The educational objectives of the “Certificate in Energy” program are:

   1. Educate students/professionals with the broad spectrum of important energy issues, energy technologies based on fossil and non-fossil resources, sustainable energy technologies, and their interactions with energy economics, entrepreneurship, law, and policy.

   2. Enhance the quantitative skills and knowledge of students/professionals for the analysis, simulation, and optimization of energy systems, and prepare them for practical applications.

   Number of Semester Credit Hours Required 15

5. Administrative Unit – Identify where the program would fit within the organizational structure of the university (e.g., The Department of Electrical Engineering within the College of Engineering):
   Texas A&M Energy Institute
6. **Proposed Implementation Date** – Report the first semester and year that students would enter the program:

   *Fall 2015*

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

   Name: Dr. Costas N. Georghiades  
   Title: Interim Director, Texas A&M Energy Institute  
   E-mail: georghiades@tamu.edu  
   Phone: 979-845-7408

   **AND**

   Name: Dr. Christodoulos A. Floudas  
   Title: Director of Texas A&M Energy Institute (Effective: February 1, 2015)  
   E-mail: floudas@princeton.edu, floudas@tamu.edu  
   Phone: 609-258-4595

---

**Program Information**

I. **Need**

   *Note: Complete I.A and I.B only if preliminary authority for the program was granted more than four years ago. This includes programs for which the institution was granted broad preliminary authority for the discipline.*

   A. **Job Market Need** – Provide short- and long-term evidence of the need for graduates in the job market.  
      *Not Applicable; preliminary approval was not granted more than four years ago.*

   B. **Student Demand** – Provide short- and long-term evidence of demand for the program.  
      *Not Applicable; preliminary approval was not granted more than four years ago.*
C. **Enrollment Projections** – Use this table to show the estimated cumulative headcount and full-time student equivalent (FTSE) enrollment for the first five years of the program. (*Include majors only and consider attrition and graduation.*)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>Headcount</td>
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<td>10</td>
<td>15</td>
<td>20</td>
<td>20</td>
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<tr>
<td>FTSE</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

II. **Quality**

A. **Certificate and Degree Requirements** – Use this table to show the certificate and degree requirements of the program. (*Modify the table as needed; if necessary, replicate the table for more than one option.*)

<table>
<thead>
<tr>
<th>Category</th>
<th>Semester Credit Hours</th>
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<tbody>
<tr>
<td>General Education Core Curriculum <em>(bachelor's degree only)</em></td>
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<tr>
<td>Required Courses (Modules)</td>
<td>One Module 1 is equal to 1.5 SCH</td>
</tr>
<tr>
<td>Prescribed Electives (Module)</td>
<td>One Module 1 is equal to 1.5 SCH</td>
</tr>
<tr>
<td>Free Electives</td>
<td></td>
</tr>
<tr>
<td>Other (Specify, e.g., internships, clinical work)</td>
<td>(if not included above)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
</tr>
</tbody>
</table>

B. **Curriculum** – Use these tables to identify the required courses and prescribed electives of the program, and curriculum as it will appear in the undergraduate and graduate catalog. Note with an asterisk (*) courses that would be added if the program is approved. (*Add and delete rows as needed. If applicable, replicate the tables for different tracks/options as shown in the undergraduate catalog.*)

<table>
<thead>
<tr>
<th>Prefix &amp; Number</th>
<th>Required Courses</th>
<th>SCH</th>
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<tbody>
<tr>
<td>ICPE-601</td>
<td>Environmental Issues of Energy Systems</td>
<td>1.5</td>
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<tr>
<td>ICPE-602</td>
<td>Reservoir Characterization and Modeling</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-603</td>
<td>Bioenergy</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-604</td>
<td>Energy Systems Engineering I</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-607</td>
<td>Energy Accounting</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-608</td>
<td>Beyond Science and Technology: The Role of Policy in the Future of Energy in the US</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-609</td>
<td>Introduction to U.S. Energy Law &amp; Policy</td>
<td>1.5</td>
</tr>
</tbody>
</table>
### Prescribed Elective Courses

<table>
<thead>
<tr>
<th>Prefix &amp; Number</th>
<th>Prescribed Elective Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICPE-605</td>
<td>Energy Systems Engineering II</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-606</td>
<td>Introduction to Optimization</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-610</td>
<td>The Global Energy Future</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-611</td>
<td>Economics of Energy</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-612</td>
<td>Entrepreneurship in Energy</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-613</td>
<td>Natural and Shale Gas Monetization: Technologies, Fundamentals, Economics, and Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-614</td>
<td>CO2 Sequestration</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-615</td>
<td>Smart Grid Fundamentals</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-616</td>
<td>Multi-functional Materials for Energy Conversion</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-617</td>
<td>Gas Separations for Energy: Fundamentals, Applications and New Directions</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-618</td>
<td>Carbon Capture, Utilization, and Storage</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-619</td>
<td>Nanomaterials Engineering and Energy Storage</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-620</td>
<td>Thermoelectric Materials and Devices</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-621</td>
<td>Thermoelectrics: Fundamentals of Electronic and Thermal Transport</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-622</td>
<td>Energy Efficiency in Buildings</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-623</td>
<td>Water-Energy-Food Nexus</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-624</td>
<td>Energy-Water Nexus</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-625</td>
<td>Integrated Risk Management for Exploration and Production Projects</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-626</td>
<td>Safety in Energy Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-627</td>
<td>Interfacial Phenomena of Energy Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>ICPE-628</td>
<td>Multi-physics Geomechanics for Energy Applications</td>
<td>1.5</td>
</tr>
</tbody>
</table>

### Faculty

C. Faculty – Use these tables to provide information about Core and Support faculty. Add an asterisk (*) before the name of the individual who will have direct administrative responsibilities for the program. *(Add and delete rows as needed.)*

<table>
<thead>
<tr>
<th>Faculty Name &amp; Rank</th>
<th>Highest Degree &amp; Awarding Institution</th>
<th>Module Assigned</th>
<th>%Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akbulut, Mustafa</td>
<td>PhD Chemical Engineering; UCSB</td>
<td>ICPE-601 &amp; 627</td>
<td>10</td>
</tr>
<tr>
<td>Datta-Gupta, Akhil</td>
<td>PhD Petroleum Engineering; UT Austin</td>
<td>ICPE-602</td>
<td>5</td>
</tr>
<tr>
<td>King, Michael</td>
<td>PhD Physics; Syracuse University</td>
<td>ICPE-602</td>
<td>5</td>
</tr>
<tr>
<td>Holtzapple, Mark</td>
<td>PhD Chemical Engineering; U. Pennsylvania</td>
<td>ICPE-603</td>
<td>5</td>
</tr>
<tr>
<td>Capareda, Sergio</td>
<td>PhD Agricultural Engineering; Texas A&amp;M</td>
<td>ICPE-603</td>
<td>5</td>
</tr>
<tr>
<td>Floudas, Christodoulos</td>
<td>PhD Chemical Engineering; Carnegie Mellon</td>
<td>ICPE-604 &amp; 605</td>
<td>10</td>
</tr>
<tr>
<td>Pistoropoulos, Efstratos</td>
<td>PhD Chemical Engineering; Carnegie Mellon</td>
<td>ICPE-604 &amp; 605</td>
<td>10</td>
</tr>
<tr>
<td>Butenko, Sergiy</td>
<td>PhD Industrial Engineering; U. Florida</td>
<td>ICPE-606</td>
<td>5</td>
</tr>
<tr>
<td>Deer, Shannon</td>
<td>MSC Finance; Texas A&amp;M</td>
<td>ICPE-607</td>
<td>5</td>
</tr>
<tr>
<td>Vedlitz, Arnold</td>
<td>PhD Political Science; U. Houston</td>
<td>ICPE-608</td>
<td>5</td>
</tr>
<tr>
<td>Warren, Gina</td>
<td>JD Law; Rutgers University</td>
<td>ICPE-609</td>
<td>5</td>
</tr>
</tbody>
</table>

*Revised 01.14.2014*
The “Certificate in Energy” program targets two broad categories. Category 1 consists of graduating seniors from diverse educational backgrounds (e.g., sciences, engineering, social sciences, business) and domestic and international institutions (e.g., US and Canada, Central and South America, Europe, Middle East, and Asia). Category 2 consists of recent graduates/professionals who have been in industry and/or government for less than 3-5-10+ years.

We will aim for a diverse, dynamic, and high quality student body. To attain this goal, we will advertise the proposed innovative “Certificate in Energy” program through the Energy Institute website, departmental websites, colleges’ websites, and the University website. In addition, we will provide material and ask all the department heads to assist us in advertising the program on campus, as well as provide material to many universities in the US, South America, Europe, Middle East and Asia.
E. Library – Provide the library director’s assessment of library resources necessary for the program. Describe plans to build the library holdings to support the program.

*The library needs for the “Certificate in Energy” program are standard and do not require any special resources. Current library holdings are sufficient.*

F. Facilities and Equipment – Describe the availability and adequacy of facilities and equipment to support the program. Describe plans for facility and equipment improvements/additions.

*A few (i.e., 2-3) classrooms with capabilities for distance learning (e.g., video recording and conferencing) will be required for the program.*

G. Accreditation – If the discipline has a national accrediting body, describe plans to obtain accreditation or provide a rationale for not pursuing accreditation.

*No accreditation from a national accrediting body is needed.*

H. Evaluation – Describe the evaluation process that will be used to assess the quality and effectiveness of the new degree program.

The Advisory and Evaluation Committee, (A&EC) will consist of the Heads of departments or Deans who have faculty members participating in the courses of the (ICPE): Drs. Karim (Chemical Engineering), Hill (Petroleum Engineering), Searcy (Biological & Agricultural Engineering), Malave (Industrial & Systems Engineering), Benjamin (Accounting, Mays Business School), Crocker (Dean, The Bush School of Government and Public Policy), Moriss (Dean of Law School), Rosson (Agricultural Economics), Griffin (Management, Mays Business School), Giardino (Geology and Geophysics), Singh (Electrical & Computer Engineering), Bowersox (Aerospace Engineering), Karaman (Materials Science & Engineering), Polycarpou (Mechanical Engineering), Wells (Architecture), Autenrieth (Civil Engineering). Annually, one of the Heads/Deans will be selected to serve as the Lead of the A&EC.

The Executive Committee will consist of the Vice President for Research, VPR, the Deans of the College of Agriculture & Life Sciences; College of Engineering; College of Geosciences; and College of Sciences, as well as External Assessors to be selected. Annually, one of the Deans/VPR will be selected to serve as the Lead of the Executive Committee.

The Texas A&M Energy Institute will develop an appropriate annual or biannual review process to evaluate the impact of the “Certificate in Energy” program. The review will include evaluations of graduate recruitment, retention, curriculum, research, and faculty teaching assessments. The annual or biannual review of the program will be conducted in a timely fashion to assure proper assessment of prior activities and appropriate feedback mechanism for improvement.
I. Administration of Program – Describe how the program will be administered. Where will the program be administered (i.e., department, college)?

_The program will be administered by the Texas A&M Energy Institute._

III. Costs and Funding

Five-Year Costs and Funding Sources - Use this table to show five-year costs and sources of funding for the program.

<table>
<thead>
<tr>
<th>Five-Year Costs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td></td>
</tr>
<tr>
<td>Faculty</td>
<td>$150,000 (honoraria for faculty)</td>
</tr>
<tr>
<td>Administration</td>
<td>$50,000</td>
</tr>
<tr>
<td>Graduate Assistants</td>
<td>0</td>
</tr>
<tr>
<td>Other Personnel</td>
<td>0</td>
</tr>
<tr>
<td>Facilities, Equipment &amp; IT</td>
<td>$25,000</td>
</tr>
<tr>
<td>Supplies &amp; Materials</td>
<td>$25,000</td>
</tr>
<tr>
<td>Library</td>
<td>0</td>
</tr>
<tr>
<td>Other (seminars)</td>
<td>$25,000 (travel &amp; accommodation expenses for seminars)</td>
</tr>
<tr>
<td><strong>Total Five Year Costs</strong></td>
<td><strong>$275,000</strong></td>
</tr>
</tbody>
</table>

**Five year Funding/Income**

Tuition and Program fee = $20,000

- **Year 1 (5 students):** income from tuition and program fees = $100,000
- **Year 2 (10 students):** income from tuition and program fees = $200,000
- **Year 3 (15 students):** income from tuition and program fees = $300,000
- **Year 4 (20 students):** income from tuition and program fees = $400,000
- **Year 5 (20 students):** income from tuition and program fees = $400,000

**Total Five Year Income** = **$1,400,000**
Signature Page

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

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

   ______________________________________    _______________________
   Chief Executive Officer         Date

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

   *On behalf of the Board of Regents, I approve the program.*

   ______________________________________    _______________________
   Board of Regents (Designee)                   Date of Approval

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

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

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

   ______________________________________    _______________________
   Board of Regents (Designee)         Date
The Master of Science in Athletic Training requests the following change:

1. Allow students filing the official Office of Graduate and Professional Studies Degree Plan to have a 2 member advisory committee comprised of only MSAT faculty in the Department of Health and Kinesiology instead of a 3 member committee with one external member.

Since the Master of Science in Athletic Training is an accredited professional program with a set curriculum and no electives, the function of the advisory committee is primarily to act as athletic training career advisors and mentor the students in their athletic training research projects which they submit as a manuscript and present during our MSAT Graduate Research Colloquium as their final examination. The research project is evaluated by MSAT faculty members, of which there are currently two. Our students do not take any courses outside of our department and few outside of the professional program so there is rarely contact with an external faculty member.

Thank you for considering this request.

Lori Greenwood

158 Reed Building
4243 TAMU
College Station, TX 77843-4243

Tel. 979.845.3109  Fax 979.847.5987
October 13, 2014

MEMORANDUM

TO: Dr. Karan L. Watson, Provost and Executive Vice President

THROUGH: Dr. Mark Zoran, Chair, Graduate Council

FROM: Patricia A. Hurley, Associate Dean of Liberals Arts

Attached please find a request to change the CIP code of the Master of Science of Economics. This change has been approved by the College of Liberal Arts Graduate Instruction Committee.
MEMORANDUM

TO: Dr. Pat Hurley, Associate Dean
College of Liberal Arts

FROM: Dr. Dennis W. Jansen, Acting Head
Department of Economics

DATE: October 7, 2014

SUBJECT: Application for Revision to Approved Program, MS in Economics CIP Change

The Department of Economics requests permission to change its MS in Economics Classification of Instructional Programs (CIP) code from 45.0601 - Economics to 45.0603 - Econometrics and Quantitative Economics.

The reasoning for this request is as follows:

1. This change makes the program eligible for classification as a STEM discipline according to the United States Citizenship and Immigration Services (USCIS). In April, 2008 USCIS approved a 17-month OPT extension for students in certain STEM (Science, Technology, Engineering and Mathematics) degrees and specific technical positions and companies. International students in the MS in Economics would get a total of 29-months for Optional Practical Training.

2. This extension of the OPT period for STEM degree holders gives U.S. employers two chances to recruit these highly desirable graduates through the H-1B lottery process, as the extension is long enough to allow for H-1B petitions to be filed in two successive fiscal periods.

3. The requested CIP change aligns more closely to the content of the degree program authorized by the Coordinating Board. Over the last three academic years, the Department of Economics has transformed the MS in Economics into a professional Financial Economics/Financial Econometrics program.

4. There have not been, nor would there need to be any changes in the content, curriculum, degree granting authority, or core faculty of the program as approved.

5. Perhaps most importantly, the competitive standing of the program would be improved by this CIP change, as it would make the program benefits equivalent to offerings by other universities in this field.

Thank you very much for your support of this change.
Revision to an Approved Program
(CIP Code Change)
Request Form

Administrative Information

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

2. **Description** – Change the College of Liberal Arts, MS in Economics Classification of Instructional Programs (CIP) code to one eligible for STEM classification by the United States Citizenship and Immigration Services (USCIS), from 45.0601 for Economics to **45.0603 - Econometrics and Quantitative Economics**, a stem discipline as designated by the Official USCIS STEM List.

3. **Rationale for Revision** – International students in the program would benefit greatly from the CIP code change because it would extend the length of time they could pursue optional practical training (OPT) in the United States from 12 months to 29 months.

3. **Program Inventory**

<table>
<thead>
<tr>
<th>LA</th>
<th>Economics</th>
<th>0810</th>
<th>ECON</th>
<th>ECONOMICS</th>
<th>ECON BA</th>
<th>2</th>
<th>45060100</th>
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<tbody>
<tr>
<td>LA</td>
<td>Economics</td>
<td>0810</td>
<td>ECON</td>
<td>ECONOMICS</td>
<td>ECON BS</td>
<td>2</td>
<td>45060100</td>
</tr>
<tr>
<td>LA</td>
<td>Economics</td>
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<td>ECON</td>
<td>ECONOMICS</td>
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<td><strong>45060300</strong></td>
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<td>LA</td>
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<td>ECONOMICS</td>
<td>ECON PHD</td>
<td>4</td>
<td>45060100</td>
</tr>
</tbody>
</table>

5. **Summarize** – The change has few implications for classes, distribution of personnel, availability of facilities, or availability of equipment. Administration of the program will now entail certifying faculty in a different field, but one substantially related to the degree and training of all of the instructors currently responsible for courses in the degree. No new resources are required.

6. **Costs** – No additional costs are required by the change.

<table>
<thead>
<tr>
<th>Five-Year Costs</th>
<th>Five-Year Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel (^1)</td>
<td>$0</td>
</tr>
<tr>
<td>Facilities and Equipment</td>
<td>$0</td>
</tr>
<tr>
<td>Library, Supplies, and Materials</td>
<td>$0</td>
</tr>
<tr>
<td>Other (^2)</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td><strong>$0</strong></td>
</tr>
</tbody>
</table>

7. **Proposed Implementation Date** – September 1, 2015.

8. **Contact Person** – Name: Dr. Dennis Jansen
   Title: Acting Department Head
   Email: dennisjansen@tamu.edu
   Telephone: 979-845-7358
Signature Page

I understand that the Coordinating Board will update the program inventory of the institution to reflect the program degree revision, if no objections to the proposed revision is received during the 30-day public comment period.

______________________________  _______________________
Chief Executive Officer          Date

2. TAMUS Office of Academic Affairs Approval

On behalf of the A&M System, I certify that the Office of Academic Affairs has approved the program degree modification.

______________________________  _______________________
James R. Hallmark, Ph.D.          Date
Vice Chancellor of Academic Affairs
Signature Page

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

   *I certify that the institution has adequate funds to complete the administrative change and to support any new or reorganized academic unit(s). Furthermore, the change will not reduce the effectiveness or quality of existing programs, departments, schools, or colleges.*

   ___________________________________________  ____________________________
   Chief Executive Officer                        Date

3. **System Office of Academic Affairs Approval**

   *On behalf of the A&M System, I certify that the Office of Academic Affairs has approved the administrative unit.*

   ___________________________________________  ____________________________
   Frank B. Ashley III                          Date
Texas A&M University – College Station

Program Revision Request for the

College of Liberal Arts, Department of Economics - MS in Economics

EXECUTIVE SUMMARY

Proposed Program Revision

The Department of Economics requests permission to change its MS in Economics Classification of Instructional Programs (CIP) code to one eligible for STEM classification by the United States Citizenship and Immigration Services (USCIS). Currently all our programs are classified under 45.0601 for economics, which is not STEM eligible. However, USCIS has designated code 45.0603 - Econometrics and Quantitative Economics as a stem discipline (from the Official USCIS STEM List.)

Rationale

Over the last three academic years, the Department of Economics has transformed the MS in Economics into a professional Financial Economics/Financial Econometrics program. The requested CIP change would align more closely to the content of the degree program authorized by the Coordinating Board. There have not been, nor would there need to be any changes in the content, curriculum, degree granting authority, or core faculty of the program as approved.

Perhaps most importantly, the competitive standing of the program would be improved by this CIP change. The program capitalizes on strong relationships between departmental faculty and partner universities in China to attract a large number of international students. These students would benefit greatly from the CIP code change because it would extend the length of time they could pursue optional practical training (OPT) in the United States. The program itself now focuses on graduating professional econometricians for jobs in industry, government or the non-profit sectors. Students emerge with strong quantitative, communications and presentation skills to complement their advanced economic intuition. The Board of Regents approved a program fee for the MS in Economics in May of 2013. The new program has been very successful since start-up, with entering class enrollments of 56, 67, 85 and 92 for the first four years.

International students benefit from a code change because it would allow students enrolling beginning September, 2015 to be eligible to apply for the OPT STEM extension. This is a step that other AAU universities have recently taken to benefit their students (see: https://econ.duke.edu/news/archive/2013/02/27/cip-code-change-for-econ-ma-and-msem for information on Duke University’s recent CIP change specifically for their Master’s of Science in Statistical and Economic Modeling.) A description of the process is given below:

To use their OPT allowance, students must first apply for the regular 12-month OPT allowance. They request that the International Student Services (ISS) office recommend them for OPT by endorsing the student’s Form I-20 and making appropriate notation in SEVIS, the system used to track F-1 students. Students then file Form I-765, the Application for Employment Authorization Document (EAD), with U.S. Citizenship and Immigration Services (USCIS). If approved, USCIS will issue an EAD to the student allowing them to begin OPT.
Under the prior regulations, F-1 students had to apply for post-completion OPT prior to graduation. A new rule from the USCIS not only allows F-1 students seeking initial post-completion OPT to apply during their 60-day departure preparation period, but to apply for an OPT STEM extension at any time prior to the expiration date of their initial OPT period. Eligibility for this extension is limited to F-1 students who receive science, technology, engineering, and mathematics (STEM) degrees included on the STEM Designated Degree Program List, are employed by employers enrolled in E-Verify, and who have received an initial grant of post-completion OPT related to such a degree.

This extension of the OPT period for STEM degree holders also gives U.S. employers two chances to recruit these highly desirable graduates through the H-1B process, as the extension is long enough to allow for H-1B petitions to be filed in two successive fiscal periods.


Cost Implications

There are no costs to the Department of Economics, the College of Liberal Arts, or Texas A&M University of implementing this change in the program CIP code. U.S. students may benefit because it may increase the federal government fellowship and grant eligibility extended to some STEM programs.

Effective Date

Fall Semester, 2015 (September 1, 2015)
October 3, 2014

MEMORANDUM

TO: Dr. Mark Zoran
Chair, Graduate Council

THROUGH: Dr. John C. Criscione
Assistant Dean for Graduate Programs
Dwight Look College of Engineering

THROUGH: Amber Muenzenberger
Director, Remote Learning and Outreach Education
Dwight Look College of Engineering

THROUGH: Dr. Rodney Bowersox
Head, Department of Aerospace Engineering

FROM: Dr. Edward White
Associate Head, Department of Aerospace Engineering

SUBJECT: Distance Education Master of Engineering in Aerospace Engineering

The Master of Engineering in Aerospace Engineering is currently approved for on-campus, face-to-face delivery. We would like to offer the degree via distance education beginning fall 2015. Please see the attached approval and online delivery proposal forms for additional information.

Please contact me if you have any questions at ehw@tamu.edu or 979-862-6446.
**THE TEXAS A&M UNIVERSITY SYSTEM**
**DISTANCE EDUCATION PROGRAM PROPOSAL:**
**ELECTRONIC TO INDIVIDUALS (ONLINE) DELIVERY**

**(BACHELORS OR MASTERS PROGRAMS ONLY)**

**Directions:** An institution shall use this form to propose an "existing" bachelor's or master's degree program they wish to be offered via electronic to individual (online) delivery.

This form must be completed and signed by the university president or chief academic officer.

Upon completion, attach the "Approval Form" and submit it to the A&M System Office of Academic Affairs at AA-Agendaltems@tamus.edu

Information: Contact the A&M System Office of Academic Affairs at 979-458-7421 (Irma Harper)

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<table>
<thead>
<tr>
<th>Administrative Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. **Institution:**Texas A&amp;M University</td>
</tr>
<tr>
<td>2. <strong>Program to be Offered (Include CIP code):</strong> Masters of Engineering in Aerospace Engineering (14.0201.00)</td>
</tr>
</tbody>
</table>
3. **Online Program Description** –

The Department of Aerospace Engineering (AERO) at Texas A&M University offers a non-thesis degree of Master of Engineering in Aerospace Engineering. This proposal is to offer an equivalent online program. The proposed distance-learning degree will be the same as that completed by on-campus students at the main Texas A&M Campus in College Station, Texas. The standards for admission, course work, and graduation are the same and the diploma is the same as for on-campus students.

The Master of Engineering in Aerospace Engineering is designed for students interested in practicing engineering at an advanced level in government or industry. Each course is designed to provide a clear understanding of fundamental physical principles and their application. The intent is to provide knowledge that enables students to become technical leaders within the aerospace industry.

As part of the degree, students complete a final project and final exam. Both are waived if the student’s final GPR is 3.0 or higher. A final project may be a project assigned within a course or an independent project conducted within AERO 685, Directed Studies. Either option requires approval of the student’s advisor. A maximum of 6 hours of AERO 685 credit is permitted. No AERO 691 Research hours are permitted as part of the degree.

The program requires a minimum of 30 hours of coursework. At least 20 of these hours must be within AERO, the remainder may be outside the department. The specific courses are approved by the student’s graduate advisor. Students may transfer up to 6 credit hours from a peer institution if approved by the graduate director and subject to the limitations given in the Graduate Catalog. The student’s advisor is the graduate director or another faculty member designated by the graduate director. The advisor serves as the sole member of the student’s committee. A bachelor’s degree in aerospace engineering or closely related field is required for admission.

4. **Administrative Unit** – The Department of Aerospace Engineering within the Dwight Look College of Engineering

5. **Proposed Implementation Date** – Fall 2015

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

*Name:* Edward White  
*Title:* Assc. Department Head and Assc. Professor  
*E-mail:* ebw@tamu.edu  
*Phone:* 979-862-6446
Format for Existing Bachelors or Masters Degree Program Electronic to Individual (Online Delivery) Request

Step One: For each of the following questions, include the requested information:

- What previously approved programs does your university offer, that are closely related to the new program and how are they related?

The Dwight Look College of Engineering at Texas A&M University offers a variety of Masters of Engineering degree programs:

- Aerospace Engineering
- Biological & Agricultural Engineering
- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical engineering
- Engineering
- Industrial Engineering
- Materials Science & Engineering
- Mechanical Engineering
- Nuclear Engineering
- Ocean Engineering
- Petroleum Engineering

All of these programs are related as they are professional degrees that are practice-oriented for industry applications and ventures.

- (List the programs within your college/department that are already approved for online delivery.)

- Masters of Science in Engineering Systems Management
- Masters of Engineering in Industrial Engineering
- Masters of Engineering in Engineering (pending approval)
- Masters of Engineering in Petroleum Engineering
- Masters of Engineering in Mechanical Engineering (pending approval)
- Masters of Industrial Distribution
- Masters of Science in Safety Engineering

- Will significant additional equipment or facilities be needed? If yes, explain.

Texas A&M University and the college of engineering and have the needed infrastructure to design, develop, and deliver distance courses. These resources include software as well as facilities to design and develop quality distance education content. Physical resources within the college include small studios to record and edit lectures, classrooms with lecture capture and videoconferencing (TTVN) capabilities, and interactive video/webinar rooms. At the university level, KAMU studios can be used to produce high quality videos. TAMU libraries have podcast rooms available for faculty use. In addition, Instructional Technology Services provides and supports Blackboard Learn, the learning management system, and they host a variety of training events on Blackboard as well as other instructional technology software packages. Academic technology staff within
the college of engineering will also work with faculty to provide additional and just-in-time training and assistance to use these facilities and software packages.

- Will significant additional financial resources be needed? If yes, explain.

  TAMU has sufficient resources to initiate and maintain quality distance learning programs. Traditional funding sources and student fees are sufficient for excellent electronically based courses and programs. Students who are enrolled in online courses within the college of engineering are charged distance education differential tuition of $540.00 per semester credit hour. These extra funds are sufficient for adequate development and maintenance of the needed infrastructure and staff support. In addition to the distance education differential tuition, there are traditional services that are a part of the university’s operations that contribute to the effective delivery of distance education. The library, for example, provides online access to electronic databases and interlibrary loan services. Texas A&M Computing and Information Services, in addition to maintaining servers and network, supports the course management system, student information system, university Web site, etc., that are essential resources for the operation of distance education programs. These units are funded through state appropriations and student fees. A list of all student fee and explanations can be found at http://sbs.tamu.edu/.

- Will a significant number of new courses be required? If yes, explain.

  New courses will not be required as part of the proposed distance education program. All of the courses to be developed for online delivery will be based upon courses delivered as part of the traditional, in-person program. The face-to-face and distance courses will have the same course goals and objectives and standards. The only difference will be that the distance courses will make use of delivery and teaching methodologies that have proven best practices for that medium. Courses that are currently offered within the face-to-face degree program will be designed and developed into a distance education modality through a partnership between the subject matter expert (faculty member) and the instructional design and development team. Regardless of the delivery mechanism, students will be held to the same standard for courses and the degree program.

- Will a significant number of new faculty members be required? If yes, explain.

  Existing faculty will serve as the subject matter experts when designing and developing the courses with an instructional design team. The subject matter experts and additional currently existing graduate faculty within the college of engineering will serve as the instructors of record. As the program grows, additional faculty may be hired according to the graduate faculty standards set forth by the college of engineering.
• Will significant additional library/learning resources be needed? If yes, explain.

Library resources to be used within the distance education program currently exist via electronic means. Face-to-face and distance education students will have access to the same resources and databases that will be required to complete the program. All students involved in the program will be subject to the library use fee, which is standard for all Texas A&M University students regardless of location. Program staff will assist these students as needed in acquiring necessary materials.

• What processes do you have in place that secures that a student registered for a distance education course is the same student who completes and receives credit for it? Explain.

Texas A&M University currently has distance education programs and demonstrates that the student who registers these programs or courses is the same student who participates in and completes the course or program and receives the credit. TAMU verifies the identity of students through a secure login and pass code available in the university learning management system (Blackboard Learn). TAMU offers approximately 30 programs, through the College of Agriculture & Life Sciences, College of Education & Human Development, Dwight Look College of Engineering, and College of Science, in which students can obtain 50 percent or more of the program via distance learning. These programs were approved by The Texas A&M University System as a part of a comprehensive institutional plan for distance education. All of these programs are currently enrolling students. Furthermore, the university offers fully on-line courses in a variety of disciplines. TAMU implemented Blackboard Learn as the learning management system in Spring 2012 to effectively manage these courses and to verify student participation in online courses.

TAMU primarily uses the secure login and password system in Blackboard Learn to verify the student identity. To access the course content maintained on the Blackboard Learn course management system, TAMU requires students to log in using a unique username and password. The password is initially set to a unique nine-digit number, which is communicated to students at the time of application and acceptance to the university. After the initial login, a student may change the default password. Furthermore, through this secure login and password, student activity performed in these courses is logged on the Blackboard server. If concerns arise, course instructors and system administrators can create reports showing users’ logon dates, frequency, content area access, tool usage, and assessment and assignment submissions to help ensure proper use.

In addition, Texas A&M University has several Standard Administrative Procedures (SAPs) and University Rules (URs) that address student authentication:
• SAP 29.02.03.M1.03 Information Resources – Account Management
• SAP 29.01.03.M1.14 Information Resources – Password-Based Authentication
• SAP 29.01.03.M1.09 Information Resources – Incident Management
• SAP 29.01.03.M1.27 Exclusion from Required Risk Mitigation Measures
• UR 29.01.03.M2 Rules for Responsible Computing
• UR 29.01.03.M1 Security of Electronic Information Resources

*Note: SACS requires that programs that are a significant departure from those offered when the institution was last evaluated be reported according to SACS. If the answers to these questions reflect a “significant departure” then SACS reporting is required.

**Step Two:** For each of the following questions, include the requested information:

1. **Program Administrative Oversight and Structure:**
   • Identify the person and office directly responsible for the overall management of the offering.
     1. **Name:** Edward White
     2. **Title:** Asst. Department Head and Asst. Professor
     3. **E-mail:** ebw@tamu.edu
     4. **Phone:** 979-862-6446

2. **Faculty Resources:**
   • If the online program will result in additional students, how will faculty resources be provided, that is, hiring additional faculty, reallocating faculty resources from other programs, etc.?

   Additional faculty will not be required to develop and deliver the proposed distance-based degree. Many courses delivered remotely will be based on existing in-person courses. Existing faculty will work with instructional design experts to convert the course content to an effective format for remote delivery. As the program grows, additional faculty may be hired according to the graduate faculty standards set forth by the college of engineering. The department and college will monitor the growth of the program to determine additional needs. If faculty from other programs can serve as subject matter experts and instructors of record, the department will work to share faculty appointments if appropriate. If additional faculty are warranted, the college of engineering will work with departments to hire qualified distance education faculty to develop and teach courses within the distance education masters program.

3. **Evaluation:**
   • How will your institution monitor the quality of the program and student learning outcomes?

   Course content creation, design, and development will be carried out as a partnership between the subject matter expert and the instructional design and development team. Quality standards will be established based on national standards to ensure the course is consistent with Texas A&M University standards for educational program development. Accessibility laws and guidelines will also be followed.

   Distance courses within the college of engineering will be evaluated and assessed within the academic program’s assessment and continuous
improvement process. The continuous improvement process is an annual assessment of the learning outcomes of courses within the program using WEAVE online. A formal audit or review occurs every seven years by outside engineering experts and a final report is sent to the TAMU Provost’s Office. The department and program coordinators will ensure data are collected to represent the distant modality and are included in the continuous improvement process.

- Describe procedures for evaluation of the program and its effectiveness in the first five years of the program, including admission and retention rates, program outcomes assessments, placement of graduates, changes of job market need/demand, ex-student/graduate surveys, or other procedures.

The Engineering Academic and Student Affairs (EASA) office within the college of engineering will collaborate with department to assess admission and retention rates for both the on-campus and distance education degree programs. Additionally, EASA will work with departments to assess program outcomes through an informal review process after the fourth year of the program. The department will be responsible for tracking the placement of students, changes within the job market/demand, and exit surveys of students. These measurements will be performed for both remote and in-person students. The program will also be assessed by external reviewers every six to seven years as part of the academic review process.

- How would evaluations be carried out?

The program evaluation will encompass students course performance, evaluations of the instructors by the students, and overall program quality from the perspective of students, professors, and industry. Distance education students will be evaluated in comparison to students in face-to-face classrooms through grade distributions and test evaluations/assessments. Professors will be evaluated through the same evaluation tools used by the department for other courses. The program will be evaluated through a survey instrument provided to students both face-to-face and distance. This instrument will ask students to evaluate the quality of instruction they received through the course management system or face-to-face, to comment on their use of other media for communications, and to suggest ways to improve various facets of the course/program. Departmental faculty will monitor courses to evaluate teaching methods and effectiveness to suggest improvements and develop best practices in delivery techniques. Industry advisory boards will be asked to provide input regarding the programs, this feedback will be used to make appropriate changes in the degree and delivery of the program.

**Step Three:** Complete, sign and submit with proposal the “Texas Higher Education Coordinating Board Certification Form for Electronically Delivered Programs” on the following page.
Texas Higher Education Coordinating Board

Certification Form for Electronically Delivered and Off-Campus Education Programs

Based on Principles of Good Practice for Academic Degree and Certificate Programs and Credit Courses Offered Electronically.

CURRICULUM AND INSTRUCTION

• Each program or course results in learning outcomes appropriate to the rigor and breadth of the degree or certificate awarded.
• A degree or certificate program or course offered electronically is coherent and complete.
• The program or course provides for appropriate interaction between faculty and student and among students.
• Qualified faculty provide appropriate oversight of the program or course that is offered electronically.
• Academic standards for all programs or courses offered electronically will be the same as those for programs or courses delivered by other means at the institution where the program or course originates.
• Student learning in programs or courses delivered electronically should be comparable to student learning in programs offered at the campus where the programs or courses originate.

INSTITUTIONAL CONTEXT AND COMMITMENT

Role and Mission

• The program or course is consistent with the institution's role and mission.
• Review and approval processes ensure the appropriateness of the technology being used to meet the objectives of the program or course.

Students and Student Services

• Program or course announcements and electronic catalog entries provide appropriate information.
• Students shall be provided with clear, complete, and timely information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technological competence and skills, technical equipment requirements, availability of academic support services and financial aid resources, and costs and payment policies.
• Enrolled students have reasonable and adequate access to the range of student services and student rights appropriate to support their learning.
• The institution has admission/acceptance criteria in place to assess the extent to which a student has the background, knowledge and technical skills required to undertake the program or course.
• Advertising, recruiting, and admissions materials clearly and accurately represent the program or course and the services available.

Faculty Support

• The program or course provides faculty support services specifically related to teaching via an electronic system.
• The institution assures appropriate training for faculty who teach via the use of technology.
• The institution provides adequate equipment, software, and communications access to faculty to support interaction with students, institutions, and other faculty.

Resources for Learning
• The institution ensures that appropriate learning resources are available to students.
• The institution evaluates the adequacy of, and the cost to students for, access to learning resources and documents the use of electronic resources.

Commitment to Support
• Policies for faculty evaluation include appropriate recognition of teaching and scholarly activities related to programs or courses offered electronically.
• The institution demonstrates a commitment to ongoing support, both financial and technical, and to continuation of the program or course for a period of time reasonable and sufficient for students to complete the course or program.

EVALUATION AND ASSESSMENT

• The institution evaluates the program's or course's educational effectiveness, including assessments of student learning outcomes, student retention, and student and faculty satisfaction.
• At the completion of the program or course, the institution provides for assessment and documentation of student achievement in each course.

On behalf of Texas A&M University, I assert that the preceding Coordinating Board criteria have been met for all courses and programs that will be delivered electronically and off-campus face-to-face.

______________________________  ______________________________
Chief Academic Officer or President  Date

Name:

Title:

THECB 6/2010
DISTANCE EDUCATION
Electronic to Individuals (Online Delivery) Approval Form

Submitted by:
✓ Texas A&M University
☐ Texas A&M University-Central Texas
☐ Texas A&M University-Commerce
☐ Texas A&M University-Corpus Christi
☐ Texas A&M University-Kingsville
☐ Texas A&M University-San Antonio
☐ Texas A&M University-Texarkana
☐ Texas A&M International University
☐ Prairie View A&M University
☐ Tarleton State University
☐ West Texas A&M University
☐ Texas A&M Health Science Center

Distance Education: Electronic to Individuals (Online Delivery) Authorization Request

Please list the proposed degree and CIP code:
Degree: Masters of Engineering in Aerospace Engineering
CIP Code: 14.0201.00

When is the effective date of the proposed program?
Effective Date: Fall 2015

**Please note: This proposed program cannot be advertised as an online delivered degree program until the A&M System Office of Academic Affairs has approved it and the Texas Higher Education Coordinating Board has been notified.

Summary of Proposal (Include Background Information and Rationale for the change.)

The Department of Aerospace Engineering (AERO) at Texas A&M University offers a non-thesis degree of Master of Engineering in Aerospace Engineering. This proposal is to offer an equivalent online program. The proposed distance-learning degree will be the same as that completed by on-campus students at the main Texas A&M Campus in College Station, Texas. The standards for admission, course work, and graduation are the same and the diploma is the same as for on-campus students.

The Master of Engineering in Aerospace Engineering is designed for students interested in practicing engineering at an advanced level in government or industry. Each course is designed to provide a clear understanding of fundamental physical principles and their application. The intent is to provide knowledge that enables students to become technical leaders within the aerospace industry.

As part of the degree, students complete a final project and final exam. Both are waived if the student’s final GPR is 3.0 or higher. A final project may be a project assigned within a course or an independent project conducted within AERO 685, Directed Studies. Either option requires approval of the student’s advisor. A maximum of 6 hours of AERO 685 credit is permitted. No AERO 691 Research hours are permitted as part of the degree.

The program requires a minimum of 30 hours of coursework. At least 20 of these hours must be within AERO, the remainder may be outside the department. The specific courses are approved by the student’s graduate advisor. Students may transfer up to 6 credit hours from a peer institution if approved by the graduate director and subject to the limitations given in the Graduate Catalog. The student’s advisor is the graduate director or another faculty member designated by the graduate director. The advisor serves as the sole member of the student’s committee. A bachelor’s degree in aerospace engineering or closely related field is required for admission.
Financial Implications:

TAMU has sufficient resources to initiate and maintain quality distance learning programs. Traditional funding sources and student fees ensure the excellence of electronically based courses and programs. Students who are enrolled in online courses within the college of engineering are charged distance education differential tuition of $540.00 per semester credit hour, which allows for the delivery of the course and ensures the quality of distance and distributed education programs of the University. In addition to the distance education differential tuition, there are traditional services that are a part of the university’s operations that contribute to the effective delivery of distance education. A list of all student fee and explanations can be found at http://sbs.tamu.edu/.

University: Request for Authorization

I recommend adoption of the following program:

"Having complied with all of the requirements of the Texas Higher Education Coordinating Board, Texas A&M University (University name) is hereby authorized to offer the Masters of Engineering in Aerospace Engineering (Degree) program by distance education, electronic to individuals (online delivery) effective Fall 2015.

The Texas A&M University System Office of Academic Affairs finds that the program offering aforementioned is within the role and scope and capacity of the institution and will benefit students.

Texas A&M University (University name) certifies that the proposed distance delivery of the aforementioned program meets the criteria under Texas Administrative Code Chapter 4 Subchapter P regarding quality of the curriculum and courses; delivery of instruction; evaluation, training, supervision, and support of faculty; financial resources; and admission of and support services for students. The program is within the role and mission of the institution and in the Table of Programs. The institution will comply with the standards and criteria of the Commission on Colleges of the Southern Association of Colleges and Schools and will adhere to criteria outlined in Principles of Good Practice for Degree and Certificate Programs and Courses Offered Through Distance Education."

Approval – University:

__________________________________________
University President: _______________________
Print name of President: ____________________

Date

Authorization: System

Approval – Texas A&M University System:

__________________________________________
James R. Hallmark, Ph.D.
Vice Chancellor for Academic Affairs

Date
COLLEGE OF GEOSCIENCES
DEPARTMENT OF OCEANOGRAPHY

08 October 2014

MEMORANDUM

To: Dr. Eric Riggs, Assistant Dean, Graduate Affairs and Diversity, College of Geosciences

From: Dr. Debbie Thomas, Interim Department Head, Oceanography

RE: New non-Thesis Master of Ocean Science and Technology

I have attached a proposal for a new non-Thesis Master of Ocean Science and Technology to be offered by the Department of Oceanography.

Please let me know if any additional information is needed.
Request Form for Bachelor's and Master's Degrees

Following Board action on July 30, 2009, new bachelor’s and master’s programs that meet the following criteria are automatically approved (Chapter 5, Subchapter C, Section 5.44):

- The program has institutional and governing board approval;
- the program complies with the Standards for Bachelor's and Master's Programs;
- adequate funds are available to cover the costs of the new program;
- new costs during the first five years of the program will not exceed $2 million;
- the program is a non-engineering program (i.e., not classified under CIP code 14); and
- the program will be offered by a university or health-related institution.

A new bachelor’s or master’s degree program that meets these criteria may be requested using the Certification Form for New Bachelor’s and Master’s Programs and is automatically approved if no objections are received during the 30-day public comment period. The institution’s program inventory will be updated accordingly and a letter of approval will be sent to the institution/System. All other requests for new bachelor’s or master’s programs must be submitted using the Form for Requesting a New Bachelor’s or Master’s Degree Programs.

I. Need

NEEDS ASSESSMENT

Useful resources for developing a degree program proposal can be found at: http://www.theecb.state.tx.us/index.cfm?objectid=C52788D7-DBFD-5C19-BFA9642A88E40A48&flushcache=1&showdraft=1

Use the THECB website; to check program inventory for existing programs within the state http://www.theecb.state.tx.us/InteractiveTools/ProgramInventory/

A. Job Market Need – Provide short- and long-term evidence of the need for graduates in the job market.

There is a growing need for trained ocean sciences and technology professionals, both in the public (e.g. integrated global ocean observing systems) and private sectors (e.g. energy and transportation industries). These needs are both on the short and long term. A series of trends are leading to an expansion of opportunities in this sector, including the exploration and exploitation of energy resources in deeper waters offshore (e.g. Gulf of Mexico and the Arctic Ocean), the continued growth of human populations along the coast, and growing efforts to predict and mitigate coastal hazards (e.g. hurricanes, tsunami, oil spills, and harmful algal blooms). Perhaps the greatest opportunity will come from the growth of ocean observing systems, integrated systems designed to collect, store and deliver ocean data. In the United States, the Integrated Coastal and Ocean Observation System Act of 2009 (33 U.S.C §3601-3610) legislates for the establishment of such a system, at an estimated 15-year cost of $54.2 billion dollars from a variety of public and private sector sources (Interagency Ocean Observation committee: Independent Cost Estimate, 2012). The construction, maintenance and operation of these systems will provide countless opportunities for professionals for decades to come. Based on the societal benefits proposed by NOAA (National Oceanic and Atmospheric Administration), there will be careers for our graduates in the field of severe weather prediction, forecasting hazards, improving search and rescue success, optimizing marine
New Program Request Form for
Bachelor's and Master's Degrees
Page 2

operations, homeland security applications, monitoring water quality, predicting threats to human health, oil spill response, and climate change research. Examples of recent career openings in the Ocean sciences and Technology field are listed in Appendix 1.

At the state level, Texas is ranked third in numbers of jobs in the Marine Science and Technology industry (Barrow et al. 2005). However, the provision of education and training in Ocean Sciences and Technology does not match other coastal states such as New Jersey and California. By offering a Master of Ocean Science and Technology (MOST), we will cater to an expanding job market nationally and a need within Texas to ensure that the State remains competitive in industries associated with emerging fields within the Ocean Sciences.

At present, oceanography education and training in the United States is focused on producing Ph.D. scientists suited to research and academic settings. The development and growth of ocean observing has created the need for highly trained non-thesis Masters level scientists, a need that is currently overlooked by educational institutions in Texas and the United States in general. In fact, the only comparable degree in the United States is the Masters in Operational Oceanography offered by Rutgers in New Jersey. The creation of the Master of Ocean Science and Technology at Texas A&M University will provide access to a professional masters in this field for students in the southern United States and industries operating in the resource-rich Gulf of Mexico.

References Cited

B. Student Demand – Provide short- and long-term evidence of demand for the program.

The most recent data (from 2012) shows that there are currently 340,000 geoscientists employed in the United States and it is expected that 48% of these workers will be of retirement age over the next decade (Wilson, 2014). Consequently, there will be a severe shortage of geoscientists over the next few decades and therefore career opportunities for students graduating with a Master of Ocean Science and Technology. A Masters degree is the terminal degree for many careers in the Geosciences, such as many careers within the energy industry and the National Weather Service. Our colleagues in the Department of Atmospheric Sciences at Texas A&M University are enthusiastic about MOST as they see it fulfilling a need for their students that is not currently met within the College of Geosciences. Current salaries in the Geosciences are attractive and continue to increase, with starting salaries for Masters graduates in the range of $30,000 to $120,000 per year (Wilson, 2014). These data suggest an unfulfilled demand for this type of degree at Texas A&M University.

Our projected enrollment is based on enrollment for our existing graduate programs in Oceanography, the rapid growth of the undergraduate Minor in Oceanography, and the rapid growth of the Bachelor of Science in Environmental Geosciences. Note that the Department of Oceanography at Texas A&M University does not offer a bachelors in Oceanography and therefore the students entering the Masters will all come from other programs. There is an increasing demand for graduate education (Research M.S. and
New Program Request Form for Bachelor's and Master's Degrees Page 3

Ph.D.) in the ocean sciences, as exemplified by an incoming class of 25 students for fall 2014, which is the Department's largest in over a decade. In addition, our graduation rate (Research M.S. and Ph.D.) has been in an upward trajectory over recent years, from 8 students (2008-2009), to 17 students (2009-2010 and 2010-2011) to 23 students (2012-2013). Similarly, enrollment in the minor has increased from 4 students in 2008-2009 to 20 students today (20013-2014). Collectively, these statistics indicate that our programs are growing and that there is a growing student demand for an ocean sciences education to match the need for ocean scientists in the workforce. Many of the students taking a minor in Oceanography are ideal candidates for the Master of Ocean Science and Technology program.

In addition to the standalone Master of Ocean Science and Technology, we have designed a fast track dual degree program (also known as a 3+2 degree program) to enable students in identified degree programs within the College of Geosciences to graduate with a Bachelors of Science and a Master of Ocean Sciences and Technology in 5 years. Accelerated programs have been approved for a B.S. in Environmental Geosciences, a B.S. in Meteorology, and both B.A. and B.S. in Geology. The option of combining the Master of Ocean Sciences and Technology with an undergraduate degree will be an attractive option for students seeking cost-effective education option that allows them to join the workforce relatively quickly.

References cited

C. Enrollment Projections – Use this table to show the estimated cumulative headcount and full-time student equivalent (FTSE) enrollment for the first five years of the program. (Include majors only and consider attrition and graduation.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Change of Major/Transfers</th>
<th>New Students</th>
<th>Attrition</th>
<th>Graduation</th>
<th>Cumulative Headcount</th>
<th>Cumulative* FTES (New only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
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<tr>
<td>2</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>5</td>
<td>12</td>
<td>12</td>
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<td>3</td>
<td>0</td>
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<td>24</td>
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<tr>
<td>4</td>
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<td>15</td>
<td>1</td>
<td>11</td>
<td>37</td>
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<tr>
<td>5</td>
<td>0</td>
<td>15</td>
<td>1</td>
<td>14</td>
<td>51</td>
<td>54</td>
</tr>
</tbody>
</table>

* These numbers will dictate the projected formula income in the funding source portion in Section III, Anticipated New Formula Funding.
FTES = full-time equivalent student.
Per CB guidelines, 1 FTES = 15 sch for UG, 12 sch for M, and 9 sch for D

AARWebmasters Updated 11/30/2010
II. Quality

A. **Degree Requirements** – Use this table to show the degree requirements of the program. *(Modify the table as needed; if necessary, replicate the table for more than one option.)*

    For Master's degree programs:

<table>
<thead>
<tr>
<th></th>
<th>Non-thesis SCH</th>
<th>Thesis SCH</th>
<th>Clock Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. <em>Foundation Courses: prerequisite/leveling</em></td>
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<tr>
<td><em>(explain any special circumstances)</em></td>
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<tr>
<td>b. Required Courses (of all students)</td>
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<td>15</td>
<td></td>
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<tr>
<td>OCNG 603 Communicating Ocean Sciences</td>
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<tr>
<td>OCNG 604 Ocean Observing Systems</td>
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<td>OCNG 608 Physical Oceanography</td>
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<tr>
<td>OCNG 657 Data Methods and Graphical Representation in Oceanography</td>
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<tr>
<td>OCNG 6XX Advanced data Analysis and Communication</td>
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<tr>
<td><em>(list course names w/ prefix &amp; course numbers)</em></td>
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<tr>
<td>c. Prescribed Elective Courses</td>
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<td>6</td>
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<tr>
<td>OCNG 620 Biological Oceanography</td>
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<td></td>
<td></td>
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<tr>
<td>OCNG 630 Geological Oceanography</td>
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<td>OCNG 640 Chemical Oceanography</td>
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<td><em>(list course name w/ prefix &amp; course numbers)</em></td>
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<tr>
<td>d. Elective Courses</td>
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<td>15</td>
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<td><em>(list elective areas only)</em></td>
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<tr>
<td>Choose 5 courses from 26 listed 3 credit hour specialized courses in the areas of Physical Oceanography, Chemical Oceanography, Geological Oceanography, and Biological Oceanography</td>
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<tr>
<td>e1. Thesis/Dissertation</td>
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<td>e2. Other (specify)</td>
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</tr>
<tr>
<td><em>(e.g. internships/clinical practicum, etc.)</em></td>
<td></td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL SCH REQUIREMENTS** 36  N/A

B. **Curriculum** – Use these tables to identify the required courses and prescribed electives of the program. Note with an asterisk (*) courses that would be added if the program is approved. *(Add and delete rows as needed. If applicable, replicate the tables for different tracks/options.)*
### Required Courses

<table>
<thead>
<tr>
<th>Prefix and Number</th>
<th>Required Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCNG 608</td>
<td>Physical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 604</td>
<td>Ocean Observing Systems</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 657</td>
<td>Data Methods and Graphical Representation in Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 603</td>
<td>Communicating Ocean Sciences</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 6XX</td>
<td>Advanced Data Analysis and Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

### Prescribed Elective Courses

<table>
<thead>
<tr>
<th>Prefix and Number</th>
<th>Prescribed Elective Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCNG 640</td>
<td>Chemical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 620</td>
<td>Biological Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 630</td>
<td>Geological Oceanography</td>
<td>3</td>
</tr>
</tbody>
</table>

### Faculty

C. **Faculty** --

a. Use these tables to provide information about Core and Support faculty. Add an asterisk (*) before the name of the individual who will have direct administrative responsibilities for the program. *(Add and delete rows as needed.)*

<table>
<thead>
<tr>
<th>Name of Core Faculty and Faculty Rank</th>
<th>Highest Degree and Awarding Institution</th>
<th>Courses Assigned in Program</th>
<th>% Time Assigned To Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g.: Robertson, David</td>
<td>PhD. in Molecular Genetics</td>
<td>MG200, MG285, MG824 (Lab Only)</td>
<td>50%</td>
</tr>
<tr>
<td>Asst. Professor</td>
<td>Univ. of Texas at Dallas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Achim Stössel, Associate Professor</td>
<td>Ph.D., Physical Oceanography, University of Hamburg</td>
<td>OCNG 608 Physical Oceanography</td>
<td>30%</td>
</tr>
<tr>
<td>Dr. Steven DiMarco Professor</td>
<td>Ph.D. Physics, University of Dallas</td>
<td>OCNG 657 Data Methods and Graphical Representation in Oceanography</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OCNG 604 Ocean Observing Systems</td>
<td></td>
</tr>
<tr>
<td>Dr. Katherine Shamberger Assistant Professor</td>
<td>Ph.D. Chemical Oceanography, University of Washington</td>
<td>OCNG 603 Communicating Ocean Sciences</td>
<td>30%</td>
</tr>
</tbody>
</table>

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### New Program Request Form for Bachelor's and Master's Degrees

**Page 6**

<table>
<thead>
<tr>
<th>Name</th>
<th>Highest Degree and Awarding Institution</th>
<th>Courses Assigned in Program</th>
<th>% Time Assigned To Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Lisa Campbell</td>
<td>Ph.D. Biological Oceanography, SUNY Stony Brook, New York.</td>
<td>OCNG 681 Seminar</td>
<td>15 %</td>
</tr>
<tr>
<td>Professor</td>
<td>Faculty member with terminal degree</td>
<td>OCNG 6XX Advanced data analysis and communication</td>
<td>30 %</td>
</tr>
<tr>
<td>Dr. X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Shari-Yvon Lewis</td>
<td>Ph.D., Marine and Atmospheric Chemistry, Rosenstiel School of Marine and Atmospheric Science, University of Miami</td>
<td>OCNG 640 Chemical Oceanography</td>
<td>15 %</td>
</tr>
<tr>
<td>Associate Professor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Niall Slowey</td>
<td>Ph.D., Geological Oceanography, Massachusetts Institute of Technology/Woods Hole Oceanography Institution joint program</td>
<td>OCNG 630 Geological Oceanography</td>
<td>15 %</td>
</tr>
<tr>
<td>Professor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Douglas Biggs</td>
<td>Ph.D. Oceanography, Woods Hole Oceanographic Institution/ Massachusetts Institute of Technology joint program</td>
<td>OCNG 420 Biological Oceanography</td>
<td>15 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Faculty in Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Faculty in Year</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Name of Support Faculty and Faculty Rank

<table>
<thead>
<tr>
<th>Name</th>
<th>Highest Degree and Awarding Institution</th>
<th>Courses Assigned in Program</th>
<th>% Time Assigned To Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b. What impact will the new program have on current programs in regards to faculty resources?
   1. How will the teaching load of current faculty be impacted?
   2. How will the teaching load of faculty assigned a portion of their time to the new program be covered?

The proposed Master of Ocean Science and Technology will increase the numbers of students taught within the Department of Oceanography. With the exception of the new capstone OCNG 6XX Advanced Data Analysis and Communication and OCNG 603 Communicating Ocean Sciences, there will not be any new courses added to our course listing. Therefore, students in the proposed new program will take existing courses that are currently being taught in the Department. Most of these classes currently have spare
capacity and therefore any increase in students will be absorbed by our current allocation of teaching faculty.

OCNG 603 Communicating Ocean Sciences will be taught by Dr. Katie Shamberger, who recently joined our faculty (Spring 2014) and therefore increased our graduate teaching capacity. Dr. Jessica Fitzsimmons will contribute to graduate reaching when she joins the faculty in Fall 2015. In addition, Dr. Christine Stover Wiederwohl joined the faculty as an Instructional Assistant Professor (Fall 2013). While she will not be directly involved in teaching courses for the proposed program, her teaching of undergraduate courses and supervision of our teaching labs frees up faculty to devote more effort to the proposed degree.

C. **Students** – Describe general recruitment efforts and admission requirements. In accordance with the institution’s Uniform Recruitment and Retention Strategy, describe plans to recruit, retain, and graduate students from underrepresented groups for the program.

**The admission requirements for MOST will be:**
- Online application through the ApplyTexas website (https://www.applytexas.org/adappc/gen/c_start.WBX)
- Bachelor of Science or Bachelor of Engineering degree by the time students enter the program, with a minimum GPA of 3.00.
- The Bachelor degree should have included math through integral calculus, 1 year of college Chemistry, 1 year of calculus-based college Physics with grades of C or above. A survey course in Biology and/or geology will be recommended, but not required.
- Official transcripts from all college level institutions attended, whether or not a degree was awarded.
- Resume or curriculum vitae.
- Two letters of recommendation.

In addition, international students must also submit proof of proficiency of the English language in the form of scores from either the International English Language Testing System (ELTS) or Test of English as a Foreign Language (TOEFL).

**Recruitment efforts:**
Recruitment and retention will be conducted at both the College and Department level. Our objective will be to recruit students that reflect the population of Texas, including groups underrepresented in the current population of graduate students in the Department of Oceanography. Dr. Christine Wiederwohl is Chair of the Department of Oceanography ‘Recruiting and Admissions’ committee, which consists of faculty and Melissa Mathews, the Department’s Academic Advisor.

The Department is actively involved in the recruitment and retention of underrepresented groups in the Geosciences, through participation in national meetings such as the annual meeting of Society for Advancement of Hispanics/Chicanos and Native Americans in Science (SACNAS), and through university level activities such as the
At the college level, the college graduate recruiting and retention efforts are led by Dr. Eric Riggs (Associate Dean for Diversity and Graduate Student Development) and Judy Nunez (Director of Recruitment). Recruitment efforts are closely coordinated with the College of Geosciences Communication team (led by Karen Riedel) who maintain the College and Department's website and produce printed and electronic media to promote the College of Geosciences in its mission.

E. **Library** – Provide the library director's assessment of library resources necessary for the program. Describe plans to build the library holdings to support the program.

The Department of Oceanography is located 2 minutes walk from the Evans Library, the main library of the 5 on the College Station campus. In addition, the digital library offers access to ebooks and journals via the university Howdy portal both on and off campus. We will work with Mr. Rusty Kimball, the Oceanography librarian, to ensure that needs continue to be met in Ocean Sciences and Technology. The current Oceanography collection is 11,432 books and 659 serials (i.e. journals and book series) and continues to grow.

F. **Facilities and Equipment** – Describe the availability and adequacy of facilities and equipment to support the program. Describe plans for facility and equipment improvements/additions.

Texas A&M University is the flagship university of the Texas A&M System, with a student population of over 50,000. The Department of Oceanography benefits from the resources of a major public university holding Land Grant, Sea Grant, and Space Grant status. The Department's faculty are primarily in the O&M Building on the campus of Texas A&M University (College Station) and in the Ocean and Coastal Studies Building at Texas A&M Galveston. These buildings contain adequate classrooms and laboratories to support the MOST program, including projected increases in student numbers. The classrooms are fitted out with regularly updated information technology, including the hardware and software to enable classes to be taught between the College Station and Galveston campuses. In addition, the Department of Oceanography has close ties, (including joint appointments) with other units within the College of Geosciences directly relevant to the MOST degree, such as the International Ocean Discovery Program (IODP) and the Geochemical and Environmental Research Group (GERG). GERG is the College's unit that builds and operates ocean observing systems, including the Texas Automated Buoy System and our Slocum Glider fleet. We are currently integrating the activities of GERG into teaching and learning with the Department of Oceanography, through investment in facilities and ocean observing tools at GERG ($1,445,000) and a reorganization of the Department of Oceanography. For example, Dr. Steven DiMarco is both the Team Leader of Ocean Observing at GERG and a full Professor in the Department of Oceanography who will teach required courses in the MOST degree.
The Department has allocated space in the O&M Building and $150,000 into the construction of a new ‘Ocean Observing Educational Facility’. The state-of-the-art facility will enable students to work with operating ocean observing instruments collecting data in the Gulf of Mexico, providing students with ‘hands on’ high impact learning experience. This facility will be used to pilot our growing fleet of Slocum Gliders, which are remotely operated vehicles making measurements in the ocean for research and teaching applications.

G. Accreditation – If the discipline has a national accrediting body, describe plans to obtain accreditation or provide a rationale for not pursuing accreditation.

Oceanography does not have an accreditation organization or agency and therefore we will not be seeking accreditation specific to the Masters of Ocean Science and Technology degree. Texas A&M University is fully accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACS-COC).

H. Evaluation – Describe the evaluation process that will be used to assess the quality and effectiveness of the new degree program.

There are rigorous procedures for program review at Texas A&M University and these will be applied to the MOST program to ensure that it is being taught to meet its objectives and that the students achieve the defined learning outcomes of the degree and the individual courses on their degree plans. Annual program assessment will form the backbone of our assessment efforts, in line with the existing Masters of Science in Oceanography and Doctor of Philosophy in Oceanography degrees offered by the Department of Oceanography. Program assessment is managed by the Office of Institutional Assessment (OIA) directed by Dr. Ryan McLawhon. Programs undergo continuous assessment and the assessment process is documented using WEAVEonline, a web based tool for documenting and storing assessment information. Results of the annual assessment will be analyzed to produce an annual action plan, which will be used to improve the effectiveness of the MOST degree.

In addition, The Texas Administrative Code Texas Degree requires that all standalone Masters programs are reviewed on a 7 year cycle. The Academic Program Review (APR) is coordinated by the Office of the Provost and Executive Vice president for Academic Affairs and is based around a self-study and a site visit by an expert external review panel. APR review will be conducted in line with the Southern Association of Colleges and Schools Commission on Colleges Principles of Accreditation guide. APR will be used to systematically review MOST and the findings will be used to improve the MOST degree and ensure that strategies for improvement align with the strategic plans of the university, College of Geosciences, and Department of Oceanography.

III. Costs and Funding

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New Five-Year Costs and Funding Sources - Use this table to show new five-year costs and sources of funding for the program. (Please refer to reference and resources at end of document in developing information)

There are no new costs associated with this degree program. MOST will rely on faculty who are already members of the Department of Oceanography and MOST students will take courses that are already offered by the Department of Oceanography, with the exception of one course that will be created specifically for the program (OCNG 6XX Advanced data Analysis and Communication). The projected increase in student numbers will be absorbed by our current teaching capacity and facilities. Existing funds from the department, college and university will be sufficient to meet the costs of adding this degree program.

<table>
<thead>
<tr>
<th>Five-Year Costs</th>
<th>Five-Year Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel¹</td>
<td>Reallocated Funds</td>
</tr>
<tr>
<td>Faculty</td>
<td>$0</td>
</tr>
<tr>
<td>Administration</td>
<td>$0</td>
</tr>
<tr>
<td>Graduate Assistants</td>
<td>$0</td>
</tr>
<tr>
<td>Clerical/Staff</td>
<td>$0</td>
</tr>
<tr>
<td>Other Personnel</td>
<td>$0</td>
</tr>
<tr>
<td>Facilities, Equipment &amp; IT Resources</td>
<td>$0</td>
</tr>
<tr>
<td>Supplies and Materials</td>
<td>$0</td>
</tr>
<tr>
<td>Library</td>
<td>$0</td>
</tr>
<tr>
<td>Other²</td>
<td>$0</td>
</tr>
<tr>
<td>Total Costs</td>
<td>$7,500</td>
</tr>
<tr>
<td>Total Funding</td>
<td>$0</td>
</tr>
</tbody>
</table>

1. Report costs for reassigned faculty, new faculty hires, graduate assistants, and technical support personnel. Prorate individual salaries as a percentage of the time assigned to the program. If existing faculty will contribute to program, include costs necessary to maintain existing programs (e.g., cost of adjunct to cover courses previously taught by faculty who would teach in new program).

2. Specify other costs here (e.g., accreditation, travel).

3. Indicate formula funding for students new to the institution because of the program; formula funding should be included only for years three through five of the program and should reflect enrollment projections for years three through five.

4. Report other sources of funding here. In-hand grants, "likely" future grants, and fees can be included.
Reference and Resources for completion of proposal.

For certification on signature page.

TAC Section 5.50 (b).

(b) To be approved by the Commissioner, a proposal for a new degree program must include certification in writing from the Board of Regents of a proposing institution, in a form prescribed by the Commissioner, that the following criteria have been met:

(1) The proposed degree program is within the Table of Programs previously approved by the Board for the requesting institution.

(2) The curriculum, faculty, resources, support services, and other components of a proposed degree program are comparable to those of high quality programs in the same or similar disciplines offered by other institutions.

(3) Clinical or in-service placements, if applicable, have been identified in sufficient number and breadth to support the proposed program.

(4) The program is designed to be consistent with the standards of the Commission on Colleges of the Southern Association of Colleges and Schools, and with the standards of other applicable accrediting agencies; and is in compliance with appropriate licensing authority requirements.

(5) The institution has provided credible evidence of long-term student interest and job-market needs for graduates; or, if proposed by a university, the program is appropriate for the development of a well-rounded array of basic baccalaureate degree programs at the institution where the principal faculty and other resources are already in place to support other approved programs and/or the general core curriculum requirements for all undergraduate students.

(6) The program would not be unnecessarily duplicative of existing programs at other institutions.

(7) Implementation and operation of the program would not be dependent on future Special Item funding.

(8) New costs to the institution over the first five years after implementation of the program would not exceed $2,000,000.
Section II. C of the CB proposal asks campuses to provide information about Core and Support Faculty but does not ask for any other personnel information or any additional personnel who may be involved in the delivery of the new program. AND Section III of the proposal requests identification of personnel costs for first five-year period.

The following 'FTE personnel' table provides program proposal preparers an avenue to identify personnel requirements by category types, along with the types of funding sources [new costs vs. reallocated/reassigned funds from existing sources] for these personnel. The total costs from this table will provide 'Personnel' information costs to be included within Section III – the 'Five-Year Costs and Funding Sources' table on p. 4 of the program proposal form.

### FTE Personnel Involved in Delivery of New Program

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Administration</td>
<td>New</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Reassignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CORE Faculty</td>
<td>New</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reassignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUPPORT Faculty</td>
<td>New</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reassignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Student Assts</td>
<td>New</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Reassignment</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Clerical/Other Support</td>
<td>New</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Reassignment</td>
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<tr>
<td>TOTAL</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Reassignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Reassignment = reallocation(s)
NEW COSTS TO THE INSTITUTION OF THE PROGRAM/ADMINISTRATIVE CHANGE

(TAMUS modified)

Complete this chart to indicate the dollar costs to the institution that are anticipated from the change requested.

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Cost Sub-Category</th>
<th>1st Year</th>
<th>2nd Year</th>
<th>3rd Year</th>
<th>4th Year</th>
<th>5th Year</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Salaries</td>
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<td>Program Administration</td>
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<td>Graduate Assistants</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>(New)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>(Reassignments)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Clerical/Staff</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(New)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>(Reassignments)</td>
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<tr>
<td>Supplies &amp; Materials</td>
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<td></td>
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<tr>
<td>Library</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td>Equipment &amp; IT Resources</td>
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<tr>
<td>Facilities</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other (Identify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ANTICIPATED SOURCES OF FUNDING  Note: Use this chart to indicate the dollar amounts anticipated from various sources. Use the additional explanation section that follows this page to specify as completely as possible each non-formula funding source.

<table>
<thead>
<tr>
<th>Funding Category</th>
<th>1st Year</th>
<th>2nd Year</th>
<th>3rd Year</th>
<th>4th Year</th>
<th>5th Year</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Formula Income*</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>II. Other State Funding*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III. Reallocation of Existing Resources*</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>IV. Federal Funding* (In-hand only)</td>
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<tr>
<td>V. Other Funding*</td>
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<td></td>
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<tr>
<td>TOTALS</td>
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</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Funding Category</th>
<th>Non-Formula Funding Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>II. Other State Funding*</td>
<td>#1</td>
</tr>
<tr>
<td></td>
<td>#2</td>
</tr>
<tr>
<td>III. Reallocation of Existing Resources*</td>
<td>#1</td>
</tr>
<tr>
<td></td>
<td>#2</td>
</tr>
<tr>
<td>IV. Federal Funding*</td>
<td>#1</td>
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<td></td>
<td>#2</td>
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<tr>
<td>V. Other Funding*</td>
<td>#1</td>
</tr>
<tr>
<td></td>
<td>#2</td>
</tr>
</tbody>
</table>
I. Formula Income
   A. The first two years of any new program should not draw upon formula income to pay for the program.
   B. For each of Years 3 through 5, enter the smaller of:
      1. the new formula income you estimate the program would generate, based on projected enrollments and formula funding rates; or
      2. half of the estimated program cost for that year.
   C. Because enrollments are uncertain and programs need institutional support during their start-up phase, it is the Coordinating Board’s policy to require institutions to demonstrate that they can provide:
      1. sufficient funds to support all the costs of the proposed program for the first two years (when no new formula funding will be generated); and
      2. half of the costs of the new program during years three through five.
   D. When estimating new formula income, institutions should take into account the fact that students switching programs do not generate additional formula funding to the institution. For example, if a new master’s program has ten students, but five of them switched into the program from existing master’s programs at the institution, only five of the students will generate new formula income to help defray the costs of the program.

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

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

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

V. Other Funding
   This category could include Auxiliary Enterprises, special endowment income, or other extramural funding.
AGENDA ITEM BRIEFING

Submitted by: Dr. Mark A. Hussey, Interim President/CEO
Texas A&M University

Subject: Approval of a New Master of Ocean Science and Technology Degree Program
and Authorization to Request Approval from the Texas Higher Education
Coordinating Board

Proposed Board Action:

Approve the establishment of a new degree program at Texas A&M University leading to a Master of Ocean Sciences and Technology, authorize the submission of this degree program to the Texas Higher Education Coordinating Board (THECB) for approval and certify that all applicable THECB criteria have been met.

Background Information:
The proposed Master of Ocean Science and Technology will be a unique program for the State of Texas. It will provide students with education and training from scientists who are active researchers and educators working at the cutting edge of ocean sciences throughout the global ocean, from the Gulf of Mexico to the waters around Antarctica. The College of Geosciences is in an ideal position to offer this new degree due to our leadership in ocean observation for more than 50 years, and our close ties with the International Ocean Discovery Program (IODP) and offshore energy industry. A unique feature of this program is that the curriculum has been designed to interface with the existing Bachelor degrees taught in the College of Geosciences. This integration will enable the most capable undergraduate students to obtain both Bachelor's and M.S. degrees in 5 years in an accelerated degree program. The educational objectives of this program will be 1) To provide students with a basic understanding of the major concepts in oceanography that can be applied in their Ocean Sciences careers, 2) To provide students with the skills and tools to evaluate and analyze data, particularly large datasets of the type generated by ocean observing systems, 3) to facilitate critical thinking and problem solving. The proposed implementation date is Fall 2015.

The development and growth of ocean science and technology has created the need for highly trained non-thesis M.S. level scientists, a need that is currently overlooked by educational institutions in Texas. The degree will satisfy the growing demand for trained Ocean Sciences and technology professionals, both in the public (e.g. integrated global ocean observing systems) and private sectors (e.g. energy and transportation industries). A series of trends are leading to an expansion of opportunities in this sector, including the exploration and exploitation of energy resources in deeper waters offshore (e.g. Gulf of Mexico), the continued growth of human populations along the coast, and growing efforts to predict and mitigate coastal hazards (e.g. hurricanes, tsunami, oil spills, and harmful algal blooms).

A&M System Funding or Other Financial Implications:
There are no new costs associated with the new Master of Ocean Science and Technology. The new degree will rely on faculty who are already members of the Department of Oceanography, and existing funds within the Department will be sufficient to meet the costs of adding this degree program. The program will be self-sustaining.
Members, Board of Regents
The Texas A&M University System

Subject: Approval of a New a Master of Ocean Sciences and Technology Degree Program, and Authorization to Request Approval from the Texas Higher Education Coordinating Board

I recommend adoption of the following minute order:

"The Board of Regents of The Texas A&M University System approves the establishment of a new degree program at Texas A&M University leading to a Master of Ocean Science and Technology degree.

The Board also authorizes submission of Texas A&M University's new degree program request to the Texas Higher Education Coordinating Board for approval and hereby certifies that all applicable criteria of the Coordinating Board have been met."

Respectfully submitted,

Dr. Mark A. Hussey, Interim President

Approval Recommended: ____________________________

Approved for Legal Sufficiency: ____________________________

John Sharp
Chancellor

Ray Bonilla
General Counsel

James R. Hallmark
Vice Chancellor for Academic Affairs
New Bachelor’s and Master’s Degree
Cover Page/Signature Page

Directions: An institution shall use this form to propose a new bachelor’s or master’s degree program. In completing the form, the institution should refer to the document Standards for Bachelor’s and Master’s Programs, which prescribes specific requirements for new degree programs. Note: This form requires signatures of (1) the Chief Executive Officer, certifying adequacy of funding for the new program; (2) a member of the Board of Regents (or designee), certifying Board approval, and (3) if applicable, a member of the Board of Regents or (designee), certifying that criteria have been met for staff-level approval. NOTE: Preliminary authority is required for all engineering programs. An institution that does not have preliminary authority for a proposed engineering program shall submit a separate request for preliminary authority prior to submitting the degree program request form. That request shall address criteria set in Coordinating Board rules Section 5.24 (a).

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

Administrative Information

1. Institution:
Texas A&M University

2. Program Name — Show how the program would appear on the Coordinating Board’s program inventory (e.g., Bachelor of Business Administration degree with a major in Accounting):
Master of Ocean Science and Technology

3. Proposed CIP Code:
40.0607.0002

4. Number of Required Semester Credit Hours (SCHs) (If the number of SCHs exceeds 120 for a Bachelor’s program, the institution must request a waiver documenting the compelling academic reason for requiring more SCHs):
36 credit hours

5. Brief Program Description — Describe the program and the educational objectives:
The Department of Oceanography intends to offer a non-thesis Master of Ocean Sciences and Technology. Students will be trained in the science of oceanography, ocean observing and ocean observing technologies, and data handling and analysis. Post-graduate opportunities exist in the rapidly growing field of ocean observation in both the public (e.g. government agencies) and private (e.g. offshore energy industry) sectors. While the Master of Ocean Sciences and Technology is a standalone degree program, we anticipate that many students will combine the M.S. degree with several Bachelor of Science degrees currently offered by the College of Geosciences. The proposed Master Ocean Sciences and Technology curriculum has been designed to provide motivated and outstanding students with the opportunity to ‘fast track’ their M.S. by completing a Bachelor of Science degree and the non-thesis Master of Ocean Sciences and Technology within five years.

6. Administrative Unit — Identify where the program would fit within the organizational structure of the university (e.g., The Department of Electrical Engineering within the College of Engineering):
Department of Oceanography within the College of Geosciences

AAR/Webmasters Updated 11/30/2010
7. **Proposed Implementation Date** – Report the date that students would enter the program (MM/DD/YY): Fall 2015: August 2015

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

   Name: Dr. Deborah Thomas

   Title: Interim Department Head

   E-mail: dthomas@ocean.tamu.edu

   Phone: 979-845-7211
Signature Page

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

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

   ___________________________  ___________________________
   Chief Executive Officer      Date

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

   *On behalf of the Board of Regents, I approve the program.*

   ___________________________  ___________________________
   Board of Regents (Designee)      Date of Approval

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

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

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

   ___________________________  ___________________________
   Board of Regents (Designee)      Date
Certification Form for New Bachelor’s and Master’s Programs
Texas Higher Education Coordinating Board

Directions: An institution shall use this form to request a new bachelor’s or master’s degree program that meets all criteria for automatic approval in Coordinating Board Rules, Chapter 5, Subchapter C, Section 5.44: (a) The program has institutional and governing board approval; (b) the program complies with the Standards for Bachelor’s and Master’s Programs; (c) adequate funds are available to cover the costs of the new program; (d) new costs during the first five years of the program will not exceed $2 million; (e) the program is a non-engineering program (i.e., not classified under CIP code 14); and (f) the program will be offered by a university or health-related institution.

If a new bachelor’s or master’s program does not meet the criteria above, an institution must submit a request using the Form for Requesting a New Bachelor’s and Master’s Degree Program.

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

Administrative Information

1. Institution: Texas A&M University

2. Program Name: Show how the program would appear on the Coordinating Board’s program inventory (e.g., Bachelor of Business Administration degree with a major in Accounting; Bachelor of Arts in Interdisciplinary Studies with 4-8 ESL Generalist Certification).

Masters of Ocean Sciences and Technology

3. Proposed CIP Code: 40.0607.0002

4. Number of Required Semester Credit Hours (SCHs) (If the number of SCHs exceeds 120 for a bachelor’s program, the institution must request a waiver documenting the compelling academic reason for requiring more SCHs):

36 credit hours

5. Administrative Unit: Identify where the program would fit within the organizational structure of the university (e.g., The Department of Electrical Engineering within the College of Engineering). Department of Oceanography within the College of Geosciences

6. Delivery Mode: Identify how and where the program would be delivered, e.g. on-campus face-to-face, online, off-campus, interactive videoconferencing, hybrid, etc.

On-campus face-to-face and interactive videoconferencing

7. Implementation Date: Report the first semester and year that students would enter the program.

Fall 2015

8. Contact Person: Provide contact information for the person who can answer specific questions about the program.

Name: Dr. Deborah Thomas
Title: Interim Department Head
E-mail: dthomas@ocean.tamu.edu
Phone: 979-845-7211
Signature Page

I hereby certify that all of the following criteria have been met in accordance with the procedures outlined in Coordinating Board Rules, Chapter 5, Subchapter C, Section 5.44:

(a) The program has institutional approval.

(b) The program complies with the Standards for Bachelor's and Master's Programs.

(c) Adequate funds are available to cover the costs of the new program.

(d) New costs during the first five years of the program will not exceed $2 million.

(e) The program is a non-engineering program (i.e., not classified under CIP code 14).

(f) The program will be offered by a university or health-related institution.

I understand that the Coordinating Board will update the program inventory for the institution if no objections to the proposed program are received during the 30-day public comment period.

_________________________________________  _________________
Chief Executive Officer     Date

I hereby certify that the Board of Regents has approved this program.

Date of Board of Regents approval: ______________________________________

_________________________________________  _________________
Board of Regents (or Designee)     Date
Texas A&M University

Master of
Ocean Sciences and Technology
(CIP 40.0607.0002)

Program Review Outline

BACKGROUND & PROGRAM DESCRIPTION

Administrative Unit: College of Geosciences (Department of Oceanography)

The proposed Master of Ocean Sciences and Technology will be a unique program for the State of Texas. It will provide students with education and training from scientists who are active researchers and educators working at the cutting edge of ocean sciences throughout the global ocean, from the Gulf of Mexico to the waters around Antarctica. The College of Geosciences is in an ideal position to offer this new degree due to our leadership in ocean observation for more than 50 years, our close ties with the International Ocean Discovery Program (IODP) and the offshore energy industry. A unique feature of this program is that the curriculum has been designed to interface with existing Bachelor of Science degrees taught in the College of Geosciences. This integration will enable the most capable undergraduate students to obtain both Bachelor’s and MS degree in 5 years in an accelerated degree program.

The educational objectives of this program will be: 1) To provide students with a basic understanding of the major concepts in oceanography that can be applied in their Ocean Sciences careers, 2) To provide students with the skills and tools to evaluate and analyze data, particularly large datasets of the type generated by ocean observing systems, 3) to facilitate critical thinking and problem solving.

Students will be required to take 3 credit hour graduate courses in Ocean Observing, Physical Oceanography, Communicating Ocean Science, and Data Methods and Graphical Representation in Oceanography. Students will take 2 prescribed elective 3 credit hour courses from a list of 3 graduate courses. Students will have the opportunity to follow their interests by selecting 5 graduate classes from a list of 26 elective 3 credit hour courses. Finally, all students will take part in a directed 3 credit hour capstone learning experience.

The proposed implementation date is Fall 2015.

The College of Geosciences, Texas A&M University, certifies that the proposed new degree program meets the criteria under the Texas Administrative Code, Section 5.450 in regards to need, quality, financial and faculty resources, standards and costs. New costs during the first five years will not exceed $2 million.

I. NEED
A. Employment Opportunities
There is a growing need for trained Ocean Sciences and technology professionals, both in the public (e.g. integrated global ocean observing systems) and private sectors (e.g. energy and transportation industries). A series of trends are leading to an expansion of opportunities in this sector, including the exploration and exploitation of energy resources in deeper waters offshore (e.g. Gulf of Mexico), the continued growth of human populations along the coast, and growing efforts to predict and mitigate coastal hazards (e.g. hurricanes, tsunami, oil spills, and harmful algal blooms). Perhaps the greatest opportunity will come from the growth of ocean observing systems, integrated systems designed to collect, store and deliver ocean data. The construction and maintenance of these systems will provide countless opportunities for professionals for decades to come. Texas is ranked third in numbers of jobs in the Marine Science and Technology industry. However, the provision of education and training in Ocean Sciences and Technology does not match other coastal states such as New Jersey and California. The development and growth of ocean observing has created the need for highly trained non-thesis M.S. level scientists, a need that is currently overlooked by educational institutions in Texas.

B. Projected Enrollment
Our projected enrollment is based on enrollment for our existing graduate programs in Oceanography, the rapid growth of the undergraduate Minor in Oceanography, and the rapid growth of the Bachelor of Science in Environmental Geosciences. For example, our graduation rate of graduate students (Research M.S. and Ph.D.) has been in an upward trajectory over recent years, from 8 students (2008-2009), to 17 students (2009-2010 and 2010-2011) to 23 students (2012-2013). Similarly, enrollment in the minor has increased from 4 students in 2008-2009 to 20 students today (2013-2014). Many of the students taking a minor in Oceanography are ideal candidates for the Master of Ocean Science and Technology program and we have designed an accelerated degree program (3+2) to enable such students to graduate with a Bachelors of Science in Environmental Geoscience and a Master of Ocean Science and Technology in 5 years. Similar 3+2 programs are planned with the B.S. in Meteorology and the B.A. and B.S. in Geology. Based on these developments, we project a graduation rate of 9 to 10 students per year with Masters of Ocean Sciences and Technology after 5 years (see table below):

<table>
<thead>
<tr>
<th>Year</th>
<th>Change of Major/Transfers</th>
<th>New Students</th>
<th>Attrition</th>
<th>Graduation</th>
<th>Cumulative Headcount</th>
<th>Cumulative* FTES (New only)</th>
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</thead>
<tbody>
<tr>
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<td>15</td>
<td>1</td>
<td>14</td>
<td>51</td>
<td>54</td>
</tr>
</tbody>
</table>

C. Existing State Programs
There are currently no taught or research-based Masters programs that offer training in Ocean Sciences and Technology with the State of Texas. The proposed program would be unique to Texas A&M University and therefore provide a needed opportunity for education and training
within Texas in this emerging field. The Ocean Sciences and Technology degree will be a taught program designed specifically to give students the range of skills needed for careers in ocean observation, data analysis, and related fields. The only comparable program in the United States is the Masters in Operational Oceanography offered by Rutgers, the state university of New Jersey.

Existing Master of Science degrees in the ocean sciences within Texas are limited to programs in Oceanography, Marine Biology, Marine Sciences, Master of Marine Resources Management (MARM), and Master of Maritime Administration and Logistics (MMAL). Master of Science in Marine Biology is currently offered by Texas A&M Galveston (TAMUG), Texas A&M Corpus Christi, and Texas A&M University. This degree is focused on the ecology and physiology of marine organisms and therefore does not conflict with the proposed degree. Similarly, the focus of the Master of Science in Marine Science offered by the University of Texas is marine biology and chemistry. Students in our own Master of Science in Oceanography degree program pursue relatively specialized studies focused on marine geology, physics, chemistry, or biology. Moreover, these are all research-orientated programs. MARM and MMAL are two new taught Masters programs offered by TAMUG. We developed our proposed degree in consultation with colleagues at TAMUG and therefore these programs should be regarded as complementary rather than competitive. Moreover, the growing choice of specialist graduate degree programs and the rising rates of graduation indicate that Texas A&M is poised to become a national leader in Ocean Sciences education; the proposed Ocean Sciences and Technology degree would add to this momentum by offering educational opportunities in a new and emerging field.

II. QUALITY & RESOURCES

A. Faculty
The Department currently has 29 teaching faculty, with 18 based in College Station and 11 at Texas A&M Galveston, with an additional faculty member joining the College Station faculty in Fall 2015. All faculty have a Ph.D in Oceanography or related science discipline.

B. Program Administration
The program will be administered by the Department of Oceanography and the College of Geosciences. Day-to-day management of the program will be led by the Head of Department of the Department of Oceanography.

C. Other Personnel
The program will be supported by the 4 administrative staff and the Graduate Advisor within the Department of Oceanography. Specialist staff are available to support IT, communications and engagement, assessment, and recruitment in the Dean's office of the College of Geosciences.

D. Supplies, Materials
Adequate supplies for teaching are available within the Department and College of Geosciences. There are clear procedures and resources available for requesting additional materials and supplies to support teaching if needs arise.

E. Library
The Department of Oceanography is located 2 minutes walk from the Evans Library, the main library of the 5 on the College Station campus. In addition, the digital library offers access to
ebooks and journals via the university Howdy portal both on and off campus. We will work with Mr. Rusty Kimball, the Oceanography librarian, to ensure that needs continue to be met in Ocean Sciences and Technology. The current Oceanography collection is 11,432 books and 659 serials (i.e. journals and book series) and continues to grow.

F. Equipment, Facilities
The Department is well equipped to provide this program. Facilities include the O&M Building in College Station, the Geochemical and Environmental Research Group (GERG) facility in College Station, and the new Ocean and Coastal Studies Building (completed in 2010) and associated facilities (marina and sea life center) in Galveston. Substantial resources are being invested into the development of new facilities at GERG, including the recent purchase of a pair of Slocum gliders, which are remotely operated vehicles (ROV) used to make measurements from the ocean while being controlled from the shore. Students in the proposed program will gain experience with state-of-the art technologies and tools used in the Ocean Sciences by researchers who use the tools on a daily basis.

G. Accreditation
The program does not seek national accreditation. Texas A&M University is fully accredited by the Southern Association of Colleges and Schools Commission on Colleges.

III. NEW 5 YEAR COSTS & FUNDING SOURCES
Costs for the proposed degree are minimal as instruction can be met with existing resources. It is projected that the program will not require any new faculty or other resources for the first five years.

<table>
<thead>
<tr>
<th>NEW FIVE-YEAR COSTS</th>
<th>SOURCES OF FUNDING</th>
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<tbody>
<tr>
<td>Faculty</td>
<td>Formula Income</td>
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<td>Program Administration</td>
<td>Statutory Tuition</td>
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<td>Graduate Assistants</td>
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<td>$ 0</td>
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<tr>
<td>Supplies &amp; Materials</td>
<td>Designated Tuition</td>
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<td>Library &amp; IT Resources</td>
<td>Other Funding:</td>
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<tr>
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<td>$ 0</td>
</tr>
<tr>
<td>Equipment, Facilities</td>
<td>List other funding</td>
</tr>
<tr>
<td></td>
<td>$ 0</td>
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<tr>
<td>Other</td>
<td>Estimated 5-year Revenues</td>
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<td></td>
<td>$ 0</td>
</tr>
<tr>
<td>Estimated 5-Year Costs</td>
<td>$7,500</td>
</tr>
</tbody>
</table>

Keep this Program Review Outline to a maximum of 4 pages, using the pagination format included.
To: Dr. Debbie Thomas, Associate Professor  
Interim Department Head, Department of Oceanography

From: Patrick Louchouarn, Vice President for Academic Affairs and Chief Academic Officer (TAMUG), Associate Provost (TAMU)

Subject: Master of Ocean Science and Technology (MOST)

Date: 21 October 2014

Dear Dr. Thomas,

I thank you for sending the Department of Oceanography’s proposal for a new 36 credit hour non-thesis Master of Ocean Science and Technology (MOST) degree program. Your proposal offers a new and exciting option for students who seek to gain advanced professional training in ocean sciences. Your review of the curriculum will open new courses opportunities to students on both the College Station and Galveston campuses.

This proposed program complements, but does not compete with, existing marine sciences degree programs at Texas A&M University Galveston. Texas A&M University at Galveston thus supports this proposal and has no objection for OCNG to offer it.

Sincerely,

Patrick Louchouarn,  
Vice President for Academic Affairs and Chief Academic Officer (TAMUG)  
Associate Provost (TAMU)  
Professor
MEMORANDUM

TO: Dr. Robin Autenrieth, A.P. and Florence Wiley Professor III
    Department Head, Zachry Department of Civil Engineering

FROM: Dr. Debbie Thomas, Associate Professor
      Interim Department Head, Department of Oceanography

SUBJECT: Master of Ocean Science and Technology (MOST)

I am writing to inform you of the Department of Oceanography’s proposal for a new 36 credit hour non-thesis Master of Ocean Science and Technology (MOST) degree program. The program was approved this week by the College of Geosciences curriculum committee.

Attached is a table that illustrates the differences between our current thesis based Master of Science degree and the proposed Master of Ocean Science and Technology degree. Students will be trained in the science of oceanography, ocean observing, and data handling and analysis. The proposed degree program is built from courses that are currently offered by the Department of Oceanography, with the exception of a new 3 hour OCNG 603 ‘Communicating Ocean Sciences’ course (which will be required for all our graduate students from Fall 2015) and a 3 hour OCNG 6XX ‘Advanced Data Analysis and Communication’ course, which will be the capstone course for the MOST degree. While MOST is a stand-alone degree program, we anticipate that some students will combine the M.S. degree with Bachelor of Science degrees (e.g. Environmental Geosciences, Meteorology, and Geology) currently offered by the College of Geosciences in an accelerated five-year degree program. Post-graduate opportunities exist in the rapidly growing field of ocean observation in both the public (e.g. government agencies) and private (e.g. offshore energy industry) sectors.

I hope you will agree that the proposed program complements, but does not compete with, existing ocean-orientated degree programs at Texas A&M University. We believe that MOST fills a niche for students seeking a non-thesis M.S. degree, which is the terminal degree for many careers in the Geosciences. We hope that you and your colleagues are supportive of the proposed program. If you have any questions, comments, or concerns, I will be happy to address them. To indicate your support for the proposed program, please return this memo with your signature at your earliest convenience.

Robin Autenrieth

Date: Oct. 20, 2014
Appendix 1

Examples of recent advertised positions suitable for graduates with a Master of Ocean Science and Technology
ASSOCIATE ENVIRONMENTAL SCIENTIST

Back to all Jobs
20-May-14 08:22 AM
URL: http://www.indecon.com
Company / Organization: Industrial Economics, Inc.
Type: Full-time
City: Cambridge, MA

Description:
Associate Environmental Scientist We are seeking an environmental scientist with an graduate level degree in environmental sciences or a related field (e.g., ecology, biology, chemistry, toxicology, marine science). The successful candidate will support our dynamic natural resources practices through analysis of environmental data to assess the impacts of chemical and/or physical degradation to a wide range of ecological components. The successful candidate will be responsible for conducting applied analysis and planning/coordination in the context of environmental policy, environmental litigation, and natural resource damage assessments. Responsibilities may include: • Designing and implementing major quantitative analyses. • Interpreting and communicating results (verbally and in writing). • Identifying and working with outside experts. • Recommending modifications to achieve project objectives. • Critically reviewing reports and analyses produced by other parties. • Providing logistical and administrative support internally and to the client, including organizing meetings and conference calls, producing call notes, and helping to maintain project communication. We expect a candidate to have excellent analytical, organizational, and writing skills, and be able to multi-task and work in a fast-paced consulting environment. A high degree of initiative and creativity is also required. Because IEC is committed to growth from within, we seek candidates with a long-term interest in a consulting career.

Skills Requirements: • Ability to understand and interpret environmental data • Strong analytical and math skills • Experience with database and spreadsheet management • Ability to clearly communicate complex technical information (oral and written)

Position Type: Full Time
Required Qualifications: MA, MS, MBA, MPP, Ph.D.or equivalent in relevant field (see above). Relevant work or internship experience.

Requirements:
Required Qualifications: MA, MS, MBA, MPP, Ph.D.or equivalent in relevant field (see above). Relevant work or internship experience.

Point of Contact: Recruiting Committee
UPPORT SCIENTIST II - ATMOSPHERIC MESOSCALE DATA ASSIMILATION

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08-Aug-14 12:42 PM

Company / Organization: NOAA Environmental Modeling Center (EMC)
City: College Park
State or Country if outside US: MD

Description: I.M. Systems Group, Inc. (IMSG), www.imsg.com, a Federal Government Contractor, is seeking to fill a position for a Support Scientist to work at NOAA's Environmental Modelling Center (EMC) of the National Centers for Environmental Prediction (NCEP) located in College Park, MD. The successful candidate will work with the Mesoscale Modeling Branch and be tasked with testing new ideas in variational observation quality control applied to the NCEP data assimilation system, the GSI. The immediate goal of the research is to improve the quality control applied to surface observations from a diverse range of platforms used in NCEP's Real-Time Mesoscale Analysis. To Apply: Please submit your resume, the contact information for three (3) references, your salary requirements and a cover letter explaining how your qualifications meet the requirements of the position to jobs@imsg.com with the following subject line: NOAA1421 Support Scientist II - MMB Data Assimilation IMSG offers an outstanding overall compensation package including health/dental insurance, short term/long term disability insurance, paid-time-off, and a 401(k) plan. IMSG is an Equal Opportunity Employer and Veteran friendly.

Requirements: Required Skills: ? A MSc. or Ph.D. in Atmospheric Science, Oceanography, or a related physical or applied mathematical science. ? Strong background in mathematics and statistics. ? Experience in using observations of the atmosphere or ocean for diagnostic and/or modeling purposes. ? Experience in variational or Kalman-filter data assimilation, or alternatively a university level course taken in data assimilation. ? Experience with code development in FORTRAN and scripting in Linux/Unix shell environments. ? Experience with running complex jobs, processing, and performing comprehensive analyses of large amounts of observed and modeled output data. ? Good written and oral communication skills. Desired ? Working knowledge of the GSI. ? Experience with displaying tools commonly used in atmospheric studies, such as Grads and Python. ? Experience in using high performance supercomputers in a FORTRAN/UNIX environment, including the use of MPI programming.

Point of Contact: jobs@imsg.com
Attachment: download
SUPPORT SCIENTIST - ATMOSPHERIC
MESOSCALE DATA ASSIMILATION

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08-Aug-14 12:47 PM
Company / Organization: NOAA Environmental Modeling Center (EMC)
City: College Park
State or Country if outside US: MD

Description: I.M. Systems Group, Inc. (IMSG), www.imsg.com, a Federal
Government Contractor, is seeking to fill a position for a Support Scientist to work
at NOAA's Environmental Modelling Center (EMC) of the National Centers for
Environmental Prediction (NCEP) located in College Park, MD. The successful
candidate will support the further development of the so-called Grid-Point
Statistical Interpolation (GSI) system, focusing on its use by the Real-Time
Mesoscale Analysis (RTMA) system. The GSI is EMC's analysis system for the
atmosphere, which is used for 2DVar, 3DVar, 4DVar, and hybrid
ensemble/variational applications. The RTMA system runs the GSI in 2DVar-
mode to provide real-time analyses for sensible weather elements of the NWS'
digital forecast suite. Most are surface parameters (e.g. 2m-temperature, 2m-dew-
point, 10m-wind). The candidate will work to improve analyses of existing RTMA
parameters and, especially, to add new control variables to the GSI to analyze new
RTMA parameters as they are requested by the National Weather Service
forecasters and other RTMA users. Examples of such parameters include cloud
amount (aka sky cover), ceiling, max/min Temperature at 2m, snow amount, the
Haines Index, PBL height (aka mixing depth), transport wind, surface ozone, and
80-m winds. To Apply: Please submit your resume, the contact information for
three (3) references, your salary requirements and a cover letter explaining how
your qualifications meet the requirements of the position to jobs@imsg.com with
the following subject line: NOA1422 Support Scientist - RTMA GSI IMSG offers
an outstanding overall compensation package including health/dental insurance,
short term/long term disability insurance, paid-time-off, and a 401(k) plan. IMSG
is an Equal Opportunity Employer and Veteran friendly.

Requirements: Required Skills: ? At least a M.S in Meteorology, Atmospheric
Sciences, or related field. ? Experience in atmospheric or oceanic data
assimilation, or alternatively a graduate-level course in data assimilation or
principles of objective analysis. ? Experience in using large atmospheric or
oceanic datasets for analysis, assimilation or diagnostic purposes. ? Solid
background in calculus, algebra, and statistics. ? Experience with code
development in FORTRAN and scripting in Linux/Unix shell environments.
? Good written and oral communication skills. Desired ? Experience with the use of
the GSI. ? Experience with the use of high performance supercomputers in a
FORTRAN/UNIX environment, including the use of MPI programming. ?
Experience with display tools commonly used in atmospheric modeling, such as
Grads, GEMPAK and/or Python.
Point of Contact: jobs@imsg.com
Attachment: download
With roots dating back to 1903, the Bermuda Institute of Ocean Sciences (BIOS) is a world class marine science research and education organization, Bermuda's source for environmental education and a global training center for young scientists. BIOS is committed to ocean science for human good.

BIOS is a U.S. incorporated 501(c)(3) not-for-profit research and education institute employing a multi-national staff approximating 100 people. BIOS operates RV Atlantic Explorer which functions as a sea-going laboratory supporting faculty and scientists from BIOS and other institutions and agencies. Information on BIOS can be found at www.bios.edu.

**Marine Science Technician**

BIOS currently has two opportunities for seagoing Marine Science Technicians. Candidates that fall short of the minimum qualifications may be considered for a Junior Marine Science Technician position.

**Duties and Responsibilities**
- Operate, maintain, troubleshoot, calibrate and repair various oceanographic systems, sensors and sampling gear.
- Deploy/operate/maintain specialized systems which will include SeaBird CTD, RDI ADCP, Knudsen echo sounders and R.M. Young meteorological suite.
- Collaborate with scientists and ship’s crew to ensure a safe and successful mission.
- Instruct and assist scientific users of the ship in safe operating procedures of shipboard equipment; and proper oceanographic techniques, both on deck and in the labs.
- Act as system administrator for the ship’s computers, including networked Linux and Windows Server systems, firewalls and satellite-based internet services.

**Qualifications**
- Bachelor’s degree in a field related to oceanography or engineering. Other degrees and disciplines will be considered with prior experience in a sea-going technical position directly related to oceanographic field studies.
- 2 years of experience working with UNOLS vessels is desirable.
- Knowledge of basic electrical theory and marine electronic systems.
- Experience with oceanographic systems including but not limited to CTD, ADCP, XBT, meteorological and data acquisition systems.
- Proven ability to work safely at sea in adverse weather and conditions.
- Experience with rigging and over-the-side equipment deployments.
- Strong computer skills, including knowledge of basic scientific data processing techniques.
- Must be proficient with Windows-based networking environments, routers and firewalls.

**Special Requirements:** Must be able to perform normal duties onboard an ocean-going ship; ascending and descending ladders; handling mooring lines; opening and closing watertight doors; working odd and extended hours including holidays and weekends. Must be able to travel and work in the USA.

Interested candidates should email or fax their applications including a Cover Letter, Resume/CV, three References and Salary requirements to:

Human Resources Officer,
The Bermuda Institute of Ocean Sciences (BIOS)
17 Biological Station, St. George’s GE01, Bermuda
Email: HR@bios.edu or Fax: (441) 297-2222

**Position will remain open until filled**

BIOS is an equal opportunity employer in a drug-free workplace and learning environment.

Bermuda Institute of Ocean Sciences

**BIOS**
Secretariat of the Pacific Regional Environment Programme (SPREP)

Vacancy: PACIFIC ISLANDS GLOBAL OCEAN OBSERVING SYSTEM COORDINATOR (PIGOOSC)

Applications are invited for the above position with SPREP at Apia.

This is an exciting and challenging opportunity to work with SPREP, one of the world’s leading regional environmental organisations. The Secretariat is seeking a suitably qualified and motivated person for the role of Pacific Islands Global Ocean Observing System Coordinator. This person will focus mainly on expanding the PI-GOOS programme by identifying and securing additional funds, leading strategic programme development, and coordinating and managing the full range of activities expected of the PIGOOS programme.

Applicants should have a minimum qualification of a Bachelor degree in the field of Science, including marine and oceanography or related field with at least 5 years relevant experience specifically in dealing with marine environmental issues, at least 2 of those years working in a developing country and preferably within the public sector.

The appointment carries a competitive remuneration and benefits package. Remuneration for this post falls within Band 10 of SPREP’s salary scale and will be in the range of SDR25,597 to SDR38,395. Currently, the equivalent in Samoan Tala is SAT$101,212 (USD$41,996) to SAT$151,818 (USD$62,995) per annum. Other staff entitlements include a Cost-of-Living Differential Allowance (COLDA), housing & education allowances, medical benefits, life & personal accident insurance, etc.

Full details of the PIGOOSC’s responsibilities, requirements, remuneration package and lodging an application can be obtained from the Employment section of our website: www.sprep.org or by contacting the Personnel Officer on telephone: +685 21929 Ext. 230, Fax: +685 20231, or direct Email: luanac@sprep.org

Applications should include:
1. A detailed curriculum vitae containing full personal details;
2. A statement to address how each Essential Selection Criteria is met;
3. Names and contact details of at least three professional referees who are prepared to provide testimonials – prefer the most recent employers and/or supervisors; and,
4. Indication of possible starting date if successful.

All applications to be clearly labeled “Application for Pacific Islands Global Ocean Observing System Coordinator”. We encourage all interested applicants to send their applications through email to sprep@sprep.org. Alternatively, please send to: The Director, SPREP, P O Box 240, Apia, SAMOA.

Closing date: Friday, 11 March 2011.

Late applications and those that do not submit all the requirements stated above will not be considered.

SPREP is an Equal Opportunity Employer
Bermuda Institute of Ocean Sciences

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About BIOS / Careers

Careers

Physical Oceanography Research Technician

The Bermuda Institute of Ocean Sciences (BIOS) is seeking a motivated physical oceanography research technician to work on the U.S. National Science Foundation funded time-series programs; Bermuda Atlantic Time-series Study (BATS) and Hydrostation 'S'. These BIOS hosted projects are focused on understanding the processes that influence the variability of the physics and biogeochemistry of the Sargasso Sea and ultimately how these processes interact to regulate the carbon cycle. Both programs have a strong field component requiring a dedicated team of scientists to perform the at-sea data and sample collection, and subsequent shore-side data processing and sample analyses. For this current position we are looking for an individual with at least a B.Sc., in oceanography/marine science with a physics/maths emphasis or a closely
related subject.

The position will initially be for 1-year with continuation depending on job performance and starting salary will be in the range of $34,000 to $45,000 commensurate with experience and qualifications. Review of applications will start immediately with effective starting dates October 1st 2014.

For further information or to make a formal application (cover letter, CV and the names and contact information of three references) please contact Dr. Rod Johnson (rod.johnson@bios.edu).

Duties & Responsibilities

Demonstrated programming experience within the context of oceanographic data analysis and the ability to work synergistically in a multi-disciplined team of oceanographers are essential requirements for this position. Extensive experience of Matlab (multiple platforms especially UNIX), good familiarity with oceanographic instrumentation and a proven sea going capability are a distinct advantage. The expected duties of the successful person are:

- Maintain routine data processing and compliant archiving of all data streams.
- Regular participation on the time-series cruises (~5 to 7 days/month).
- Develop software to enhance data processing, QC and data dissemination.
- Assume responsibility for laboratory salinity measurements.
- Liaise with the marine technical department on instrument calibrations.
- Produce quarterly reports on data status in consultation with the P.I.’s
- Interact with resident and other scientists on data synthesis and data products.
- Keep current with developments in oceanographic data processing standards.
- Assist where required to maintain overall project objectives

The Bermuda Institute of Ocean Sciences is an U.S. incorporated 501(c)(3) not-for-profit research and education institution, Bermuda’s source for environmental education and a global training center for young scientists. BIOS employs a multi-national staff of approximately 80 people and is based in Bermuda since 1903. Activities include oceanographic and marine biological research conducted by resident and visiting scientists, and university level courses on topics ranging from marine pollution to biogeochemical cycles in the Sargasso Sea. Additional information on BIOS can be found at http://www.bios.edu/. BIOS is an Equal Opportunity employer.

Email your CV, cover letter, and references to:
Dr. Rod Johnson rod.johnson@bios.edu

Qualifications

- At least a B.Sc., in oceanography/marine science with a physics/maths emphasis or a closely related subject
- Programming experience within the context of oceanographic data analysis
- The ability to work synergistically in a multi-disciplined team of oceanographers
- Extensive experience of Matlab (multiple platforms especially UNIX)
- Good familiarity with oceanographic instrumentation
- Proven sea going capability is a distinct advantage

Marine Science Technician
BIOS currently has two opportunities for seagoing Marine Science Technicians. Candidates that fall short of the minimum requirements described below may be considered for a Junior Marine Science Technician position.

Interested candidates should email or fax their applications including a cover letter, resume/CV and three references to:

*Human Resources Officer*
*The Bermuda Institute of Ocean Sciences (BIOS)*
*17 Biological Station*
*St. George's GE01 Bermuda*
*email: HR@bios.edu; Fax: 441-297-2222*

**Position will remain open until filled.**

BIOS is an equal opportunity employer in a drug free workplace and learning environment.

**Duties & Responsibilities**

- Operate, maintain, troubleshoot, calibrate and repair various oceanographic systems, sensors and sampling gear
- Deploy/operate/maintain specialized systems which will include SeaBird CTD, RDI ADCP, Knudsen echo sounders and R.M. Young meteorological suite
- Collaborate with scientists and ship’s crew to ensure a safe and successful mission
- Instruct and assist scientific users of the ship in safe operating procedures of shipboard equipment; and proper oceanographic techniques, both on deck and in the labs
- Act as system administrator for the ship's computers, including networked Linux and Windows Server systems, firewalls and satellite-based internet services

**SPECIAL REQUIREMENTS:** Must be able to perform normal duties onboard an ocean-going ship; ascending and descending ladders; handling mooring lines; opening and closing watertight doors; working odd and extended hours including holidays and weekends. Must be able to travel and work in the USA.

**Qualifications**

- Bachelor's degree in a field related to oceanography or engineering. Other degrees and disciplines will be considered with prior experience in a sea-going technical position directly related to oceanographic field studies
- 2 years of experience working with UNOLS vessels is desirable
- Knowledge of basic electrical theory and marine electronic systems
- Experience with oceanographic systems including, but not limited to, CTD, ADCP, XBT, meteorological and data acquisition systems
- Proven ability to work safely at sea in adverse weather and conditions
  - Experience with rigging and over-the-side equipment deployments
- Strong computer skills, including knowledge of basic scientific data processing techniques
- Must be proficient with Windows-based networking environments, routers and firewalls
The position is located in the Office of Response and Restoration's Emergency Response Division, in Seattle, WA. The primary mission of the division is to supply scientific support during marine pollution events. The incumbent will be expected to provide fate and transport forecast in support of a response. To successfully do this, the incumbent will need an authoritative understanding of coastal physical oceanography (currents and what makes them move) and be familiar with a variety of operational models.

This position is also announced under vacancy number NOS-ORR-2014-0015, which is open to status candidates. You must apply to both announcements if you want to be considered for both.

- A one year probationary/trial period may be required.
- This position is in the bargaining unit.

NOTE: This vacancy may be used to fill other Oceanographer, GS-1360-13 positions throughout NOAA. The position must be alike (e.g., within the same geographic locations, same grade/band; requires the same qualifications as indicated in this vacancy announcement).

UNIQUE POSITION REQUIREMENTS:
- While most work is performed in an office environment or laboratory setting, many oceanographers routinely spend time at sea subject to extreme, unexpected weather situations and/or visit hazardous material spills in coastal and estuarine waters requiring the use of protective clothing and equipment.
- When conducting research in the field, work from aircraft, ships and shore stations may be required.
- When in the field, the use of personal protective equipment will be required.
- The incumbent will be required to successfully complete various safety trainings which will require time in a swimming pool with trained instructors.
- The incumbent will be required to drive either government vehicles or rental cars, potentially at night and under adverse weather conditions.
- May be on 24/7 call and must be able to work off hours and over 8 hour days and over 40 hour weeks in support of a spill response.
- This position requires the ability to spend long days walking rugged beaches as part of a survey team.
• During a major response, may be required to work long hours (10-15 hours per day) up to 14 days at a time.

**TRAVEL REQUIRED**

• Occasional Travel
• Must be able to travel up to 2 weeks at a time with 24 hour notice.

**RELOCATION AUTHORIZED**

• No

**KEY REQUIREMENTS**

• Must be a U.S. Citizen or National to apply.
• Required to pass a background investigation and fingerprint check
• Must be suitable for Federal employment.
• Must be registered for Selective Service, if applicable (www.sss.gov).
• Qualification requirements must be met by closing date of announcement.
• Must be able to maintain an valid U.S. driver’s license.

**DUTIES:**

The individual selected for this position will:

• Provide physical oceanography expertise, explaining and modeling coastal currents and the mechanisms that drive the currents, with the specific focus of modeling the fate and transport of pollutants in the coastal marine environment.
• Provide authoritative science advice in support of pollution response operations. Independently produce and deliver timely pollution fate and transport forecasts to emergency response communities across the United States after notification of an incident.
• Lead the development and maintenance of several of our in-house response applications, including writing and debugging code written in the Python, Java Script and C++ programming languages.
• Instruct classes on oil spill fate and transport processes, as well as on modeling oil spills, to the professional response community several times a year.
• Attend and present at scientific conferences, workshops and community meetings while representing the office as a technical authority.

**QUALIFICATIONS REQUIRED:**

Qualification requirements in vacancy announcements are based on the U.S. Office of Personnel Management (OPM) Qualification Standards Handbook, which contains federal qualification standards. This handbook is available on OPM’s website at: Qualifications.

This position has a positive education requirement, transcripts must be submitted.

**CANDIDATES MUST MEET THE FOLLOWING BASIC EDUCATION REQUIREMENTS: 1360, OCEANOGRAPHY SERIES:**

**Degree:** major study of at least 24 semester hours in oceanography or a related discipline such as physics, meteorology, geophysics, mathematics, chemistry, engineering, geology, or biology, plus 20 additional semester hours in any combination of oceanography, physics, geophysics, chemistry, mathematics, meteorology, computer science, and engineering sciences.

**OR Combination of education and experience:** course work as shown above, plus appropriate experience or additional education.

**NOTE:** Applicants who qualify on the basis of major study in biology or geology must have had at least 6 semester hours in the major directly concerned with marine science or 6 semester hours in oceanography; applicants who qualify on the basis of other physical sciences or engineering must have had differential and integral calculus and at least 6 semester hours in physics.

**IN ADDITION TO THE BASIC EDUCATION REQUIREMENTS** applicants must possess one year of specialized experience equivalent in difficulty and responsibility to the next lower grade level in the Federal Service. Specialized experience is experience that has equipped the applicant with the particular competencies/knowledge, skills and abilities to successfully perform the duties of the position. This experience need not have been in the federal government.

**To Qualify at the GS-13 level:**

One full year (52 wks) of specialized experience equivalent to the GS-12 of the Federal service. Specialized experience is defined as:

• Using hydrodynamic models to predict the movement of pollutants in the marine coastal
environment;
- Developing and troubleshooting software applications written in programming languages (i.e. C/C++, Python, Javascript, HTML/CSS, etc.);
- Conducting technical training to promote employee skills and abilities;
- Providing oceanographic analysis to drive operational decisions during an emergency response, or other time-critical work environment;
- Reviewing scientific reports and publications to advise on research projects and operations; and
- Presenting physical oceanographic work at scientific conferences and workshops.

**College Transcript:** Submit a copy of your college transcript that lists college courses detailing each course by the number and department (i.e., bio 101, math 210, etc.), course title, number of credit hours and grade earned. You must submit evidence that any education completed in a foreign institution is equivalent to U.S. education standards with your resume. You may submit an unofficial copy of the transcript at the initial phase of the application process. If course content cannot be easily identified from the title of the course as listed on your transcript, you must submit an official course description from the college/university that reflects the content at the time the course was taken.

**Note:** Your college transcript is used to verify successful completion of degree, or college course work. An official college transcript will be required before you can report to duty.

**HOW YOU WILL BE EVALUATED:**
We will review your resume, optional cover letter and supporting documentation to determine if you meet the minimum qualifications for the position. If you meet the minimum qualifications stated in the vacancy announcement, we will compare your resume, optional cover letter and supporting documentation to your responses on the scored occupational questionnaire (True/False, Yes/No, Multiple Choice questions) and place you in one of three pre-defined categories. These categories are "gold," "silver," and "bronze." However, your resume or optional cover letter must support your responses to the self-assessment questions, or your score may be lowered. Candidates placed in the "gold" category will be identified for referral to the hiring manager and may be invited for an interview.

How you will be evaluated for preference eligibility: Within each category, those entitled to veterans' preference will be listed at the top of the pre defined category for which they are placed. Preference eligibles with a service-connected disability of 10% or more will be listed at the top of the highest quality category (gold) depending on the position and grade level of the job. For more information on category rating, please go to: Category Rating.

The scored occupational questionnaire will evaluate you on the following competencies; please do not provide a separate written response:

- Knowledge of how costal physical oceanographic principles affect the fate of spilled oil and other pollutants.
- Skill to model ocean currents and pollutant movement in the marine environments by utilizing computer models and model algorithms.
- Ability to concisely communicate, in a timely manner, a summary of fate and transport of pollutants for the response community.
- Skill to maintain and improve computer programs written in Python, C++, Javascript, and HTML/CSS which are used for forecasting fate and transport of oceanic pollutants.
- Skill and knowledge to acquire and programmatically manipulate and reformat ocean current and wind model data from an OPeNDAP data delivery framework, and by using the THREDDS data access protocol.
- Ability to develop lesson plans and conduct training for technical and scientific groups learning about the science of oil spills.
- Skill and knowledge to convert scientific findings into working computer code by reading scientific journals and meeting with scientific oil spill and ocean modeling community at conferences and workshops.
- Ability to estimate level of effort necessary to program complex mathematical models and manage project timelines and deliverable priorities.

**To preview questions please [click here](https://jobs.mgsapps.monster.com/doc/vacancy/preview/benefits.hm?orgId=16&jnum=100099)**

**BENEFITS:**
You can review our benefits at:
ICTAP candidates will be eligible if it is determined that they have exceeded the minimum qualifications for the position by attaining at least a rating of 85 out of 100. Information about ICTAP eligibility is on the Office of Personnel Management’s Career Transition Resources website at: [ICTAP eligibility](https://www.opm.gov/career过渡资源网站)

ICTAP applicants MUST submit the following documents:
1. A copy of your RIF separation notice; notice of proposed removal for failure to relocate; notice of disability annuity termination; certification from your former agency that it cannot place you after your recovery from a compensable injury; or certification from the National Guard Bureau or Military Department that you are eligible for disability retirement;
2. A copy of your SF-50 "Notification of Personnel Action" documenting your RIF separation, noting your positions, grade level, and duty location, and/or Agency certification of inability to place you through RPL, etc;
3. A copy of your latest performance appraisal including your rating; and
4. Any documentation from your agency that shows your current promotion potential.

NOAA participates in e-Verify. E-Verify is an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees.

**HOW TO APPLY:**
Your complete application, including required documents, must be received by 11:59 p.m. Eastern Time (ET) on the closing date of this announcement.

To apply on-line, you must complete and submit an application by accessing the USAJOBS website at [USAJOBS](https://www.usajobs.gov). To begin, click the Apply Online button near the bottom of this screen and follow the prompts to register into your USAJOBS account, answer the questions, and submit all required documents.

To return to your saved application, log in to your USAJOBS account at USAJOBS and click on "Application Status." Click on the position title, and then select Apply Online to continue.

If you have problems completing your on-line application, including problems submitting your supporting documents, please contact the Help Desk by e-mail at mshelp@monster.com or phone at 866.656.6831. The help desk is available Monday-Friday, 7:00 am, to 7:00 p.m. ET.

For instructions on submitting your application in another format please contact the HR Personnel listed in this announcement.

**REQUIRED DOCUMENTS:**
- **Resume showing relevant experience; cover letter optional.** Your resume must indicate your citizenship and if you are registered for Selective Service if you are a male born after 12/31/59. Your resume must include information about your paid and nonpaid work experience related to this position including: job title, duration of employment (mm/dd/yy - mm/dd/yy), hours per week, duties and accomplishments, salary, and your education. For work in the Federal service, please include the grade level for the position/s. Your resume may be used to validate your responses to the scored occupational questionnaire.
- **If you are a veteran with preference eligibility and you are claiming 5-points veterans’ preference, you must submit a copy of your Member 4 DD-214 stating disposition of discharge or character of service or other valid proof of eligibility (i.e., statement of service that shows service dates AND character of service). If you are claiming 10-point veterans’ preference, you must also submit an SF-15, "Application for 10-Point Veterans' Preference" plus the proof required by that form. For more information on veterans' preference see [Vet Guide](https://www.usajobs.gov)
- **Active Duty Service Members--** You must submit a statement of discharge/certification of release or an official written document from the armed forces that certifies you are expected to be discharged or released from active duty service in the armed forces under honorable conditions no later than 123 days from the date the announcement closes. Enlisted Record Briefs and military identification do NOT qualify as official documentation. If the appropriate information is not submitted to confirm the discharge status, dates of service, etc., you will not be considered for this job opportunity under Veteran Preference procedures. To gain access to your DD-214 online please visit [Military Records](https://www.usajobs.gov)
- **Interagency Career Transition Assistance Plan (ICTAP) and Interagency Career Transition Assistance Plan (ICTAP) documentation** if applicable (see other information).
- **Education.** If this position requires proof of higher education, you must submit an unofficial transcript or a list of courses that includes the following information: name of accredited institution, grades earned, completion dates, and quarter and semester hours earned. Education completed in foreign colleges or universities must be evaluated in terms of equivalency to that acquired in U.S. colleges and universities. Applicants educated in whole or in part in foreign countries must submit sufficient evidence, including transcripts, to an accredited private organization for an equivalency evaluation of course work and degree. A listing of these accredited organizations can be found on the Department of Education's website. You must provide a copy of the letter containing the results of the equivalency evaluation with a course by course listing along with your application. Failure to provide such documentation by the closing date of the announcement will result in los:
consideration.

Note: You are not required to submit official documents at this time; copies are sufficient.

AGENCY CONTACT INFO:

Heather Mair
Phone: 816-426-2074
Fax: 000-000-0000
Email: heather.a.mair@noaa.gov

Agency Information:
NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION
WFO/Kansas City Staffing Division
601 East 12th Street
Room 1713
Kansas City, MO
64106
US
Fax: 000-000-0000

WHAT TO EXPECT NEXT:
You will be notified of your application status through USAJOBS at four points during the hiring process, as applicable. You can check the status of your application by accessing the USAJOBS website at: USAJOBS and clicking on "Application Status". The four points of notification are:
1. Application Received or Application Incomplete;
2. Minimum Qualification Requirement Met or Minimum Qualification Requirement Not Met;
3. Eligible (Application Referred to the Selecting Official) or Ineligible (Application Not Referred to the Selecting Official) and
4. Selected or Not Selected.

By submitting your application, you are certifying the accuracy of the information contained in your application. If you make a false statement in any part of your application, you may not be hired; you may be terminated after you begin work; or, you may be fined or jailed. After making a tentative job offer, we will conduct a suitability/security background investigation. You will be required to submit official documentation prior to appointment. The agency will then verify the information provided on your application (i.e., degree, veterans' preference, disability, etc.).

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This is a United States Office of Personnel Management website.
USAJOBS is the Federal Government’s official one-stop source for federal jobs and employment information.
Electrical Engineer
SeaBotix, Inc.

Position Overview: Design and development of electronic systems for submersible remotely operated vehicles. Power electronic and high speed digital circuit design and simulation. Printed circuit board layout. Component and EMC compliance engineering. Essential Job Functions • Power electronics design for Switch Mode Power Supply and DC Motor Controls • Analog and Digital PID Control Loop design • Analog and Digital circuit simulation using PSPICE, Matlab, or Altium • Specification of high frequency power magnetics • Microprocessor and high speed digital circuit design • Electronic reliability calculations using MTBF handbook 271f • Analysis and specification of component thermal management systems • Wiring diagrams, schematics, test reports, and Bill-of-Materials • Costing and cost reduction analysis • Actively manage project activities and coordinate work efforts of engineering technicians • Define interface and black-box specifications for use by software and embedded firmware engineers • Performance of other tasks as assigned with minimal supervision.

Please include your salary history and salary expectations for the position when submitting your resume for this job opening.

Skills/Experience Requires Knowledge of:

• Prior experience working with power electronics • An in-depth understanding of high frequency printed circuit board (PCB) layout design • A working knowledge of 2004/108/EC CE Technical File requirements for CE Marking • Hands-on experience developing strategies to meet EMC requirements for 47 CFR Part 15 • Familiarity with the details of Harmonized Standards for product safety • Knowledge of video standards including NTSC, SDTV, and HDTV • Knowledge of broadband communication systems including GB Ethernet and VDSL using fiber optic and copper transmission media • Familiarity with sensor circuits, signal conditioning, and sensor fusion algorithms used for

SeaBotix, Inc.
Website

SeaBotix is the world leading manufacturer of MiniROV systems with a pedigree of underwater expertise. A dedication to providing a capable underwater solution unlike anything else. SeaBotix Inc. was founded on years of research, development and industry related trades. Drawing from previous experience in the underwater industry SeaBotix has the edge.
Schmidt Ocean Institute is currently seeking highly experienced candidates for the shipboard position of Marine Technician. The opening is a unique opportunity to join this young organization to fulfill a full-time seagoing position in support of a 275’/82.9m oceanographic research vessel. The Marine Technician will work on the R/V FALKOR vessel approximately 6 months per year.

The Marine Technician may be required to work remotely when not sailing aboard the ship or attending training or conferences. The ship’s Marine Technicians provide shipboard technical and science logistical support for all science cruise-related activities, including but not limited to, pre-cruise planning and set-up, on-shore and off-shore scientific technical support of all shared-use instrumentation and equipment, and cruise mobilization and demobilization. The Marine Technicians will source, acquire, install, configure, operate, maintain and troubleshoot all scientific equipment aboard the vessel.

All of the Schmidt Ocean Institute Marine Technicians rotate an additional duty as the “Cruise Coordinator.” This duty includes serving as the science parties’ and contractors’ shipboard point-of-contact during the pre-cruise planning periods, as well as during the cruises.

Regular duties of the Marine Technician will be similar to the duties described in the document “Knowledge and Skill Guidelines for Marine Technicians Who Work Aboard Research Vessels”: [Click Here](#)

The Marine Technicians may attend training courses and conferences.

- Advanced degree in marine science, physical or engineering science or a combination of technical schooling and job experience • 5+ years of marine technician experience • All citizenships welcomed to apply. Non-US applicants must have a B-1 Visa to work in the US. • Must be fluent in speaking, reading and
writing the English language.

Qualifications Desired: • Posses a valid drivers license • STCW-95 certificates covering Basic Safety Training which includes First Aid and CPR

Experience Desired: • Extensive experience at-sea aboard ocean or global class research vessels supporting shipboard science • Familiar in use of science winches • Familiar with deck operations and over-the-side deployments • Demonstrated knowledge of marine circuitry • Advanced computer literacy required, computer programming and windows based networking skills • Experienced in use of hand-held power tools • Installation, testing, operation, interpretation and maintenance of the following echo sounding systems: • EA600 • EK60 • EM710 • EM302 • Knudsen Chirp 3260 • RDI ADCP 75kHz and 300kHz • Sonardyne USBL • KSYNC • SH90

• Installation, testing, operation, interpretation and maintenance of the following multidisciplinary science systems: • Meteorological monitoring systems • Science navigation systems(Hypack and/or Winfrog) • Winch and wire monitoring systems • Thermosalinographs (SBE 45) • CTDs, Rosettes and Nisken bottles • Shipboard Data Logging system experience, SCS preferred • Science navigation equipment(Seapath/PosMV/GPS/ GNSS) • XBT • Sound Velocity Profilers

• Skills with various data acquisition and processing software: • SBE Data Processing • CARIS • MBSYSTEM • Fledermaus • GIS • Microsoft Office (or similar) • Windows/Linux/Mac • Adobe Acrobat

NOTES:

Additional Salary Information: Salary based on experience

Schmidt Ocean Institute
Website

Established in March 2009, the Schmidt Ocean Institute seeks to advance ocean exploration, discovery, and knowledge, and catalyze sharing of information about the oceans. The Institute is devoted to the inspirational vision of our Founders that the advancement of technology and open sharing of information will remain crucial to expanding the understanding of the world’s oceans. Since the Earth’s o...