New Courses:

**AGEC 610. Economics of Biosecurity. (3-0). Credit 3.** Economic and policy issues involved with decision making under risk of accidental or deliberate events of agricultural threats involved with animal diseases, food contamination, invasive species, infrastructure disruption, etc.; issues regarding assessments of damages, vulnerability and decision making regarding prevention, detection, response, and recovery. Prerequisite: Graduate classification.

**BAEN 601. Advanced Agricultural Systems Analysis. (3-0). Credit 3.** Application of operations research tools and techniques to the analysis and management of technical systems in agriculture; optimization techniques applied to materials handling, supply chain logistics and other food and agricultural applications. Prerequisite: AGSM 301 or approval of instructor.

**GENE 629. Applied Animal Genomics. (3-0). Credit 3.** Theory and application of genomics by livestock industries; consideration of genetic markers, gene mapping methods, genome analysis and emerging technologies such as microarrays, transgenesis, cloning and marker assisted selection; exposure to bioinformatic tools for genomics. Prerequisite: GENE 603, or by approval of instructor. Cross-listed with ANSC 629 and POSC 630.

**INTA 617. Deterrence and Coercion. (3-0). Credit 3.** Introduces students to deterrence and coercion as instruments of defense policy by applying them to historical and contemporary security problems.

**INTA 620. International Security. (3-0). Credit 3.** Evaluates frameworks for understanding international conflict and then uses these perspectives to survey security problems across several regions, including East Asia, the Middle East and South Asia.

**INTA 621. Chinese Foreign Policy. (3-0) 3.** Provide an overview of Chinese Foreign Policy since 1949, understand the major external and domestic determinants of Chinese foreign policy, the results of domestic politics and/or international pressures, the role of ideology in Chinese foreign policy, economic interests affecting Chinese foreign policy, and what drives China’s involvement in international affairs.

**INTA 622. Chinese Strategic Thought. (3-0). Credit 3.** Intensive reading and research course in Chinese strategic thought from the Warring State period (403-221 BC) to 21st century China with two goals: to provide an introductory understanding of the nature of strategic thinking throughout Chinese history and to provide the conceptual tools to put Chinese strategic thought in a comparative perspective.

**PETE 627. Well Completion and Workover. (3-0). Credit 3.** Development of design options, systems and procedures to meet deliverability, safety and integrity requirements for completions and workover equipment; overview of methods in the oil and gas industry; function and design criteria of well components. Prerequisite: Graduate classification.
PETE 638. Production Logging. (3-0). Credit 3. Well logging methods concerned with problem well diagnosis and reservoir surveillance; includes fluid flow in pipes, understanding fluid dynamics in a wellbore, theoretical basis of production logging techniques, production log interpretation techniques, and operational considerations. Prerequisite: Graduate classification.

PETE 640. Models for Simulation of Flow and Transport of Fluids and Heat in Porous Media. (3-3). Credit 4. Design and develop numerical simulators that describe flow of reservoir fluids and transport of heat through porous media; develop multi-dimensional models capable of handling single mass components (gas, oil or water) in single phases (liquid or vapor). Prerequisite: PETE 603 or approval of instructor; experience in FORTRAN or another programming language; solid understanding of physical processes of flow and transport through porous media, numerical analysis and linear algebra; graduate classification.

PETE 641. Models for Simulation of Advanced Coupled Processes in Geologic Media. (3-3). Credit 4. Design and develop advanced multi-phase flow processes and complex geologic media (porous and fractured, with matrix-fracture interactions); structured and unstructured grids, multiple mass components (gas, oil and water) in multi-phase states (liquid, vapor and/or liquid-vapor), and phase changes. Prerequisite: PETE 640 and graduate classification; experience in FORTRAN95, C, C++ or another programming language; solid understanding of physical processes of flow and transport through porous media, numerical analysis and linear algebra.

POSC 630. Applied Animal Genomics. (3-0). Credit 3. Theory and application of genomics by livestock industries; consideration of genetic markers, gene mapping methods, genome analysis and emerging technologies such as microarrays, transgenesis, cloning and marker assisted selection; exposure to bioinformatic tools for genomics. Prerequisite: GENE 603, or by approval of instructor. Cross-listed with: ANSC 629 and GENE 629.

PSAA 603. International Non-Governmental Organizations. (3-0). Credit 3. Explores how philanthropy, nonprofit, and NGO sectors operate, with special attention to their niche alongside private and public sectors, revenue sources, impact on society, and converse effects of society and its institutions. Prerequisite: Graduate classification.

PSAA 604. Emergency Management and Homeland Security. (3-0). Credit 3. Course provides an overview of emergency management and its connection with homeland security. Topics include emergency management cycles, activities that fall into mitigation, preparedness, response, recovery phases of emergency management. Other topics may include emergency management of terrorism, disaster communication, media relations, and performance assessment for emergency management organizations. Prerequisite: Graduate classification.

PSAA 605. Homeland Security Policies, Strategies, and Operations. (3-0). Credit 3. In-depth examination of past, current, and emerging national and international homeland security policies, strategies, and selected strategic operations. Emphasis on national and global risks, the national security management system, risk and crisis management, longer-term community recovery, and the strategies of other countries applicable to the United States. Prerequisite: Graduate classification.
PSAA 606. Environmental Policy and Management. (3-0). Credit 3. Covers environmental policy area, including air and water pollution, toxic waste disposal, public land use, sustainable development, and resource conservation. Explores actions of governmental institutions and actors at all levels in their efforts to implement and manage environmental policy. Prerequisite(s): Graduate Classification.

Course Changes:
ESSM 663 Applied Spatial Statistics
FROM: (2-2) Credit 3.
TO: (3-3) Credit 4.

HORT 611 Urban Landscape Ecology
TITLE:
FROM: Urban Landscape Ecology
TO: Ecology of Urban Landscape
FROM: Basic concepts and current topics in urban landscape ecology. Urban and fragmented ecosystems ranging from individual plant responses to ecosystem scale changes. Students will participate in discussion and critique recent literature in the field of urban plant ecology.
TO: Basic concepts and current topics in ecology or urban landscapes. Role of plants in urban and fragmented ecosystems ranging from individual plant responses to changes in ecosystem function. Students will discuss recent literature in the field of urban plant ecology.

SCSC 663 Applied Spatial Statistics
FROM: (2-2). Credit 3
TO: (3-2). Credit 4.
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus.

1. This request is submitted by the Department of

Agricultural Economics

2. Course prefix, number and complete title of course:

AGEC 610 Economics of Biosecurity

3. Catalog course description (not to exceed 50 words):
Economic and policy issues involved with decision making under risk of accidental
or deliberate events of agricultural threats involved with animal diseases, food contamination, invasive species, infrastructure disruption,
etc.; issues regarding assessments of damages, vulnerability and decision making regarding prevention, detection, response, and recovery.

4. Prerequisite(s): Graduate status

Cross-listed with:

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

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

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

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

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

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

MS or PhD in agricultural economics and related fields

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

9. Prefix □ Course # □ Title (excluding punctuation)

<table>
<thead>
<tr>
<th>AGEC</th>
<th>610</th>
<th>Economics of Biosecurity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lect</td>
<td>Lab</td>
<td>SCH</td>
</tr>
<tr>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Approval recommended by:

John P. Nichols
Department Head • Type Name & Sign

Chair, College Review Committee • Date

October 8, 2009

Dean of College

Submitted to Coordinating Board by:

Associate Director, Curricular Services • Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 3/09
Course Syllabus AGEC 610
Economics of Biosecurity
Fall 2010

Course Intent:
A class for MS and PhD Students from multiple disciplines that will expose them to economic and policy issues involved with decision making under the risk of accidental or deliberate events regarding mainly agricultural threats involved with animal diseases, food contamination, invasive species, infrastructure disruption, etc. This will involve issues regarding assessments of damages, vulnerability and decision making regarding prevention, detection, response, and recovery.

Instructors:

<table>
<thead>
<tr>
<th></th>
<th>Bruce McCarl</th>
<th>David A. Bessler</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td><a href="mailto:mccarl@tamu.edu">mccarl@tamu.edu</a></td>
<td><a href="mailto:d-bessler@tamu.edu">d-bessler@tamu.edu</a></td>
</tr>
<tr>
<td>Phone</td>
<td>979-845-1706</td>
<td>979 845 3096</td>
</tr>
<tr>
<td>Office</td>
<td>340D Blocker</td>
<td>349A Blocker</td>
</tr>
<tr>
<td>Class hours</td>
<td>2:20 -3:35, Tues.-Thur., in ENPH 215</td>
<td></td>
</tr>
</tbody>
</table>

Prerequisites:
MS or PHD classification. The first several weeks of the class will provide basic economics instruction to bring students to a common basis.

Textbook:
No textbook is required. Reading materials include lecture notes, journal articles, and governmental reports, a list of which will be provided on a topic-by-topic basis. Most materials will be provided through the web site.

Dr. McCarl has a relevant web site at
http://agecon2.tamu.edu/people/faculty/mccarl-bruce/689Homeland.htm

Grading:
The class grade will be made up of

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Percent of Final Grade</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm</td>
<td>25%</td>
<td>~ October 21st, in class</td>
</tr>
<tr>
<td>Project</td>
<td>25%</td>
<td>Due by 4pm, November 18th</td>
</tr>
<tr>
<td>Homework</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>25%</td>
<td>December 10th, 1:00 – 3:00pm, ENPH 215</td>
</tr>
<tr>
<td>Class participation</td>
<td>10%</td>
<td></td>
</tr>
</tbody>
</table>

Grading Scale:
90-100 = A
80-89 = B
70-79 = C
60-69 = D
Below 60 = F
Project Details:
Students will be expected to address a broad homeland security issue, describe it from a technical and economic viewpoint and come up with a maximum 10 page document applying class concepts to the issue. Projects can be conducted by teams of no more than 3 people. A multidisciplinary team is greatly encouraged. We expect that a presentation will be given in class on the material. Several intermittent products will be due during semester as assigned including basic problem definition, economic impact scope, approaches to reduce vulnerability. Student will need to submit discussion questions based on project proposals.

Both the project report and the discussion questions are due by 4pm, November 18th. Instructors will forward a list of questions submitted to project teams for discussion during their presentation. Tentatively there are two dates for project presentation, November 20 and 25 that students can choose. The presentation dates will be allocated on a first-come, first-served base.

Detailed Class Outline (Tentative and will emerge during semester):

Week 1: Homeland Security as an Economic Problem
  Threats
    Differential nature of Agricultural threat
    Terrorism deliberate vs. inadvertent
  Why address this in economics
    Nature of issue
    Significance
    Prior damages
    Decision making/decision support
  Nature of economic focus
    Event costing
      Direct production
      Market impact
      Indirect impact
    Strategy evaluation
    Risk appraisal
    Strategy design
      Compensation
      Cooperation
      Regulatory design
  Market impacts
    Supply/demand
    Trade
    Dynamic
    Induced/regional impacts

Weeks 2-4 Economic background for homeland security
  Demand/supply analysis
  Cost benefit analysis
  Decision making theory

1 The project proposal will be distributed so that students have time to prepare the questions for discussion on the projects other than their own.
2 The order of topics may change over the course depending on the progress of the course as well as communications between instructors and students.
Risk analysis
Externality
Cooperative / Non Cooperative behavior
Induced effects (indirect input output)
Spatial nature of homeland security issue
Robustness

Week 5  Basic decision problem
         Context
         Ex Ante- and ex-post- investment /management mix
         Information needs

Week 6  Events in action what has been done (case studies)
         Oregon salad bar
         Japanese radishes
         FMD in England
         BSE in England, Canada, US
         AI
         Spinach event

Week 7  Market impacts
         Measured through prices and production
         Measured through equity prices

End of week 7  Midterm

Week 8  Vulnerability assessment for animal disease
         FMD
         RVF
         Carcass disposal

Week 9  Balance studies for animal disease
         Inspection and FMD
         Vaccination and carcass disposal
         Animal ID

Week 10-11  Policy decision making
             Command and control
             Public versus private goods
             Policy interventions and incentive mechanisms
             Non cooperative behavior
             Compensation and incentives
             Procedures in FSIS
             Agricultural marketing systems and their vulnerability
             Experiences
             Trade and events
             Regulations/legal issues
             Strategy
             Zoning/regionalization
             Assurance

Week 12  Evaluation, terrorism and probability

Week 12-13  Student Presentations (15 minutes plus 10 minutes class discussion)

Week 14  Related issues and Wrap-up
         Food safety
         Invasive species
         More advanced analytics
Americans with Disabilities Act (ADA) Policy Statement

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Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do." For additional information, please visit: http://www.tamu.edu/aggiehonor
From: Vicki Heard
To: Huval, Lynette
Date: 7/9/2009 8:30 AM
Subject: Re: Fwd: support request to ECON

Lynette, below please find the statement of support from the ECON Department for our new AGEC 610 Economics of Biosecurity course.

Thanks,
Vicki

******************************

>>> Graduate Director TAMU ECON <graddirector@econmail.tamu.edu> 7/8/2009 1:37 PM >>>

David,

I read your new course proposal on the "Economics of Biosecurity". This sounds like an interesting course and appears at a timely moment. I fully support your department offering this course.

rajiv

At 09:01 AM 6/25/2009, David Leatham wrote:
>Dr. Sarin,
>
>   The Graduate Council has requested a memo/email of support for a new
>   course in AGEC entitled "Economics of Biosecurity". I have attached
>   the new course form and syllabus for your review. We would
>   appreciate your brief response in support of this course being
>   taught by the Department of Agricultural Economics so that we can
>   forward it to the Graduate Council as they consider approving this
>   new course. Let me know if you have any questions about the course.
>
>Thank you for your help.
>
>djl
>
>David J. Leatham, Professor
>Associate Head for Graduate Programs
>Department of Agricultural Economics
>Texas A&M University
>Phone: (979) 845-5806
>Email: d-leatham@tamu.edu
>Visit our Website: AGECON.TAMU.EDU
>

9 of 149 B
From: Vicki Heard
To: Huval, Lynette
CC: Nichols, John; Pantoja, Norma
Date: 9/17/2009 11:48 AM
Subject: Re: Fwd: support request to ECON

Lynette, below please find the statement of support from the ECON Department for our new AGEC 610 Economics of Biosecurity course.

Thanks,
Vicki

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>
> Thank you for your help.
>
>djl

>David J. Leatham, Professor
>Associate Head for Graduate Programs
>Department of Agricultural Economics
>Texas A&M University
>Phone: (979) 845-5806
>Email: d-leatham@tamu.edu
>Visit our Website: AGECON.TAMU.EDU
>
>
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus.

1. This request is submitted by the Department of Biological and Agricultural Engineering

2. Course prefix, number and complete title of course: BAEN 601 Advanced Agricultural Systems Analysis

3. Catalog course description (not to exceed 50 words): Application of operations research tools and techniques to the analysis and management of technical systems in agriculture; optimization techniques applied to materials handling, supply chain logistics and other food and agricultural applications.

4. Prerequisite(s): AGSM 301 or instructor approval

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

6. Is this a repeatable course? ☐ Yes ☒ No If yes, this course may be taken _____ times.

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

7. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
      Master of Science in Agricultural Systems Management
   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)
      MS and PhD in Biological and Agricultural Engineering

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

9. Prefix Course # Title (excluding punctuation)
   BAEN 601 ADV AGRIC SYSTEMS ANAL
   Lect. Lab SCH CIP and Fund Code Admin. Unit Acad. Year FICE Code
   0 3 0 0 0 3 1 4 0 3 0 1 0 0 6 0 4 3 3 1 0 - 1 1 0 0 3 6 3 2
   Approval recommended by:
   [Signature] [Date]
   Department Head - Type Name & Sign
   Gerald L. Riskowski
   [Signature] [Date]
   Chair, College Review Committee
   Dean of College
   October 8, 2009

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.
Biological and Agricultural Engineering 601
Advanced Agricultural Systems Analysis
Spring 2010
8:00 AM MWF, 215 Scoates Hall

Instructors: Calvin B. Parnell, Jr.
207D Scoates Hall
979-845-3985
c-parnell@tamu.edu

Ravindran and J.J. Solberg, John Wiley and Sons.

Catalog Description: BAEN 601: Advanced Agricultural Systems Analysis. Credit 3. Operations research tools and techniques to analyze technical systems in agriculture; optimization of food and agriculture materials handling and supply chain logistics. Prerequisites: AGSM 301 or instructor approval.

Objectives: This course is designed to be an advanced course in the tools of operations research applied to systems management. With successful completion of this course the students will achieve the following outcomes.

1. Be able to apply analysis and optimization tools such as linear programming, queuing theory, and simulation.
2. Analyze and orally present reviews of published technical papers describing application of systems analysis tools.
3. Apply the necessary tools to optimize supply chains and other production systems relative to energy consumption, performance and environmental constraints.

Prerequisite: AGSM 301, equivalent or instructor approval

Grading Policy: Grading in this course is based on the assessment of the homework and project assignments, plus the performance on the examinations.

Homework assignments ........................................... 40%
Semester Project ................................................ 20%
Midterm exam .................................................... 15%
Final exam ......................................................... 25%

Final grades for the course will be assigned based on 100-90 - A, 89-80 - B, 79-70% - C, 69-60 - D and less than 60 - F

Late Work Policy: All assignments are due at the time and date posted. Excused absences will be handled in accordance with Student Rules. No credit will be given for assignments submitted after the due or make-up date.
Topics:

1. Introduction – Scope and Requirements of Course (1 class)
2. Linear Programming and Applications (8 classes)
3. Sensitivity Analysis (3 classes)
4. Critical Path Method (3 classes)
5. Queuing Theory and Applications (8 classes)
6. Decision Theory (3 classes)
7. Simulation and Applications (8 classes)
8. Systems Engineering Applications (3 classes)
9. Graph Theory (3 classes)
10. Student Presentations (3 classes)
11. Examinations (2 classes)

Course Attendance

You are expected to attend class each day that we are meeting, and to attend all team meetings. Please contact the course instructors prior to class if an emergency requires a class absence. Excused absences will be given for justifications described in Student Rule 7.1. If requesting an excused absence for reasons other than those allowed in Student Rule 7.1, those must be cleared with the instructor in advance of the absence.

Americans with Disabilities Act (ADA) Policy Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in room B118 Cain Hall or call 845-1637.

If you qualify for special accommodations, please inform the instructor early in the semester.

Additional Accommodations

If any student in this class requires accommodation related to a unique circumstance, please make an appointment to see the course instructors as soon as possible. Appropriate arrangements will be made.
Academic Integrity Statements
AGGIE HONOR CODE

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

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System.

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

1. This request is submitted by the Department of FACULTY OF GENETICS/INTERDISCIPLINARY PROGRAM

2. Course prefix, number and complete title of course: GENE 629 APPLIED ANIMAL GENOMICS

3. Catalog course description (not to exceed 50 words): Theory and application of genomics by livestock industries; consideration of genetic markers, gene mapping methods, genome analysis and emerging technologies such as microarrays, transgenesis, cloning and marker assisted selection; exposure to bioinformatic tools for genomics.

4. Prerequisite(s): GENE 603, OR BY APPROVAL OF INSTRUCTOR

Cross-listed with: ANSC 629 and POSC 630

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

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

6. 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

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

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)
    M.S., Ph.D. in genetics, animal science, animal breeding, and poultry science

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

9. Prefix | Course # | Title (excluding punctuation) | Lect. | Lab | SCH | CIP and Fund Code | Admin. Unit | Acad. Year | FICE Code |
---|---|---|---|---|---|---|---|---|---|
GENE | 629 | APPLIED ANIMAL GENOMICS | 0 | 3 | 0 | 0 | 3 | 2 | 6 | 0 | 8 | 0 | 4 | 0 | 0 | 2 | 0 | 4 | 2 | 0 | 1 | 0 | - | 1 | 1 | 0 | 0 | 3 | 6 | 3 | 2

Approval recommended by:

CRAIG J. COATES
Department Head - Type Name & Sign Date 9/11/09

GARY R. ACUFF
Department Head - Type Name & Sign Date 9/11/09

Submitted to Coordinating Board by:

John B. Carey
Department Head Date 2/1/09

Associate Director, Curricular Services

Chair, College Review Committee Date 9/11/09

Dean of College Date 9/11/09

October 8, 2009

Date

Effective Date

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

Original
ANIMAL SCIENCE (ANSC) 629  
POULTRY SCIENCE (POSC) 630  
GENETICS (GENE) 629  

APPLIED ANIMAL GENOMICS  
FALL 2010

INSTRUCTORS:  
Clare A. Gill  
Associate Professor of Animal Science  
Office: 432B Kleberg  
Phone: 979-862-7129  
Email: clare-gill@tamu.edu

Huajun Zhou, Ph.D.  
Poultry Science Department  
Office: 418D Kleberg Center  
Phone: 979-845-2994  
Email: hjzhou@poultry.tamu.edu

Michael J. Bailey, Ph.D.  
Poultry Science Department  
Office: 242B Kleberg Center  
Phone: 979-845-7537  
E-Mail: mbailey@poultry.tamu.edu

OFFICE HOURS:  
Any time, by appointment.

HOURS/WEEK:  
Theory - 3.0  Lab - 0.0  Credit - 3.0

PREREQUISITES:  
Genetics 603, or by approval of instructor

DESCRIPTION:  
Theory and application of genomics by livestock industries; consideration of  
genetic markers, gene mapping methods, genome analysis and emerging  
technologies such as microarrays, transgenesis, cloning and marker assisted  
selection; exposure to bioinformatic tools for genomics.

OBJECTIVES:  
To present concepts associated with genomics and their application in livestock  
industries.

EXAMINATIONS:  
Quiz A  15%  Sept. 25  A = 89.5 to 100  D = 59.5 to 69.4  
Quiz B  15%  Oct. 26  B = 79.5 to 89.4  F = 59.4 and below  
Quiz C  15%  Dec. 4  C = 69.5 to 79.4  
Final Exam  25%  Dec. 11  
Homework  20%  
Participation  10%

Note: Attendance is expected and students should be prepared to participate in class discussions. Late  
submission of assignments will result in a deduction of 10% per day.
REQUIRED TEXT:  
Additional course notes and original journal articles will be provided.  

REFERENCE MATERIALS:  

LEARNING OUTCOMES: In this class, students will develop a fundamental knowledge of genomics theory and its application in livestock industries. Students will be exposed to the computational tools used in genomics and will use these tools to assist their conceptual learning. After taking this course, students will be able to effectively communicate with their peers and to stakeholders (i.e. producers) about what can and can’t be done with genomics in terms of improving profitability and to assist those producers in making appropriate management decisions. Our goal is that students will be confident in their knowledge of genomics so that they are confident communicators about this technology.  

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 a 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.  

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

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# LECTURE OUTLINE

<table>
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<tr>
<th>Week</th>
<th>Topic</th>
<th>Lecture</th>
<th>Day</th>
<th>Date</th>
<th>Material</th>
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<tr>
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<td>1</td>
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<td>Introduction &amp; Syllabus</td>
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<td>Basic Concepts</td>
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<td>Wed.</td>
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<td>What is genomics?</td>
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<td>Basic Concepts</td>
<td>3</td>
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<td>Genome organization</td>
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<td>Cytogenetic Applications</td>
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<td>Cytogenetic Applications</td>
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<td>Wed.</td>
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<td>Gene Mapping Approaches</td>
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<td>Sept. 14</td>
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<td>Gene Mapping Approaches</td>
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<td>Wed.</td>
<td>Sept. 16</td>
<td>BAC Mapping</td>
</tr>
<tr>
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<td>Gene Mapping Approaches</td>
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<td>Fri.</td>
<td>Sept. 18</td>
<td>Radiation hybrid mapping</td>
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<td>4</td>
<td>Genetic Markers &amp; Linkage Analysis</td>
<td>10</td>
<td>Mon.</td>
<td>Sept. 21</td>
<td>Case studies on physical mapping</td>
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<td>Review 1</td>
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<td>5</td>
<td>Genetic Markers &amp; Linkage Analysis</td>
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<td>Genetic markers &amp; overview of linkage mapping</td>
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<td></td>
<td>Genetic Markers &amp; Linkage Analysis</td>
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<td>Genetic Markers &amp; Linkage Analysis</td>
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<td>QTL &amp; Mapping</td>
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<td>Detection of QTL by linkage &amp; linkage disequilibrium</td>
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<td>Quiz 2</td>
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<td>Sequence Analysis</td>
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<td>Gene Expression &amp; Microarrays</td>
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<td>Gene Expression &amp; Microarrays</td>
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<td>Gene Expression &amp; Microarrays</td>
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<td>Clustering for gene expression analysis</td>
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<td>Student Presentations</td>
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<td>MicroRNA</td>
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<td>Regulation of gene expression</td>
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<td>Review 3</td>
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<td>Dec. 2</td>
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<td>Quiz 3</td>
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<td>Dec. 4</td>
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<td></td>
<td>Final Review</td>
<td></td>
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</tr>
<tr>
<td>Final Exam</td>
<td>Final Fri. Dec. 11 10am – 12 noon 021A Kleberg</td>
<td></td>
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</table>
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus.

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

2. Course prefix, number and complete title of course:
   INTA 617 Deterrence and Coercion

3. Catalog course description (not to exceed 50 words):
   Introduces students to deterrence and coercion as instruments of defense policy by applying these to historical and contemporary security problems.

4. Prerequisite(s):
   n/a

   Cross-listed with:
   n/a

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

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

7. Has this course been taught as a 489/689? ☑ Yes □ No If yes, how many times? 2
   Indicate the number of students enrolled for each academic period it was taught: 16-08A, 11-08B

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

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

10. The following table indicates the credit load for this course:

<table>
<thead>
<tr>
<th>INTA 617 Deterrence and Coercion</th>
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<tbody>
<tr>
<td>Course Title</td>
</tr>
<tr>
<td>0 3 3 0 0 3 4 5 1 0 0 2 0 0 0 1 3 8 4 10 - 11 0 0 3 6 3 2</td>
</tr>
</tbody>
</table>

Approved recommended by:

Department Head - Type Name & Sign Date

Chair, College or School Committee Date

Dean of College Date

October 8, 2009

Submitted to Coordinating Board by:

Associate Director, Curricular Services Date

Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-6021 or sandra.williams@tamu.edu
Curricular Services - 1208
Deterrence and Coercion

Jasen J. Castillo
Bush School of Government and Public Service
Office Hours: By Appointment.
Office: Allen 1098
Phone: 979-458-8021
Email: jcastillo@bushschool.tamu.edu

Course Description: This course introduces students to deterrence and coercion as instruments of defense policy by applying them to historical and contemporary security problems. The first part of the course traces the evolution of nuclear and conventional deterrence theories through the Cold War, a baseline to assess contemporary problems. In the second part of the course, we examine general theories concerning the causes of war more broadly. The third part of the course examines deterrence and coercion as instruments for addressing modern security threats, including the rise of great powers, new nuclear states, and terrorism. Students will learn about the debates surrounding the efficacy of deterrence and coercion as instruments of security policy.

Course Requirements and Grading: Grades are based on active class participation (25%), one five-page Information Memo (25%), and a ten-to-fifteen page White Paper (50%). The two writing assignments are connected. Grading Scale: A 10-point grading scale will be used (90-100=A, 80-89=B), but a lower numerical grading scale may be used depending on class performance.

- The seminar runs on a heavy reading load. Students must master all the readings prior to each meeting, including the first meeting. Those who consistently demonstrate a comprehensive understanding of the readings during the seminar’s weekly discussions will earn an excellent participation grade. Students should do the class readings in the order listed per class meeting.

- For the first writing assignment, students will identify a problem facing the U.S. Department of Defense, describe why it is important and summarize the debate surrounding its causes. This summary comes in the form of an Information Memo. Excellent memos will clearly demonstrate mastery of the relevant literature. This first memo is due at the beginning of class meeting #7 and should consist of five double-spaced pages, using a standard twelve-point font with one-inch margins and include footnotes.

- For the final writing assignment, students will pose policy solutions to the problem presented in the Information Memo. This analysis will come in the form of a White Paper. Grades for this assignment will reflect the clarity of the writing, the analysis of the available options, the reasoning behind ranking the policy options and the strength of the supporting evidence. This final memo is due at the beginning of the last class and should consist of ten-to-fifteen, double-spaced pages, using a standard twelve-point font with one-inch margins and include footnotes.
• Memos and Papers will suffer a penalty of one-letter grade for each day they are late.

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

**Americans with Disability Act (ADA):** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation for their disabilities. If you believe that you have a disability requiring accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Cain Hall, rm. B1118 (Phone 845-1637).

**Required Books:**
- Highly Recommended:

**Class Schedule and Topics**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td><strong>Part 1: The Origins of Deterrence Theory</strong></td>
<td></td>
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</table>

**Class 1:**
- Introduction and Overview

**Class 2:**
- The Evolution of Deterrence Theory and Strategic Nuclear Policy
| Class 3: | Conventional Deterrence  
| Class 4: | Causes of War  
| Class 5: | Alliance Formation  
<table>
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<tr>
<th>Class 6:</th>
<th>Arms Racing and Long-Term Military Competitions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Samuel P. Huntington, &quot;Arms Races: Prerequisites and Results,&quot; <em>Public Policy</em>, vol. 8 (1958), pp. 41-86.</td>
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</table>

<table>
<thead>
<tr>
<th>Class 7:</th>
<th>Modern Great Power Politics and American Grand Strategy</th>
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</table>

**INFORMATION MEMO DUE AT THE BEGINNING OF CLASS**

<table>
<thead>
<tr>
<th>Class 8:</th>
<th>Coercive Uses of Air Power</th>
</tr>
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</table>
|  | • Colonel John Warden, USAF, "Success in Modern War: A Response to Robert Pape's
<table>
<thead>
<tr>
<th>Class 9: Pursuing or Forgoing Nuclear Weapons</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Class 10: New Nuclear States: Challenges and Deterrence Strategies</th>
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</table>

<table>
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<tr>
<th>Class 11: When Deterrence Fails: Managing Escalation</th>
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<td>Class 12:</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Class 13:</th>
<th>CBRN (Chemical, Biological, Radiological, and Nuclear) Terrorism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frank G. Hoffmann, &quot;Neo-Classical Counterinsurgency?&quot; <em>Parameters</em> (Summer 2007), pp. 71-87.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class 14:</th>
<th>Nuclear Forces Today and Arms Control: How Much is Enough?</th>
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<tbody>
<tr>
<td>Class 15:</td>
<td>Does a Nuclear Taboo Exist? Can it Be Restored? Does it Matter?</td>
</tr>
<tr>
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</table>

**White Paper Due at the Beginning of Class**
February 19, 2009

MEMORANDUM

To: Dr. James Rogers, Interim Department Head
   Political Science

From: Chuck Hermann, Program Director
      Bush School

Subject: Proposed Permanent Courses from the Bush School

The Bush School is proposing to make two of our previous 689 courses permanent graduate seminars. The courses are:

International Security
Deterrence and Coercion

I have attached the syllabus for each course for your review. You will notice, as in all our courses, they are oriented toward policy issues and the understanding necessary to deal with them.

Before I forward these courses to the Office of Graduate Studies I want to determine that your department has no objections. Pat Hurley and I previously had established an agreement that we would include a statement in the catalog description of Bush School courses where there might be future interest in the Political Science Department to offer graduate instruction in roughly the same domain. The statement is to the effect that the specified course at the master's level is intended for individuals preparing for professional careers in the conduct of international affairs. If you wish, we would be willing to add such a statement to one or both of these courses.

Thank you.

cc: Sam Kirkpatrick
Suzie Brynildsen - FW: Approval of two Bush School Courses

From: "Wood, Janeen H." <jwood@bushschool.tamu.edu>
To: "Suzie Brynildsen" <SBrynildsen@vprmail.tamu.edu>
Date: Monday, October 12, 2009 10:47 AM
Subject: FW: Approval of two Bush School Courses

Here is the ok from political science.
Thank you.
Janeen

From: James R. Rogers [mailto:ROGERS@politics.tamu.edu]
Sent: Monday, October 12, 2009 10:15 AM
To: Hermann, Charles
Cc: Wood, Janeen H.
Subject: RE: Approval of two Bush School Courses

Chuck,

POLS has no objection to these courses.

Best,

-- Jim

James R. Rogers, Ph.D., J.D.
Associate Professor & Department Head
Editor, *Journal of Theoretical Politics*
Department of Political Science
Texas A&M University
4348 TAMU
College Station, TX 77843-4348
979 845 8833
Fax 979 847 8924

From: Hermann, Charles [mailto:chermann@bushschool.tamu.edu]
Sent: Sunday, October 11, 2009 10:36 PM
To: James R. Rogers
Cc: Wood, Janeen H.
Subject: Approval of two Bush School Courses

Jim: The Bush School intends to submit to the Graduate Council for approval two graduate courses dealing with China's foreign policy and strategic (military) thought. The syllabi are attached. We have been offering these seminars for several years as 689s and now need to shift them onto a permanent basis. Per our previous exchanges, the Bush School has amended its general statement in the graduate catalog to indicate that all our courses are designed and intended for master's degree students as preparation for careers in public and international affairs. This statement replaces the prior agreement we had established to incorporate such a statement on individual new course descriptions.

With this understanding in continuation, would you be comfortable sending me an email that I could attach to the
material on these courses indicating that the Political Science Department has no objection.

Thanks, Chuck

Charles Hermann
International Affairs Program Director and
Scowcroft Chair in International Policy Studies
George Bush School of Government and Public Service
1088 Allen Bldg, TAMU 4220
Texas A&M University
College Station, TX 77843-4220
Phone: 979-458-2276
Email: hermann@tamu.edu

From: Wood, Janeen H.
Sent: Friday, October 09, 2009 2:17 PM
To: Hermann, Charles
Subject: FW: Grad Council actions and course revisions due Monday, COB

Dr. Hermann,
Per Sam's first bullet, we have approval from Jim Rogers on Jasen's courses. I have the memo you sent and his email approval to forward to Suzie Brynildsen for the Grad Council.

I have attached Andrew's courses if you want to handle approval for these by email with Dr. Rogers. Thanks.

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

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

2. Course prefix, number and complete title of course: [INTA 620 International Security]

3. Catalog course description (not to exceed 50 words): Evaluates frameworks for understanding international conflict and then uses these perspectives to survey security problems across several regions, including East Asia, the Middle East and South Asia

4. Prerequisite(s): n/a

5. Is this a variable credit course? ☑ No

6. Is this a repeatable course? ☑ No

7. Has this course been taught as a 489/689? ☑ Yes

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

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

10. [Table]

Approval recommended by:
[Signature]
Date
Chair, Committee Date

Department Head - Type Name & Sign Date
Department Head - Type Name & Sign Date
(If cross-listed course)

Submitted to Coordinating Board by:
[Signature] Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 12/06

31 of 149 B
International Security

Jasen J. Castillo
Bush School of Government and Public Service
Office Hours: Monday 4:30-5:30pm and Tuesday 1:30-2:30pm
Office: Allen 1098
Phone: 979-458-8021
Email: jcastillo@bushschool.tamu.edu

Course Description: This course introduces students to basic theories on the causes, conduct, and consequences of war. It applies these theories to past and modern conflicts. Students will learn common approaches to the study of international security.

Course Requirements and Grading: Grades are based on active class participation (25%), two five-page, policy memos (50%), and a briefing (25%). Grading Scale: A 10-point grading scale will be used (90-100=A, 80-89+B), but a lower numerical grading scale may be used depending on class performance.

The memos and briefing requirements are described below:

- Students are expected to master all the readings prior to each meeting and to discuss specific arguments during each meeting. This includes the readings for Week 1.

- For the first memo, students will identify a problem in international security and describe why it is important and summarize its causes. Students must receive permission from the instructor before writing the memo. Excellent memos will demonstrate mastery of the course readings. The first memo is due at the beginning of class on October 13, 2008.

- Students will brief a policy solution to the problem they outline in their first memo. Briefings will take place during class meetings from October 13, 2008 to December 1, 2008. Each briefing will consist of a fifteen-minute, PowerPoint presentation, including questions from the class. Student grades will reflect the clarity of their presentation, their ability to summarize information quickly and succinctly, as well as how well they answer questions from the audience.

- For the final memo, students will pose a policy solution to the problem they outline in the first memo. Students are free to propose a policy solution from the perspective of any country. Memos will be graded on the clarity of the writing, the analysis of the available options and supporting evidence. This memo should also address questions and comments raised during the briefing. The final memo is due in my department mailbox on December 8, 2008.
• Memos and briefings will suffer a penalty of one-letter grade for each day they are late. Memos should consist of no more than five pages in total length, with one-inch margins, double-spaced text, and twelve-point standard font.

**Academic Honesty:** "An Aggie does not lie, cheat, or steal, or tolerate others who do." Students who engage in plagiarism or other forms of academic dishonesty are subject to disciplinary penalties, including failure in the course and possible dismissal from the university. Please consult the latest issue of the Texas A&M Student Rules, especially the section on Scholastic Dishonesty at [www.tamu.edu/aggiehonor](http://www.tamu.edu/aggiehonor).

**Americans with Disability Act (ADA):** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation for their disabilities. If you believe that you have a disability requiring accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Cain Hall, rm. B1118 (Phone 845-1637).

**Required Readings:**

## Class Schedule and Topics

<table>
<thead>
<tr>
<th>Week 1: Causes of War: Baselines for Policy Analysis</th>
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<tr>
<th>Week 2: Roots of the Modern System Part I: Causes and Conduct of World War I</th>
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<tr>
<th>Week 3: Roots of the Modern System Part II: Causes and Conduct of World War II</th>
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<th>Week 4: End of the Cold War: A Recipe for Great Power Competition?</th>
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<th>Week 5: Modern Great Power Politics: Sources and Limits of American Primacy</th>
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<td>Week 6:</td>
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<td>Week 8:</td>
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| | • Robert Pape, "The Strategic Logic of Suicide Bombing, *American Political Science*
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<tr>
<th>Week 9: Human Security: The Earth Strikes Back?</th>
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<tr>
<td>• Stefan Elbe, “HIV/AIDS and the Changing Landscape of War in Africa,” <em>International Security</em> (Fall 2002), pp. 159-177</td>
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<tr>
<th>Week 10: It Looks Like the 1930s: China’s Rise, North Korea’s Decline, and Japan’s Choices</th>
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</table>
| Week 11: | Iran and The U.S. Occupation of Iraq: Was Removing Saddam a Strategic Blunder?  
| Week 12: | Pakistan and Afghanistan: Paging Mr. Kipling  
| Week 13: | Weak States and Conflict Africa: Colonialism, the Gift that Keeps on Giving?  
| Week 14: | Venezuela Defies the U.S.: The Curious Case of Hugo Chavez  
| Week 15: | The Transatlantic Relationship: Is the Romance Over?  
February 19, 2009

MEMORANDUM

To: Dr. James Rogers, Interim Department Head, Political Science

From: Chuck Hermann, Program Director, Bush School

Subject: Proposed Permanent Courses from the Bush School

The Bush School is proposing to make two of our previous 689 courses permanent graduate seminars. The courses are:

International Security
Deterrence and Coercion

I have attached the syllabus for each course for your review. You will notice, as in all our courses, they are oriented toward policy issues and the understanding necessary to deal with them.

Before I forward these courses to the Office of Graduate Studies I want to determine that your department has no objections. Pat Hurley and I previously had established an agreement that we would include a statement in the catalog description of Bush School courses where there might be future interest in the Political Science Department to offer graduate instruction in roughly the same domain. The statement is to the effect that the specified course at the master’s level is intended for individuals preparing for professional careers in the conduct of international affairs. If you wish, we would be willing to add such a statement to one or both of these courses.

Thank you.

cc: Sam Kirkpatrick
Suzie Brynildsen - FW: Approval of two Bush School Courses

From: "Wood, Janeen H." <jwood@bushschool.tamu.edu>
To: "Suzie Brynildsen" <SBrynildsen@vprmail.tamu.edu>
Date: Monday, October 12, 2009 10:47 AM
Subject: FW: Approval of two Bush School Courses

Here is the ok from political science.
Thank you.
Janeen

From: James R. Rogers [mailto:ROGERS@politics.tamu.edu]
Sent: Monday, October 12, 2009 10:15 AM
To: Hermann, Charles
Cc: Wood, Janeen H.
Subject: RE: Approval of two Bush School Courses

Chuok,

POLS has no objection to these courses.

Best,
-- Jim

James R. Rogers, Ph.D., J.D.
Associate Professor & Department Head
Editor, Journal of Theoretical Politics
Department of Political Science
Texas A&M University
4348 TAMU
College Station, TX 77843-4348
979 845 8833
Fax 979 847 8924

From: Hermann, Charles [mailto:chermann@bushschool.tamu.edu]
Sent: Sunday, October 11, 2009 10:36 PM
To: James R. Rogers
Cc: Wood, Janeen H.
Subject: Approval of two Bush School Courses

Jim: The Bush School intends to submit to the Graduate Council for approval two graduate courses dealing with China's foreign policy and strategic (military) thought. The syllabi are attached. We have been offering these seminars for several years as 689s and now need to shift them onto a permanent basis. Per our previous exchanges, the Bush School has amended its general statement in the graduate catalog to indicate that all our courses are designed and intended for master's degree students as preparation for careers in public and international affairs. This statement replaces the prior agreement we had established to incorporate such a statement on individual new course descriptions.

With this understanding in continuation, would you be comfortable sending me an email that I could attach to the
material on these courses indicating that the Political Science Department has no objection?

Thanks, Chuck

Charles Hermann
International Affairs Program Director and
Scowcroft Chair in International Policy Studies
George Bush School of Government and Public Service
1088 Allen Bldg, TAMU 4220
Texas A&M University
College Station, TX 77843-4220
Phone: 979-458-2276
Email: hermann@tamu.edu

From: Wood, Janeen H.
Sent: Friday, October 09, 2009 2:17 PM
To: Hermann, Charles
Subject: FW: Grad Council actions and course revisions due Monday, COB

Dr. Hermann,

Per Sam's first bullet, we have approval from Jim Rogers on Jasen's courses. I have the memo you sent and his email approval to forward to Suzie Brynildsen for the Grad Council.

I have attached Andrew's courses if you want to handle approval for these by email with Dr. Rogers.

Thanks.

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

1. This request is submitted by the Department of ____________________________
   The Bush School of Government and Public Service

2. Course prefix, number and complete title of course: INTA 621 Chinese Foreign Policy

3. Catalog course description (not to exceed 50 words): Provide an overview of Chinese Foreign Policy since 1949, understand the major external and domestic determinants of Chinese foreign policy, the results of domestic politics and/or international pressures, the role of ideology in Chinese foreign policy, economic interests affecting Chinese foreign policy, and what drives China’s involvement in international affairs.

4. Prerequisite(s): n/a
   Cross-listed with: n/a

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

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

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

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

9. Prefix      Course #   Title (excluding punctuation)
    INTA 621   Chinese Foreign Policy

   Lect. Lab SCH CIP and Fund Code Admin. Unit Acad. Year FICE Code
   0 3 0 0 0 3 4 5 1 0 0 1 1 5 0 1 1 3 6 4 11 - 11

   Approval recommended by: [Signature]
   Department Head - Type Name & Sign Date
   Chair, College Review Committee Date
   Dean of College Date
   October 8, 2009

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

1. This request is submitted by the Department of ________________________
The Bush School of Government and Public Service

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4. Prerequisite(s): n/a

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

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

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

   n/a

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

   n/a

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

9. Prefix  Course #  Title (excluding punctuation)
   INTA  621  CHINESE  FOREIGN  POLICY

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

   Approval recommended by: ____________________________

   Department Head - Type Name & Sign ____________________________ Date

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

   ____________________________ Date

   Submitted to Coordinating Board by:______________________________

   Associate Director, Curricular Services ____________________________ Date

   Chair, College Advisory Committee ____________________________ Date

   Dean of College ____________________________ Date

   Dean of College ____________________________ Date

   Effective Date ____________________________

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 3/09
BUSH SCHOOL OF GOVERNMENT AND PUBLIC SERVICE
TEXAS A&M UNIVERSITY

Chinese Foreign Policy
INTA 621 Spring 2009
Professor Andrew Scobell
Wednesday 8:00-10:50 AM, Allen 1063
Office Hours: TBA
Email: ascobell@bushschool.tamu.edu

COURSE OBJECTIVES:
The purpose of this course is to provide an overview of Chinese Foreign Policy since 1949. Specifically, this course should help you understand the major external and domestic determinants of Chinese foreign policy. Specifically, we will address the following questions. What drives China’s involvement in international affairs? To what extent is Chinese foreign policy the result of domestic politics and/or international pressures? What role does ideology play in Chinese foreign policy? To what extent do economic interests affect Chinese foreign policy?

CLASS PRESENTATIONS
As a seminar, this course will approach its subject material primarily through discussion. This means that each student is responsible for the upkeep and the success of the class. Therefore, presence, preparation, and participation are essential.

There will be two in-class presentations. The first presentation will be to address the materials assigned for a specific week and to lead the discussion. The class presentations will be graded. The presentations are the starting point for your research paper. The topic of the presentation will be the same or similar to that of the final paper. Presentations can take the form of a power point presentation where the discussant raises the main issues he/she found relevant in the readings. Please do not regurgitate/rehash everything in the readings. As your presentation is the basis for your paper, you should bring in extra materials about the topic and introduce them to the class. This way you can start the research for your midterms and final paper. In the presentation, you are also expected to give the following:
- A chronology of the main historical events in the topic you are studying
- A short analysis of the particular foreign policy issue/topic

The second presentation will be an overview of your research paper. It should identify the thesis, your main arguments, and provide concrete evidence to support them. You should not read your entire paper; rather you should summarize its main points and major findings.

MIDTERMS
The two midterms are a preparation for the final paper.
1. In the first midterm you will be asked to start preliminary research on your paper and formulate the outline. In the outline, you should include the following: The
question/issue you are analyzing, your argument and working hypothesis in addition to a preliminary bibliography.

2. In the second midterm, you will also be expected to submit an annotated bibliography of 2-3 pages. You are asked to write a couple of lines on each work you plan to use, summarizing the main argument and possibly highlighting omissions or criticizing flaws in the argument. You are also required to write a summary of what other authors say about the topic (a Literature review).

To ensure that students understand the requirements for preparing an outline, a bibliography and writing a research paper, you are required to attend at least one session on academic writing with the writing instructor of the Bush School, Ms. Sally Dee Wade. The writing sessions will be announced in class and emailed on the class list (to your neo account).

RESEARCH PAPER
To complete the requirements for this seminar, the student is asked to write a research paper on a 20-25 page paper on topic agreed upon with the instructor. **The paper can only exceed the number of allotted pages by 5%**. The research paper is to be based on the class presentations and will therefore focus on one or more questions/issues raised in this syllabus. Once he/she has decided on a topic for the paper, the student can ask the instructor for a list of readings to start off his/her research.

The final paper will draw on the work done for the midterms. The midterms and the final (hard copies only) are due in my box in the Faculty Workroom **5:00 PM on the due date. Late assignments will lose ONE GRADE letter**. Papers submitted by fax or email will **not** be accepted. Each student must select a topic for their research paper, and receive the instructor’s approval. Topics may be submitted to me by email.

GRADE DISTRIBUTION
Class Presentation I: 10%
Class Presentation II: 10%
Class Participation: 15%
Midterm 1: 15%
Midterm 2: 15%
Final Paper: 35%

Student performance will be assessed as follows:

**A = Excellent; Outstanding performance:** Mastery of the assignment communicated very effectively. With respect to the level, scope and depth of material to which the student was expected to be acquainted there is little room for improvement.

**B = Satisfactory; Good performance:** Manifests a solid understanding of the assignment communicated in a comprehensible manner. All major points or tasks are correctly
performed and fundamental comprehension of the material is demonstrated. No major errors or omissions. The level of comprehension displayed is clearly acceptable.

C = Marginal; Somewhat deficient: Although elements of the assignment are correctly presented, some significant elements are missing, poorly interpreted or involved errors in fact or interpretation; presentation may be weak or devote attention to matters that are marginal or unrelated to the subject. There is a discernable rough balance of correct and incorrect (or missing) material.

D/U = Unsatisfactory; Serious deficiencies: Major errors dominate the presentation or major points are missing. The presentation reveals a serious lack of understanding of the material and the quality is poor.

F/U = Failure; completely wrong: No part of the response is correct or it is simply missing either from the lack of effort or lack of comprehension of the subject.

Note: Grades of D, F or U for courses on the student’s degree plan must be repeated until a passing graduate grade – A, B, C or S (“satisfactory”) – is achieved.

EXAMINATION DUE DATES
Class presentations: weekly
Midterm 1: 19 February (Thursday)
Midterm 2: 2 April (Thursday)
Research paper: 5 May (Tuesday)

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

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

Every student in this course must comply with this code in all work submitted for a grade and will be held accountable accordingly for both individual and team assignments. Anyone who is not prepared to be accountable to this standard should immediately withdraw from this course. Remember: **AN AGGIE DOES NOT LIE, CHEAT OR STEAL, OR TOLERATE THOSE WHO DO.** Further information can be found at [http://www.tamu.edu/aggiehonor/acadmisconduct.htm](http://www.tamu.edu/aggiehonor/acadmisconduct.htm)

**APSR STYLE GUIDE**
The Bush School faculty agreed that in all written assignments prepared for courses in the Bush School, the American Political Science Association Style Guide would be the default standard for citations, endnotes and references.

**REQUIRED TEXTS**
The following books are required texts for this course, and it is strongly suggested that you purchase them.


This list of weekly reading assignments contains both **required** and **recommended** readings. It is **mandatory** that you read the required readings and be prepared to discuss them in class. The recommended readings are just that: recommended only. It is **not** mandatory that you read them, and you will **not** be held accountable for them. They are included for informational purposes only in the event you wish to pursue a particular topic in greater depth than is covered in the assigned readings. Depending on the topic you choose, the recommended readings may also be useful in connection with your research papers.

Readings denoted by * are (or will be) either on electronic reserve or on reserve at PESL. Additionally, all required-for-purchase books for this course are (or will be) on reserve at PESL.

In addition to the assigned readings, it is your responsibility to keep up with current developments affecting American foreign policy. You must read the relevant news stories published in at least one of the major newspapers everyday. Major newspapers
are: the New York Times, the Washington Post, the Los Angeles Times, the Financial Times, and Wall Street Journal. It is strongly recommended that you also read the relevant stories in at least one of the weekly news magazines: The Economist, Newsweek, Time, U.S. News & World Report. There are also important articles on key foreign policy issues in the bi-monthly foreign policy magazines: Foreign Affairs, the National Interest, the Washington Quarterly, and Foreign Policy.

COURSE SESSIONS AND READING ASSIGNMENTS

21 January
Week I--Introduction and Orientation:
   a- Scope, overview, format, and expectations
   b- Instructor lecture: Is China a Superpower?

Required readings:
*Shirk: chapter 1

Recommended readings:

28 January
Week II--What Drives Chinese Foreign Policy?

Required readings:
*Hunt, Genesis, chap. 7.
*Shirk: chapters 2, 3, 4, & 5

Recommended readings:

4 February
Week III—the People’s Republic of China (PRC): Born into a Cold War

Required Readings:
* Chen: Intro, chaps 1 & 2.
* Andrew Scobell, China’s Use of Military Force: Beyond the Great Wall and the Long March (Cambridge University Press, 2003), chap. 4 [Korea].

Recommended readings:
Chen Jian, China’s Road to the Korean War: The Making of the Sino-American Confrontation (Columbia University Press, 1994).

11 February

Week IV—the PRC: Growing Up in a Cold World

Required readings:
* Chen Jian: chaps. 3, 4, 5, 6, 7, & 8.
* Garver in J&R : chap. 4.

Recommended readings:
Li, The Private Life of Chairman Mao, Parts III & IV.

18 February

Week V—After Mao: China from Revolution to Reform

Required readings:
* A. Doak Barnett, The Making of Foreign Policy in China (Westview, 1985)
* Scobell, China’s Use of Military Force, chap 7 (Vietnam).

Recommended readings:
* Harding, China’s Second Revolution. Chaps. 3, 4, 5, 6, 7 & 8.
Li, The Private Life of Chairman Mao, Parts I & V.

25 February

Week VI—Relations with the United States during the Cold War

Required readings:
* Chen: chap. 9.

Recommended readings:
Harry Harding, A Fragile Relationship: the United States and China Since 1972 (Brookings Institution, 1992)
James Mann, About Face: A History of America’s Curious Relationship with China from Nixon to Clinton (Knopf, 1999), chaps 1-8.
4 March
Week VII—Relations with the United States After the Cold War
Required readings:
*J&R: Chap 11 (Gries) and chap 12 (Johnston)

Recommended readings:
*Suettinger, Beyond Tiananmen, chaps 1-6.
Mann, About Face, chaps 9-18.

11 March
Week VIII—National Unification and National Integration
Required readings:

Recommended readings:
Denny Roy, Taiwan: A Political History (Cornell University Press, 2003).
S. Frederick Starr, Xinjiang: China’s Muslim Borderland (M.E. Sharpe, 2004).

18 March
Week IX—SPRING BREAK No class

25 March
Week X—Academic Paper Writing Workshop

1 April
Week XI—Economics and Chinese Foreign Policy
Required readings:
*Susan L. Shirk, How China Opened Its Door: the Political Success of the PRC’s Foreign Trade and Investment Reforms (Brookings Institution Press, 1994).
Parts V & VII.

Recommended readings:

8 April
Week XII—Chinese Security and Defense Policies

Required readings:
*J&R: chap. 2 (Ross)
*Roy Kamphausen, Andrew Scobell, and Travis Tanner, eds., The ‘People’ in the PLA: Recruitment, Training and Education in China’s Military* (Strategic Studies Institute, 2008), chaps. 1, 2, 3, 4, 5, 8, 9 & 10 accessed @ www.StrategicStudiesInstitute.army.mil

Recommended Readings:
Paul J. Bolt and Albert S. Willner, eds., *China’s Nuclear Future* (Lynne Rienner, 2006).
*Scobell, *China’s Use of Military Force*, chaps 2, 3, & 9.

15 April
Week XIII—China in Asia

Required readings:
*Sutter: entire book.
*J&R: chap. 5 (Goldstein) and chap. 6 (Yahuda).
*Shirk: chap. 6.


**Recommended readings:**


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**22 April**

**Week XIV—China, the Globe, and Globalization**

**Required readings:**

*J&R: chap 7 (Deng), chap 8 (Carlson), chap. 9 (Pearson), chap 10 (Kim).


*Rojend Roett and Guadalupe Paz, eds., *China’s Expansion into the Western Hemisphere: Implications for Latin America and the United States* (Brookings Institution, 2008), chaps. 1, 2, 3, 7, 8, 11.


**Recommended readings:**


*Yong Deng and Fei-Ling Wang, eds., China Rising: Power and Motivation in Chinese Foreign Policy* (Rowman and Littlefield, 2005).


Joshua Kurlantzick, *Charm Offensive: How China’s Soft Power is Transforming the*
World (Yale University Press, 2007).

29 April
Week XIV—Assumptions, Analysis, America’s China Policy, and China’s Future

Required readings:
*J&R: “Conclusion and Future Directions.”

Recommended readings:
Peter Hayes Gries, China’s New Nationalism: Pride, Politics, and Diplomacy (University of California Press, 2004).
Yong Deng, China’s Struggle for Status: The Realignment of International Relations (Cambridge University Press, 2008).

Some Useful Websites:

China Leadership Monitor (Hoover Institution)—quarterly.
www.Chinaleadershipmonitor.org

China Brief (Jamestown Foundation)—fortnightly.
www.chinabrief.org

China’s Ministry of Foreign Affairs
www.fmprc.gov.cn

People’s Daily
english.peoplesdaily.com.cn

Xinhua News Agency
www.xinhuanet.com

U.S. Embassy in China
www.usembassy-china.org.cn

U.S. Department of State
www.state.gov
Suzie Brynildsen - FW: Approval of two Bush School Courses

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Chuck,

POLS has no objection to these courses.

Best,

-- Jim

James R. Rogers, Ph.D., J.D.
Associate Professor & Department Head
Editor, Journal of Theoretical Politics
Department of Political Science
Texas A&M University
4348 TAMU
College Station, TX 77843-4348
979 845 8833
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Charles Hermann
International Affairs Program Director and
Scowcroft Chair in International Policy Studies
George Bush School of Government and Public Service
1088 Allen Bldg, TAMU 4220
Texas A&M University
College Station, TX 77843-4220
Phone: 979-458-2276
Email: hermann@tamu.edu

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Subject: FW: Grad Council actions and course revisions due Monday, COB

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I have attached Andrew's courses if you want to handle approval for these by email with Dr. Rogers.
Thanks.
Janeen
Hi Suzie:

As the Bush School's Program Director of International Affairs, I am writing you concerning our request to the Graduate Council presented by Sam Kirkpatrick on behalf of the School's GIC to approve two new courses on contemporary Chinese external affairs. The proposed courses are INTA 621 and 622.

You had queried Sam about seeking the approval of Political Science and History. We have obtained such from Prof Jim Rogers on behalf of Polisc. However, because neither of the proposed courses has a historical focus to the subject matter, there would appear to be no overlap with any present or possible future graduate course in history on China. I am aware that history does offer courses on the History of Modern China but I see no overlap in the syllabi. Sociology also offers at least one course on contemporary China and I am aware of that syllabus as well, but it like the history courses really is addressing a different domain using the perspectives of their own discipline.

Let me know if you think this is a satisfactory explanation for not pursuing history's pre-approval.

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

1. This request is submitted by the Department of  
   The George Bush School of Government and Public Service

2. Course prefix, number and complete title of course:  
   INTA 622 Chinese Strategic Thought

3. Catalog course description (not to exceed 50 words):
   Intensive reading and research course in Chinese strategic thought from the Warring State period (403-221 BC) to 21st century China with two goals; to provide an introductory understanding of the nature of strategic thinking throughout Chinese history and to provide the conceptual tools to put Chinese strategic thought in a comparative perspective.

   n/a

4. Prerequisite(s):
   n/a

   Cross-listed with:

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

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

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

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

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

9. Prefix   Course #   Title (excluding punctuation)
   INTA 622   CHINESE   STRATEGIC   THOUGHT

   Lect.   Lab   SCH   CP   and Fund Code   Admin. Unit   Acad. Year   ICE Code
   0   3   0   0   3   4   5   1   0   0   1   1   5   0   1   1   3   6   4   10   -   1   1   0   0   3   6   3   2

   Approval recommended by:  
   Department Head - Type Name & Sign  Date
   Chair, College Review Committee - Date
   Dean of College - Date

   October 8, 2009

   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.
BUSH SCHOOL OF GOVERNMENT AND PUBLIC SERVICE
TEXAS A&M UNIVERSITY

Chinese Strategic Thought
INTA 622 Fall 2009
Professor Andrew Scobell
Tuesday 1:30-4:20, Room 1017 Allen Building
Office Hours: TBA
Email: ascobell@bushschool.tamu.edu

COURSE OBJECTIVES:
This course is an intensive reading and research course in Chinese strategic thought from
the Warring States period (403-221 BC) to 21st Century China. Much of the secondary
literature on Chinese strategic thought argues there are key continuities in approaches to
war and peace that cut across time and historical context. For the past two decades there
has been a renewed attention to Sun Zi both inside the Chinese military professional
education system and out. The U.S. Department of Defense is increasingly interested in
how traditional strategic concepts from Chinese classics may influence current Chinese
approaches to deterrence, crisis management, pre-emption, and deception. However, few
students of Chinese strategic thought have articulated exactly what those elements of
continuity are, how influential these have been, or whether there are elements of
discontinuity. Moreover, no one has conclusively demonstrated whether current Chinese
approaches to war and peace are the result of a unified strategic tradition or multiple and
diverse traditions. If it is the latter that affects the conflict behavior of contemporary
China, which traditions are they and why are they influential? Addressing these issues is
essential to achieving a good understanding of contemporary China’s conflict behavior.

The course has two goals. The first is to provide an introductory understanding of the
nature of strategic thinking throughout Chinese history. The second is to provide the
conceptual tools to put Chinese strategic thought in a comparative perspective. Although
this is not a course in comparative strategy, we will look at some concepts, questions and
methods which can be used to put Chinese strategic thought in a comparative framework.
The central organizing question of this course is: What do Chinese texts on strategy tell a
strategist to do in a given situation?

CLASS PRESENTATIONS
As a seminar, this course will approach its subject material primarily through discussion.
This means that each student is responsible for the upkeep and the success of the class.
Therefore, presence, preparation, and participation are essential.

Students will give two presentations. In the first presentation, students will be asked to
review the materials assigned for a specific week and to lead the discussion. The class
presentations will be graded. The presentations are the starting point for your
research paper. The topic of the presentation will be similar to that of the final
paper. Presentations can take the form of a power point presentation where the
discussant raises the main issues he/she found relevant in the readings. Please do not
**regurgitate/rehash everything in the readings.** As your presentation is the basis for your paper, you should bring in extra materials about the topic and introduce them to the class. This way you can start the research for your midterms and final paper. In the presentation, you are also expected to give the following:

- A chronology of the main dates in the lives of strategic thinkers, texts, or historical events you are studying
- A short analysis of the particular strategic thinker or texts

The second presentation will be an overview of your research paper. It should identify the thesis, your main arguments, and provide concrete evidence to support them. You should not read your entire paper; rather you should summarize its main points and major findings.

**MIDTERMS**

The two midterms are a preparation for the final paper.

1. In the first midterm you will be asked to start preliminary research on your paper and formulate the outline. In the outline, you should include the following: The question/issue you are analyzing, your argument and working hypothesis in addition to a preliminary bibliography.

2. In the second midterm, you will also be expected to submit an annotated bibliography of 2-3 pages. You are asked to write a couple of lines on each work you plan to use, summarizing the main argument and possibly highlighting omissions or criticizing flaws in the argument. You are also required to write a summary of what other authors say about the topic (a Literature review).

To ensure that students understand the requirements for preparing an outline, a bibliography and writing a research paper, you are required to attend at least one session on academic writing with the writing instructor of the Bush School, Ms. Sally Dee Wade. The writing sessions will be announced in class and emailed on the class list (to your neo account).

**RESEARCH PAPER**

To complete the requirements for this seminar, the student is asked to write a research paper on a 20-25 page paper on topic agreed upon with the instructor. **The paper can only exceed the number of allotted pages by 5%.** The research paper is to be based on the class presentations and will therefore focus on one or more questions/issues raised in this syllabus. Once he/she has decided on a topic for the paper, the student can ask the instructor for a list of readings to start off his/her research.

The final paper will draw on the work done for the midterms. The midterms and the final (hard copies **only**) are due in my box in the Faculty Workroom **5:00 PM on the due date.** **Late assignments will lose ONE GRADE letter.** Papers submitted by fax or email will **not** be accepted. Each student must select a topic for their research paper, and receive the instructor’s approval. Topics may be submitted to me by email.
GRADE DISTRIBUTION
Class Presentation I: 10%
Class Presentation II: 10%
Class Participation: 15%
Midterm 1: 15%
Midterm 2: 15%
Final Paper: 35%

Student performance will be assessed as follows:

A = **Excellent; Outstanding performance:** Mastery of the assignment communicated very effectively. With respect to the level, scope and depth of material to which the student was expected to be acquainted there is little room for improvement.

B = **Satisfactory; Good performance:** Manifests a solid understanding of the assignment communicated in a comprehensible manner. All major points or tasks are correctly performed and fundamental comprehension of the material is demonstrated. No major errors or omissions. The level of comprehension displayed is clearly acceptable.

C = **Marginal; Somewhat deficient:** Although elements of the assignment are correctly presented, some significant elements are missing, poorly interpreted or involved errors in fact or interpretation; presentation may be weak or devote attention to matters that are marginal or unrelated to the subject. There is a discernable rough balance of correct and incorrect (or missing) material.

D/U = **Unsatisfactory; Serious deficiencies:** Major errors dominate the presentation or major points are missing. The presentation reveals a serious lack of understanding of the material and the quality is poor.

F/U = **Failure; completely wrong:** No part of the response is correct or it is simply missing either from the lack of effort or lack of comprehension of the subject.

Note: Grades of D, F or U for courses on the student’s degree plan must be repeated until a passing graduate grade – A, B, C or S (“satisfactory”) – is achieved.

EXAMINATION DUE DATES
Class presentations: weekly
Midterm 1: 8 October @ 5PM
Midterm 2: 5 November @ 5PM
Research paper: 10 December @ 5PM

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

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

Every student in this course must comply with this code in all work submitted for a grade and will be held accountable accordingly for both individual and team assignments. Anyone who is not prepared to be accountable to this standard should immediately withdraw from this course. Remember: **AN AGGIE DOES NOT LIE, CHEAT OR STEAL, OR TOLERATE THOSE WHO DO.** Further information can be found at [http://www.tamu.edu/aggiehonor/acadmisconduct.htm](http://www.tamu.edu/aggiehonor/acadmisconduct.htm)

APSR STYLE GUIDE
The Bush School faculty agreed that in all written assignments prepared for courses in the Bush School, the American Political Science Association Style Guide would be the default standard for citations, endnotes and references.

REQUIRED TEXTS
The following books are required texts for this course, and it is strongly suggested that you purchase them.

This list of weekly reading assignments contains both required and recommended readings. It is mandatory that you read the required readings and be prepared to discuss them in class. The recommended readings are just that: recommended only. It is not mandatory that you read them, and you will not be held accountable for them. They are included for informational purposes only in the event you wish to pursue a particular topic in greater depth than is covered in the assigned readings. Depending on the topic you choose, the recommended readings may also be useful in connection with your research papers.

Readings denoted by * are (or will be) either on electronic reserve or on reserve at PESL.

In addition to the assigned readings, it is your responsibility to keep up with current developments affecting China. You must read the relevant news stories published in at least one of the major newspapers everyday. Major newspapers are: the New York Times, the Washington Post, the Los Angeles Times, the Financial Times, and Wall Street Journal. It is strongly recommended that you also read the relevant stories in at least one of the weekly news magazines: The Economist, Newsweek, Time, U.S. News & World Report. There are also important articles on key national security and strategic issues in the following journals: China Security, Foreign Affairs, International Security, the National Interest, and the Washington Quarterly.

COURSE SESSIONS AND READING ASSIGNMENTS

Week I—1 SEPTEMBER—Introduction and Orientation:
   a. Scope, overview, format, and expectations
   b. Instructor lecture: Chinese? Strategy? Thought?

Week II—8 SEPTEMBER—What is Strategy?

Required readings:


Recommended readings:

**Week III—15 SEPTEMBER—Confucianism**  
**Required Readings:**  

**Reccomended readings:**  

**Week IV—22 SEPTEMBER—Taoism, Mohism, and Legalism**  
**Required readings:**  
*Shang Yang (J.J.L. Duyvendak, trans.) The Book of Lord Shang* (Law School Exchange, 2003), chaps 3, 4, 10, 11, 12, 18, 22, 25.

**Recommended readings:**  
*Schwartz, The World of Thought in Ancient China*, chaps 4, 6, 8, 9.  

**Week V—29 SEPTEMBER—Sun Zi**  
**Required readings:**  

**Recommended readings:**  

**Week VI—6 OCTOBER—** Ancient Strategists I: Wu Zi, *The Methods of the Si Ma (Si Ma Fa)*, Wei Liaozh, *Three Strategies of Huang Shigong (San Lue)*, Tai Gong’s Six Secret Teachings (Liu Tao), Questions and Replies (Wen Dui)

*Required readings:*

**Week VII—13 OCTOBER—** Ancient Strategists II: Zhuge Liang and Liu Ji

*Required readings:*

*Recommended readings:*

**Week VIII—20 OCTOBER—** Writing Workshop

**Week IX—27 OCTOBER—** Mao Zedong

*Required readings:*

*Recommended readings:*

**Week X—3 NOVEMBER—** The Era of Deng Xiaoping

*Required readings:*,

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63 of 149 B

Recommended readings:
Mark Stokes, China’s Strategic Modernization (SSI, 1999).

Week XI—10 NOVEMBER—Jiang Zemin and Hu Jintao

Required readings:
Avery Goldstein, Rising to the Challenge (2005)

Recommended Readings:

Week XII—17 NOVEMBER—Approaches to Understanding Chinese Strategy

Required readings:
*Alastair Iain Johnston, Cultural Realism: Grand Strategy in Chinese History (Princeton University, 1995), chaps 2, 3, 6, 7, 8.
*Andrew Scobell, China’s Use of Military Force: Beyond the Great Wall and the Long March (2003), chaps. 1, 2, 3 and 9.

**Recommended readings:**
Andrew Scobell, *China and Strategic Culture* (SSI, 2002).

**Week XIII—24 NOVEMBER—Is there a Chinese Strategic Style?**

**Recommended readings:**

**Recommended readings:**

**Week XIV—1 DECEMBER—Presentations of Student Papers**

**Week XV—8 DECEMBER—Presentation of Student Papers**
Suzie Brynildsen - FW: Approval of two Bush School Courses

From: "Wood, Janeen H." <jwood@bushschool.tamu.edu>
To: "Suzie Brynildsen" <SBrynildsen@vprmail.tamu.edu>
Date: Monday, October 12, 2009 10:47 AM
Subject: FW: Approval of two Bush School Courses

Here is the ok from political science.
Thank you.
Janeen

From: James R. Rogers [mailto:ROGERS@politics.tamu.edu]
Sent: Monday, October 12, 2009 10:15 AM
To: Hermann, Charles
Cc: Wood, Janeen H.
Subject: RE: Approval of two Bush School Courses

Chuck,

POLS has no objection to these courses.

Best,

-- Jim

James R. Rogers, Ph.D., J.D.
Associate Professor & Department Head
Editor, Journal of Theoretical Politics
Department of Political Science
Texas A&M University
4348 TAMU
College Station, TX 77843-4348
979 845 8833
Fax 979 847 8924

From: Hermann, Charles [mailto:chermann@bushschool.tamu.edu]
Sent: Sunday, October 11, 2009 10:36 PM
To: James R. Rogers
Cc: Wood, Janeen H.
Subject: Approval of two Bush School Courses

Jim: The Bush School intends to submit to the Graduate Council for approval two graduate courses dealing with China's foreign policy and strategic (military) thought. The syllabi are attached. We have been offering these seminars for several years as 689s and now need to shift them onto a permanent basis. Per our previous exchanges, the Bush School has amended its general statement in the graduate catalog to indicate that all our courses are designed and intended for master's degree students as preparation for careers in public and international affairs. This statement replaces the prior agreement we had established to incorporate such a statement on individual new course descriptions.

With this understanding in continuation, would you be comfortable sending me an email that I could attach to the
material on these courses indicating that the Political Science Department has no objection.

Thanks, Chuck

Charles Hermann
International Affairs Program Director and
Scowcroft Chair in International Policy Studies
George Bush School of Government and Public Service
1088 Allen Bldg, TAMU 4220
Texas A&M University
College Station, TX 77843-4220
Phone: 979-458-2276
Email: hermann@tamu.edu

From: Wood, Janeen H.
Sent: Friday, October 09, 2009 2:17 PM
To: Hermann, Charles
Subject: FW: Grad Council actions and course revisions due Monday, COB

Dr. Hermann,

Per Sam's first bullet, we have approval from Jim Rogers on Jasen's courses. I have the memo you sent and his email approval to forward to Suzie Brynildsen for the Grad Council.

I have attached Andrew's courses if you want to handle approval for these by email with Dr. Rogers.

Thanks,

Janeen
Suzie Brynildsen - Fwd: INTA 617 & 620

From: Suzie Brynildsen
Subject: Fwd: INTA 617 & 620

>>> "Hermann, Charles" <chermann@bushschool.tamu.edu> Friday, October 16, 2009 10:26 AM >>>

Hi Suzie:

As the Bush School's Program Director of International Affairs, I am writing you concerning our request to the Graduate Council presented by Sam Kirkpatrick on behalf of the School's GIC to approve two new courses on contemporary Chinese external affairs. The proposed courses are INTA 621 and 622.

You had queried Sam about seeking the approval of Political Science and History. We have obtained such from Prof Jim Rogers on behalf of Polisc. However, because neither of the proposed courses has a historical focus to the subject matter, there would appear to be no overlap with any present or possible future graduate course in history on China. I am aware that history does offer courses on the History of Modern China but I see no overlap in the syllabi. Sociology also offers at least one course on contemporary China and I am aware of that syllabus as well, but it like the history courses really is addressing a different domain using the perspectives of their own discipline.

Let me know if you think this is a satisfactory explanation for not pursuing history's pre-approval.

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

1. This request is submitted by the Department of
   Petroleum Engineering
   PETE 627- Well Completion and Workover

2. Course prefix, number and complete title of course:

3. Catalog course description (not to exceed 50 words):
   Development of design options, systems and procedures to meet deliverability, safety and integrity requirements for completions and workover equipment; overview of methods in the oil and gas industry; function and design criteria of well components.

4. Prerequisite(s):
   Cross-listed with:
   Cross-listed courses require the signature of both department heads.

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

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

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

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

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

9. Prefix | Course # | Title (excluding punctuation)
   --- | --- | ---
   PETE | 627 | WELL COMPLETION & WORKOVER

   Lect. | Lab | SCH | CIP and Fund Code | Admin. Unit | Acad. Year | FICE Code
   0 | 3 | 0 | 0 | 3 | 1 | 4 | 2 | 5 | 0 | 1 | 0 | 0 | 0 | 6 | 2 | 2 | 1 | 0 | 1 | 0 | - | 1 | 0 | 0 | 3 | 6 | 3 | 2 | Level | 6

   Approval recommended by:
   Steven Holditch
   Department Head - Type Name & Sign
   Date
   Chair, College Review Committee
   Date
   Dean of College
   Date

   Submitted to Coordinating Board by:
   Date
   Effective 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 – 3/09
SYLLABUS

Course title and number  PETE 627 - Well Completion and Workover
Term (e.g., Fall 200X)  Fall 2010
Meeting times and location  N/A; distance learning group only

Course Description and Prerequisites
This course provides an overview of completions and workover equipment and methods in the oil and gas industry. It is designed to complement the courses on drilling and production engineering which are already offered by the department. The students will learn about the design options to meet deliverability, safety and integrity requirements in completions and workover operations. The main components of a well are described and analyzed by their function and design criteria. The workover systems and procedures are presented and discussed. Case studies will be provided and a group project will help the students understand the hands-on aspects of completions and workovers.
Prerequisite: Graduate classification.

Learning Outcomes or Course Objectives
The objectives of the course are for students to:
1. Gain an overall understanding of completions and workover equipment and methods in the oil and gas industry.
2. Learn about design options available for completions and workover operations.
3. Understand the main components, function and design criteria of a well, and workover systems and procedures.
4. Understand the hands-on aspects of completions and workovers via case studies and a group project.

Instructor Information
Name  Dr. Catalin Teodoriu
Telephone number  (979) 845-6164
Email address  catalin.teodoriu@pe.tamu.edu
Office hours
Office location  501J Richardson Building

Textbook and/or Resource Material
D. Perrin, Well Completion and Servicing, Edition Technip, 1999
References
Selected papers

Grading Policies
Final Exam ...........................................(60%)
Group Projects/Homework ...........................................(40%)
Total ...........................................(100%)

Grading Scale
A ..........................................................90-100%
B ..........................................................80-89%
C ..........................................................70-79%
D ..........................................................60-69%
F ..........................................................0-59%
Course Topics, Calendar of Activities, Major Assignment Dates

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Well completion: types of wells, completion functions, types of completion</td>
</tr>
<tr>
<td>2</td>
<td>Mechanical aspects of well testing, cased hole logging equipment and application, and perforation methods and perforating equipment</td>
</tr>
<tr>
<td>3</td>
<td>Packers: function, application, proper selection; includes water/gas shot off, horizon separation, etc.</td>
</tr>
<tr>
<td>4</td>
<td>Completion equipment (SSD, SSSV, mandrels, locks, etc.)</td>
</tr>
<tr>
<td>5</td>
<td>Data acquisition in wells; Fibre optics, permanent gauges, memory gauges, SCADA systems; Intelligent completion equipment</td>
</tr>
<tr>
<td>6-7</td>
<td>Tubing string design (dimension, materials, connections,...) based on pressure, temp. operating conditions, media, safety requirements</td>
</tr>
<tr>
<td>8-9</td>
<td>HPHT and horizontal well completions; Workover equipment: WireLine, Snubbing Unit, Coil Tubing</td>
</tr>
<tr>
<td>10</td>
<td>Completion and Workover design and execution</td>
</tr>
<tr>
<td>11</td>
<td>Special Topic: industry people are invited to give presentations on specific topics</td>
</tr>
<tr>
<td>12-14</td>
<td>Class Project</td>
</tr>
</tbody>
</table>

Other Pertinent Course Information

Some classes will be delivered in collaboration with:
Dr. Gloria Falcone
Tel. (979) 847-8912
Office: Room 401 Richardson Building
Email: gioia.falcone@pe.tamu.edu

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.

1. This request is submitted by the Department of Petroleum Engineering

2. Course prefix, number and complete title of course:
PETE 638 - Production Logging

3. Catalog course description (not to exceed 50 words):
Well logging methods concerned with problem well diagnosis and reservoir surveillance; includes fluid flow in pipes, understanding fluid dynamics in a wellbore, theoretical basis of production logging techniques, production log interpretation techniques, and operational considerations.

4. Graduate classification

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

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

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

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

9. Prefix Course # Title (excluding punctuation)
PETE 638 PRODUCTION LOGGING

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
<th>SCH</th>
<th>CIP and Fund Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>FICE Code</th>
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<td>1</td>
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<td>03632</td>
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Approval recommended by:

Steven Holditch
Department Head - Type Name & Sign Date

Chair, College Review Committee Date

Dean of College Date

October 8, 2009

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Course title and number  PETE 638 - Production Logging
Term (e.g., Fall 200X)   Spring 2010
Meeting times and location  11:10 a.m. – 12:25 p.m. TR, RICH 302

Course Description and Prerequisites
This course will cover fluid flow in pipes, the theoretical basis of production logging techniques, production log interpretation techniques, and operational considerations. Production Logging has been described as "that area of well logging concerned with two general goals: (1) problem well diagnosis, and (2) reservoir surveillance." Production logging refers to a suite of logs that are run normally on completed injection or production wells to evaluate the performance of the well itself or of the reservoir as a whole. Many of these logs measure properties of the fluid in the wellbore, rather than formation properties as in openhole logging. An understanding of the fluid dynamics in a wellbore is an important part of understanding production logs.
Graduate classification.

Learning Outcomes or Course Objectives
The objectives of the course are for students to:
1. Gain an overall understanding of the fluid flow in pipes, the theoretical basis of production logging techniques, production log interpretation techniques, and operational considerations.
2. Learn about the fluid dynamics in a wellbore as an important part of understanding production logs.
3. Understand production logging as that area of well logging concerned with two general goals: (1) problem well diagnosis, and (2) reservoir surveillance.

Instructor Information
Name  Dr. A.D. Hill
Telephone number  (979) 845-2278
Email address  dan.hill@pe.tamu.edu
Office hours  TR 9:30-11:00 a.m., MF 1:30-3:00 p.m.
Office location  501 F Richardson Building

Textbook and/or Resource Material
Production Logging: Theoretical and Interpretive Elements, Society of Petroleum Engineers, 1990
References
Selected papers

Grading Policies
Homework..........................................................(20%)
Mid-term Exam...................................................(25%)
Class Project.....................................................(20%)
Final Exam.......................................................(35%)
Total.................................................................(100%)

Grading Scale
A.................................................................90-100%
B.................................................................80-89%
C.................................................................70-79%
D.................................................................60-69%
F.................................................................0-59%
Course Topics, Calendar of Activities, Major Assignment Dates

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<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
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<tbody>
<tr>
<td>1</td>
<td>Single Phase Flow Production Logs- Temperature Logs</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Single Phase Flow in Pipes</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Radioactive Tracer Logs</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Spinner Flowmeters</td>
<td></td>
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<tr>
<td>5</td>
<td>Multiphase Flow Production Logs-</td>
<td></td>
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<tr>
<td></td>
<td>Multiphase Flow in Pipes – flow regime, holdup correlations</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Spinner Flowmeters in Multiphase Flow</td>
<td></td>
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<tr>
<td>7</td>
<td>Packer, Basket Flowmeters</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Density Logs</td>
<td></td>
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<td>9</td>
<td>Capacitance Logs</td>
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<tr>
<td>10</td>
<td>Pipe Inclination Effects</td>
<td></td>
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<tr>
<td>11</td>
<td>Noise Logging</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Completion Evaluation Logs-Cement Bond Logs</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Cement Evaluation (Pulse-Echo) Logs</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Specialty Logs</td>
<td></td>
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</table>

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](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.

1. This request is submitted by the Department of
   Petroleum Engineering

2. Course prefix, number and complete title of course:
   PETE 640 - Models for Simulation of Flow and Transport of Fluids and Heat in
   Porous Media

3. Catalog course description (not to exceed 50 words):
   Design and develop numerical simulators that describe flow of reservoir fluids and transport of heat through porous
   media; develop multi-dimensional models capable of handling single mass components (gas, oil or water) in single
   phases (liquid or vapor).

4. Prerequisite(s):
   PETE 603 or approval of instructor; experience in FORTRAN or another programming language; solid
   understanding of physical processes of flow & transport through porous media, numerical analysis & linear
   algebra; graduate classification

   Cross-listed with:

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

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

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

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

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

9. Prefix  Course #  Title (excluding punctuation)
   PETE 640  MODELS OF SIMULATION TRANSPORT MEDIA
   Lect. Lab SCI CIP and Fund Code  Admin. Unit  Acad. Year  FICE Code
   0 3 0 3 0 4 1 4 2 5 0 1 0 0 6 2 2 1 0 1 0 1 1 0 0 3 6 3 2

   Approval recommended by:
   Dr. Steven Holditch  [Signature]  14 Aug 2009
   Date

   Department Head - Type Name & Sign

   Chair, College Review Committee  Date
   [Signature]  9-10-09

   Dean of College  Date
   [Signature]  9-10-09

   October 8, 2009  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 – 3/09

75 of 149 B
Course title and number: PETE 640 - Models for Simulation of Flow and Transport of Fluids and Heat in Porous Media

Term (e.g., Fall 200X): Fall 2009

Meeting times and location: M, RICH 301, 7:30-10:00 a.m. and 4:10-7:45 p.m. and T, RICH 313, 7:30-9:15 a.m.

Course Description and Prerequisites

Beginning from basic principles and based on a "starter" code that will be provided by the instructor, the students in this course will design and build numerical simulators that describe the flow of reservoir fluids and the transport of heat through porous media. At the end of this course the non-isothermal multi-dimensional models that will be developed will be capable of handling single mass components (gas, oil or water) in single phases (liquid or vapor).

Prerequisites:
1. Graduate classification.
2. PETE 603 or instructor approval.
3. Programming experience in FORTRAN95, C, C++ or another programming language (NOTE: The extensive coding efforts will be conducted using FORTRAN95/2003. Experience in FORTRAN or another programming language is a MUST for this course. Experience with Matlab or Mathematica programming will be useful, but generally will not be adequate preparation for the needs of this course (extra effort to master FORTRAN programming will be necessary).
4. A solid understanding of (a) the physical processes of flow and transport through porous media, (b) numerical analysis and (c) linear algebra.
5. Access to a FORTRAN95/2003 compiler on a PC or workstation.

Learning Outcomes or Course Objectives

The objectives of the course are for students to:
1. Design and build numerical simulators that describe the flow of reservoir fluids and the transport of heat through porous media.
2. Develop non-isothermal multi-dimensional models capable of handling single mass components in single phases.

Instructor Information

Name: Dr. George Moridis
Telephone number: (510) 486-4746
Email address: gimoridis@lbl.gov
Office hours: M, 10:00-Noon; 1:00-4:00 p.m.; T, 7:00 a.m.-Noon
Office location: TBD

Textbook and/or Resource Material

Textbook:
2. Class notes and copies of appropriate scientific publications on relevant subjects will be distributed by the instructor.

Reference Materials:

**Grading Policies**

Homework (daily assignments; quality and logical thoroughness of code) .............. (100%)

Policy on homework:
- All homework is due (even if late); otherwise, an “Incomplete” grade will be given until homework is submitted

**Grading Scale**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100%</td>
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<tr>
<td>B</td>
<td>80-89%</td>
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<tr>
<td>D</td>
<td>60-69%</td>
</tr>
<tr>
<td>F</td>
<td>0-59%</td>
</tr>
</tbody>
</table>

**Course Topics, Calendar of Activities, Major Assignment Dates**

**Week** | **Topic**
--- | ---
1 | Fundamental equations of flow and transport of mass and heat through porous media; the Integral Final Difference (IFD) method
2 | Brief overview of simulation approaches in the analysis of coupled non-linear processes
3 | Discussion of the fully implicit method (Jacobian and Newton-Raphson method)
5 | Simulator design – modular OOP approach
6 | Domain discretization (Cartesian and cylindrical)
7 | Process description:
  - Fluid flow (Darcy and non-Darcy flow, diffusive flow)
  - Heat transport (conduction, advection)
  - Equation of state (PVT relationships, no phase changes)
  - Thermophysical properties (phase density, viscosity, solubility, thermal conductivity, etc.)
8 | Initial and boundary conditions – primary and secondary variables
9 | Treatment of sources and sinks (wells)
10 | Setting up the Jacobian matrix
11 | Solution of the matrix equation (linear algebra, direct and iterative solvers)
12 | Solution of 1D, 2D and 3D problems (Cartesian or cylindrical) of isothermal/non-isothermal gas flow
13 | Solution of 1D, 2D and 3D problems (Cartesian or cylindrical) of isothermal/non-isothermal oil flow
Solution of 1D, 2D and 3D problems (Cartesian or cylindrical) of isothermal/non-isothermal water flow

Other Pertinent Course Information

Americans with Disabilities Act (ADA)

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

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

1. This request is submitted by the Department of
   Petroleum Engineering

2. Course prefix, number and complete title of course: PETE 641-Models for Simulation of Advanced Coupled Processes in Geologic Media

3. Catalog course description (not to exceed 50 words):
   Design and develop advanced multi-phase flow processes and complex geologic media (porous and fractured, with matrix-fracture interactions); structured and unstructured grids, multiple mass components (gas, oil and water) in multi-phase states (liquid, vapor and/or liquid-vapor), and phase changes.

4. Prerequisite(s):
   PETE 640 and graduate classification; experience in FORTRAN95, C, C++ or another programming language; solid understanding of physical processes of flow and transport through porous media, numerical analysis and linear algebra.

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

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

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

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

9. Prefix | Course # | Title (excluding punctuation)
          | PETE | 641 | MOD | SIMUL | GEOLOGIC | MEDIA
| Lect. | Lab | SCH | CIP and Fund Code | Admin. Unit | Acad. Year | FICE Code |
| 0 | 3 | 0 | 3 | 0 | 4 | 1 | 4 | 2 | 5 | 0 | 1 | 0 | 0 | 0 | 6 | 2 | 2 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 3 | 6 | 3 | 2 |

Approval recommended by:

Steven Holditch
Department Head - Type Name & Sign
Date

Chair, College Review Committee
Date

Dear of College
Date

October 8, 2009

Submitted to Coordinating Board by:

Associate Director, Curricular Services
Date

Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 3/09
Course title and number          PETE 641 - Models for Simulation of Advanced Coupled Processes in Geologic Media
Term (e.g., Fall 20XX)           Summer 2010
Meeting times and location      TBA

Course Description and Prerequisites

The single-component, single-phase simulators developed in PETE 640 are expanded to include advanced multi-phase flow processes and more complex geologic media. At the end of this course, the non-isothermal, multi-dimensional models that will be developed will be capable of handling complex geologic media (porous and fractured, with matrix-fracture interactions), structured and unstructured grids, multiple mass components (gas, oil and water) in multi-phase (liquid, vapor and/or liquid-vapor) states, and phase changes.

Prerequisites:
1. Graduate classification.
2. PETE 640.
3. Programming experience in FORTRAN95, C, C++ or another programming language (NOTE: The extensive coding efforts will be conducted using FORTRAN95/2003. Experience in FORTRAN or another programming language is a MUST for this course. Experience with MatLab or Mathematica programming will not be adequate preparation for the needs of this course.
4. A solid understanding of (a) the physical processes of flow and transport through porous media, (b) numerical analysis and (c) linear algebra.
5. Access to a FORTRAN95/2003 compiler on a PC or workstation.

Learning Outcomes or Course Objectives

The objectives of the course are for students to:
1. Develop expanded multi-phase flow processes and more complex geologic models.
2. Design and build non-isothermal multi-dimensional models that will be capable of handling complex geologic media (porous and fractured, with matrix-fracture interactions), structured and unstructured grids, multiple mass components (gas, oil and water and water) in multi-phase (liquid, vapor and/or liquid-vapor) states, and phase changes.

Instructor Information

Name                  Dr. George Moridis
Telephone number      (510) 486-4746
Email address         gjmoridis@lbl.gov
Office hours          TBD
Office location       TBD

Textbook and/or Resource Material

Textbook:
2. Class notes and copies of appropriate scientific publications on relevant subjects will be distributed by the instructor.

Reference Materials:

**Grading Policies**

Homework (daily assignments; quality and logical thoroughness of code).............. (100%)

Policy on homework:
- All homework is due (even if late); otherwise, an "Incomplete" grade will be given until homework is submitted

**Grading Scale**

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<td>F</td>
<td>0-59%</td>
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</tbody>
</table>

**Course Topics, Calendar of Activities, Major Assignment Dates**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Complex geologic media: matrix-fracture interactions in fractured media, and the Multiple Interacting Continua (MINC) concept</td>
</tr>
<tr>
<td>2</td>
<td>Domain discretization (Mixed Cartesian/cylindrical grids, unstructured grids)</td>
</tr>
</tbody>
</table>
| 3-4  | Process description:  
|  | - Wettability (relative permeability and capillary pressure, various models)  
|  | - Equation of state with phase changes (PVT relationships, vapor pressure, phase enthalpies and latent heats of vaporization/condensation)  
|  | - Thermophysical properties (phase density, viscosity, solubility, thermal conductivity, etc.)  
|  | - Phase changes (boiling, vaporization), solution and exsolution |
| 5    | Initial and boundary conditions - primary and secondary variables, primary variable change |
| 6    | Treatment of sources and sinks (wells) |
| 7    | Setting up the Jacobian matrices; change of primary variables |
| 8    | Solution of 2D and 3D problems (Cartesian or cylindrical) of single-component (CH4), single-phase gas flow in fractured media (application to shale gas) |
| 9    | Solution of 2D and 3D problems (Cartesian or cylindrical) of single-component (water), two-phase flow with phase changes (geothermal reservoir problem) |
| 10   | Solution of 1D, 2D and 3D problems (Cartesian, cylindrical, mixed, Voronoi or unstructured grids) of two-component, two-phase isothermal flow (water+oil, oil+gas, water+gas) |
| 11   | Solution of 1D, 2D and 3D problems (Cartesian, cylindrical, mixed, Voronoi or unstructured grids) of three-component, three-phase isothermal flow (water+oil+gas) |
Solution of 1D, 2D and 3D problems (Cartesian, cylindrical, mixed, Voronoi or unstructured grids) of three-component, three-phase non-isothermal flow with heat and phase changes (water+oil+gas, steam injection)

Advanced problems (discussion of approach, coding only if time permits):
- Coalbed methane
- Solute/reactive transport

Other Pertinent Course Information

Americans with Disabilities Act (ADA)

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

1. This request is submitted by the Department of   POULTRY SCIENCE  

2. Course prefix, number and complete title of course:  POSC 630 "APPLIED ANIMAL GENOMICS"

3. Catalog course description (not to exceed 50 words): Theory and application of genomics by livestock industries; consideration of genetic markers, gene mapping methods, genome analysis and emerging technologies such as microarrays, transgenesis, cloning and marker assisted selection; exposure to bioinformatic tools for genomics.

4. Prerequisite(s):  GENE 603, OR BY APPROVAL OF INSTRUCTOR

Cross-listed with:  ANSC 629 and GENE 629

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

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

If yes, from _________ to _________

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

If yes, this course may be taken _______ times.

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

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

M.S., Ph.D. in poultry science, animal science, animal breeding, and genetics

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

   Attach approval letters.

9. Prefix  Course #  Title (excluding punctuation)  Lec  Lab  SCH  CIP and Fund Code  Admin. Unit  Acad. Year  FICE Code  Approval recommended by

<table>
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Level 6

JOHN B. CAREY
Department Head - Type Name & Sign
Date 9/11/09

GARY R. AUFF
ANSC Department Head - Type Name & Sign
(if cross-listed course)
Date 9/11/09

CRAWFORD J. COATES
Submitted to Coordinating Board by:
Date 9/11/09

Associate Director, Curricular Services

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

Curricular Services – 3/09

ORIGINAL

83 of 149 B
ANIMAL SCIENCE (ANSC) 629
POULTRY SCIENCE (POSC) 630
GENETICS (GENE) 629

APPLIED ANIMAL GENOMICS
FALL 2010

INSTRUCTORS: Clare A. Gill
Associate Professor of Animal Science
Office: 432B Kleberg
Phone: 979-862-7129
Email: clare-gill@tamu.edu

Huaijun Zhou, Ph.D.
Poultry Science Department
Office: 418D Kleberg Center
Phone: 979-845-2994
Email: hjzhou@poultry.tamu.edu

Michael J. Bailey, Ph.D.
Poultry Science Department
Office: 242B Kleberg Center
Phone: 979-845-7537
E-Mail: mbailey@poultry.tamu.edu

OFFICE HOURS: Any time, by appointment.

HOURS/WEEK: Theory - 3.0  Lab - 0.0  Credit - 3.0

PREREQUISITES: Genetics 603, or by approval of instructor

DESCRIPTION: Theory and application of genomics by livestock industries; consideration of genetic markers, gene mapping methods, genome analysis and emerging technologies such as microarrays, transgenesis, cloning and marker assisted selection; exposure to bioinformatic tools for genomics.

OBJECTIVES: To present concepts associated with genomics and their application in livestock industries.

EXAMINATIONS: Quiz A 15% Sept. 25  A = 89.5 to 100  D = 59.5 to 69.4
Quiz B 15% Oct. 26  B = 79.5 to 89.4  F = 59.4 and below
Quiz C 15% Dec. 4  C = 69.5 to 79.4
Final Exam 25% Dec. 11
Homework 20%
Participation 10%

Note: Attendance is expected and students should be prepared to participate in class discussions. Late submission of assignments will result in a deduction of 10% per day.

REQUIRED TEXT:
Additional course notes and original journal articles will be provided.
REFERENCE MATERIALS:

LEARNING OUTCOMES: In this class, students will develop a fundamental knowledge of genomics theory and its application in livestock industries. Students will be exposed to the computational tools used in genomics and will use these tools to assist their conceptual learning. After taking this course, students will be able to effectively communicate with their peers and to stakeholders (i.e. producers) about what can and can't be done with genomics in terms of improving profitability and to assist those producers in making appropriate management decisions. Our goal is that students will be confident in their knowledge of genomics so that they are confident communicators about this technology.

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 a 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.

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

PLAGIARISM: The handouts used in this course are copyrighted. By "handouts", we mean all materials generated for this class, which include but are not limited to syllabi, 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 we expressly grant permission. As commonly defined, plagiarism consists of claiming the ideas, words, writings, etc, of another person as your own work. This means you are committing plagiarism if you copy work of another person and turn it in as your own, even if you have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section "Scholastic Dishonesty." Definitions of academic misconduct are also available online at http://www.tamu.edu/aggiehonor.
**LECTURE OUTLINE**

<table>
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<th>Topic</th>
<th>Lecture</th>
<th>Day</th>
<th>Date</th>
<th>Material</th>
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<td>1</td>
<td>Introduction &amp; Syllabus</td>
<td>1</td>
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<td>Aug. 31</td>
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<td>Wed.</td>
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<td>What is genomics?</td>
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<td>Basic Concepts</td>
<td>3</td>
<td>Fri.</td>
<td>Sept. 4</td>
<td>Genome organization</td>
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<td>Cytogenetic Applications</td>
<td>4</td>
<td>Mon.</td>
<td>Sept. 7</td>
<td>Livestock karyotypes &amp; chromosome abnormalities</td>
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<td>5</td>
<td>Wed.</td>
<td>Sept. 9</td>
<td>ZOO FISH</td>
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<td>Cytogenetic Applications</td>
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<td>Fri.</td>
<td>Sept. 11</td>
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<td>3</td>
<td>Gene Mapping Approaches</td>
<td>7</td>
<td>Mon.</td>
<td>Sept. 14</td>
<td>Overview of physical mapping methods</td>
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<td>Gene Mapping Approaches</td>
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<td>Wed.</td>
<td>Sept. 16</td>
<td>BAC Mapping</td>
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<td>Gene Mapping Approaches</td>
<td>9</td>
<td>Fri.</td>
<td>Sept. 18</td>
<td>Radiation hybrid mapping</td>
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<td>Genetic Markers &amp; Linkage Analysis</td>
<td>10</td>
<td>Mon.</td>
<td>Sept. 21</td>
<td>Case studies on physical mapping</td>
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<td>Review 1</td>
<td>11</td>
<td>Wed.</td>
<td>Sept. 23</td>
<td>Case studies on physical mapping</td>
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<td>Quiz 1</td>
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<td>Fri.</td>
<td>Sept. 25</td>
<td>Case studies on physical mapping</td>
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<td>Genetic Markers &amp; Linkage Analysis</td>
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<td>Mon.</td>
<td>Sept. 28</td>
<td>Genetic markers &amp; overview of linkage mapping</td>
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<td>Genetic Markers &amp; Linkage Analysis</td>
<td>14</td>
<td>Wed.</td>
<td>Sept. 30</td>
<td>Genetic linkage mapping in livestock</td>
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<td>15</td>
<td>Fri.</td>
<td>Oct. 2</td>
<td>Experimental design &amp; map functions</td>
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<td>QTL &amp; Mapping</td>
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<td>Mon.</td>
<td>Oct. 5</td>
<td>Overview of QTL &amp; review of linear regression</td>
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<td>QTL &amp; Mapping</td>
<td>17</td>
<td>Wed.</td>
<td>Oct. 7</td>
<td>Detection of QTL by linkage &amp; linkage disequilibrium</td>
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<tr>
<td></td>
<td>QTL &amp; Mapping</td>
<td>18</td>
<td>Fri.</td>
<td>Oct. 9</td>
<td>QTL mapping case studies</td>
</tr>
<tr>
<td>5</td>
<td>Marker Assisted Selection</td>
<td>19</td>
<td>Mon.</td>
<td>Oct. 12</td>
<td>Experimental design in inbred &amp; outbred populations</td>
</tr>
<tr>
<td></td>
<td>Transgenesis &amp; Cloning</td>
<td>20</td>
<td>Wed.</td>
<td>Oct. 14</td>
<td>MAI vs MAS</td>
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<tr>
<td></td>
<td>Sequence Analysis</td>
<td>21</td>
<td>Fri.</td>
<td>Oct. 16</td>
<td>Transgenesis &amp; Cloning</td>
</tr>
<tr>
<td></td>
<td>Sequence Analysis</td>
<td>22</td>
<td>Mon.</td>
<td>Oct. 19</td>
<td>Review of sequence analysis methods</td>
</tr>
<tr>
<td></td>
<td>Sequence Analysis</td>
<td>23</td>
<td>Fri.</td>
<td>Oct. 21</td>
<td>Orthologs, paralogs and sequence similarity</td>
</tr>
<tr>
<td>6</td>
<td>Sequence Analysis</td>
<td>24</td>
<td>Mon.</td>
<td>Nov. 2</td>
<td>Phylogenetic approaches to clustering</td>
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<td></td>
<td>Sequence Analysis</td>
<td>25</td>
<td>Fri.</td>
<td>Nov. 4</td>
<td>EST &amp; Protein Clustering</td>
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<tr>
<td></td>
<td>Sequence Analysis</td>
<td>26</td>
<td>Mon.</td>
<td>Nov. 7</td>
<td>Expression analysis of single genes</td>
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<tr>
<td></td>
<td>Gene Expression &amp; Microarrays</td>
<td>27</td>
<td>Wed.</td>
<td>Nov. 9</td>
<td>Alternative splicing</td>
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<tr>
<td></td>
<td>Gene Expression &amp; Microarrays</td>
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<td>Fri.</td>
<td>Nov. 11</td>
<td>Microarrays &amp; experimental design</td>
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<td>29</td>
<td>Mon.</td>
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<td>Microarray case studies</td>
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<td>30</td>
<td>Fri.</td>
<td>Nov. 20</td>
<td>Clustering for gene expression analysis</td>
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<td>Student Presentations</td>
<td>31</td>
<td>Mon.</td>
<td>Nov. 23</td>
<td>Case Study Presentations</td>
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<td>Student Presentations</td>
<td>32</td>
<td>Fri.</td>
<td>Nov. 25</td>
<td>Case Study Presentations</td>
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<tr>
<td>9</td>
<td>Sequence Analysis</td>
<td>33</td>
<td>Mon.</td>
<td>Nov. 27</td>
<td>Case Study Presentations</td>
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<td></td>
<td>WALK</td>
<td>34</td>
<td>Fri.</td>
<td>Nov. 30</td>
<td>WALK</td>
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<tr>
<td></td>
<td>Thanksgiving Holiday</td>
<td>Holiday</td>
<td>Mon.</td>
<td>Nov. 23</td>
<td>Thanksgiving Holiday</td>
</tr>
<tr>
<td></td>
<td>MicroRNA</td>
<td>35</td>
<td>Mon.</td>
<td>Nov. 25</td>
<td>Thanksgiving Holiday</td>
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<tr>
<td>10</td>
<td>MicroRNA</td>
<td>36</td>
<td>Mon.</td>
<td>Nov. 27</td>
<td>Thanksgiving Holiday</td>
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<tr>
<td></td>
<td>Review 2</td>
<td>37</td>
<td>Mon.</td>
<td>Nov. 30</td>
<td>MicroRNA regulation of gene expression</td>
</tr>
<tr>
<td></td>
<td>Quiz 2</td>
<td>38</td>
<td>Mon.</td>
<td>Nov. 30</td>
<td>MicroRNA regulation of gene expression</td>
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<tr>
<td>11</td>
<td>Gene Expression &amp; Microarrays</td>
<td>39</td>
<td>Mon.</td>
<td>Nov. 30</td>
<td>MicroRNA regulation of gene expression</td>
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<tr>
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<td>Gene Expression &amp; Microarrays</td>
<td>40</td>
<td>Mon.</td>
<td>Nov. 30</td>
<td>MicroRNA regulation of gene expression</td>
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<td>Gene Expression &amp; Microarrays</td>
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<td>Mon.</td>
<td>Nov. 30</td>
<td>MicroRNA regulation of gene expression</td>
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<td>Gene Expression &amp; Microarrays</td>
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<td>Mon.</td>
<td>Nov. 30</td>
<td>MicroRNA regulation of gene expression</td>
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<td>Gene Expression &amp; Microarrays</td>
<td>43</td>
<td>Mon.</td>
<td>Nov. 30</td>
<td>MicroRNA regulation of gene expression</td>
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<td></td>
<td>Gene Expression &amp; Microarrays</td>
<td>44</td>
<td>Mon.</td>
<td>Nov. 30</td>
<td>MicroRNA regulation of gene expression</td>
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<td>Gene Expression &amp; Microarrays</td>
<td>45</td>
<td>Mon.</td>
<td>Nov. 30</td>
<td>MicroRNA regulation of gene expression</td>
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<tr>
<td>13</td>
<td>WALK</td>
<td>46</td>
<td>Mon.</td>
<td>Nov. 23</td>
<td>WALK</td>
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<td>Holiday</td>
<td>Mon.</td>
<td>Nov. 23</td>
<td>Thanksgiving Holiday</td>
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<tr>
<td></td>
<td>MicroRNA</td>
<td>47</td>
<td>Mon.</td>
<td>Nov. 23</td>
<td>Thanksgiving Holiday</td>
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<tr>
<td>14</td>
<td>MicroRNA</td>
<td>48</td>
<td>Mon.</td>
<td>Nov. 23</td>
<td>Thanksgiving Holiday</td>
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<td>Review 3</td>
<td>49</td>
<td>Mon.</td>
<td>Nov. 23</td>
<td>MicroRNA regulation of gene expression</td>
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<td>Quiz 3</td>
<td>50</td>
<td>Mon.</td>
<td>Nov. 23</td>
<td>MicroRNA regulation of gene expression</td>
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<td></td>
<td>Final Review</td>
<td>51</td>
<td>Mon.</td>
<td>Nov. 23</td>
<td>MicroRNA regulation of gene expression</td>
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<td></td>
<td>Final Exam</td>
<td>52</td>
<td>Mon.</td>
<td>Nov. 23</td>
<td>MicroRNA regulation of gene expression</td>
</tr>
</tbody>
</table>

**Final Exam**
- Final Exam: Fri. Dec. 11 10am – 12 noon 021A Kleberg
Texas A&M University
Departmental Request for a New Course
Undergraduate  Graduate  Professional
- Submit original form and attach a course syllabus.

1. This request is submitted by the Department of
   Bush School of Government and Public Service

2. Course prefix, number and complete title of course:
   PSAA 603; International Non-Governmental Organizations

3. Catalog course description (not to exceed 50 words):
   Explores how philanthropy, nonprofit, and NGO sectors operate, with special
   attention to their niche alongside private and public sectors, revenue sources, impact on society, and converse effects of society and its
   institutions.

4. Prerequisite(s):
   Graduate Classification

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

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

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

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

MPSA (Master of Public Service and Administration Program)

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

9. Prefix  Course #  Title (excluding punctuation)
    PSAA  603  INTL  NONGOVERNMENTAL  ORG

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
<th>SCH</th>
<th>CIP and Fund Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>FICE Code</th>
</tr>
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<td>3</td>
<td>0</td>
<td>0 0 3 5 2 0 2 0 6</td>
<td>0 0 1 6 1 3 6 4 1 0 - 1 1 0 3 6 3 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Approval recommended by:

Level

Chair, Graduate Review Committee

Chair, Graduate Review Committee

Date

Date

October 8, 2009

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 3/09
PSAA 603 – proposed syllabus
International Non-Governmental Organizations (INGOs)

Instructor: Gina Yannitell Reinhardt
Office: 1096 Allen Building
Email: greinhardt@bushschool.tamu.edu
WebCT Vista Course Homepage: http://elearning.tamu.edu/

Course Description:
At the end of the 20th Century, brutal conflicts and natural disasters opened the door for
governmental organizations to increase their role in societal and economic development.
Despite their financial resources and access to conflict-affected communities, however, NGOs’
position in the international system is poorly understood. What is the role of the NGO in the
international system? What factors determine whether or not they can pursue their missions and
mandates successfully? What are some of the primary challenges they face in doing so? How
do they know if they’re successful or not?

This course addresses these and other questions by examining non-governmental organizations
(NGOs) that operate outside of the US. The emphasis is on how philanthropy, nonprofit, and
NGO sectors operate, with special attention to their niche alongside private and public sectors,
revenue sources, impact on society, and converse effects of society and its institutions. We will
examine both US-based NGOs that operate abroad (or focus during the first half of the term), as
well as NGOs that operate domestically in countries other than the US (or focus during the
second half of the term). We will explore the impact of reliance on government or overseas
support for NGOs in developing countries, faith-based service provisions, accountability and
transparency, advocacy, and government/NGO relations.

Required Readings:
- David Lewis, 2001. The Management of Non-Governmental Development Organizations:
- Other readings, listed in the schedule below.

COURSE OBJECTIVES

Upon completion of this course students will demonstrate understanding of the following
topics through discussion, explanation, analysis and synthesis:
- the history, role, and function of INGOs in social and economic development
- the legal rights and roles of INGOs in the US and two other countries in the world
- theories of INGO management and operation
- decision-making frameworks and their applicability to INGOs
- the characteristics of voluntary behavior and management of unpaid labor outside the
  US
- the relationships between INGOs and their various stakeholders
- INGO accountability
COURSE REQUIREMENTS AND GRADING

Participation/Discussion (35%):
Students must “visibly participate” in the online classroom 4 out of 7 days each week of the term.

Participation for students is defined as active and positive contributions to the learning process. Participation is different from attendance in the online classroom. To meet participation requirements, students are expected to contribute substantially to the class discussion 4 out of 7 days per week in addition to posting any written assignments for grading. In addition to the student’s initial response to a discussion question, students are expected to respond to a minimum of two of their classmates’ posts.

The Bush School’s online courses count for 3 credit hours over a 5 week period. The 3 credit hours are equivalent to 45 hours of contact time between the instructor and the student. Therefore, the student should be actively participating 7 – 8 hours each week. When students do not participate they miss out on many opportunities for learning.

We understand that life happens and occasionally a student may be without access to the Internet or online course. If at any time a student must be away from the classroom, or email, for more than two consecutive days, the student is required to notify the instructor prior to their absence. In the event of an emergency, the student should contact (email or phone) the instructor as soon as possible. If for some reason the instructor cannot be reached, then the student may contact the Office of Extended Education via email onlinehelp@bushschool.tamu.edu or phone 979.845.7036 and the instructor will be notified.

Unit Assignments (5 at 15% each: 65% total):
Each unit carries with it an assignment of 1-10 pages. These are often meant to simulate documents you might have to create as an INGO manager or staffmember, regarding grant proposals, research plans, memos, etc. Each must be turned in on the final day of each unit.

The standard Bush School scale will apply:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90%-100%</td>
</tr>
<tr>
<td>B</td>
<td>80%-90%</td>
</tr>
<tr>
<td>C</td>
<td>70%-80%</td>
</tr>
<tr>
<td>D</td>
<td>60%-70%</td>
</tr>
<tr>
<td>F</td>
<td>0%-60%</td>
</tr>
</tbody>
</table>

Challenging a Grade:
Should you have a dispute regarding the way your work is graded, you must submit a typewritten statement explaining why you believe your grade should be changed, attached to the assignment in question. Absolutely no grade challenges will be entertained in person unless a written challenge has been submitted beforehand. Please note that your entire assignment/exam is subject to being re-graded, should you choose to challenge your grade.

Extra Credit:
There is no extra credit for this course.

Late work policy:
Late assignments will not be accepted. Early assignments will always be accepted. Please submit your work on time.
Honor Code:
"An Aggie does not lie, cheat, steal, nor tolerate those who do."

A grade of zero will be given to anyone who cheats on any assignment, or who commits plagiarism. Plagiarism is commonly defined as passing off as one's own the ideas, words, writings, music, graphs, charts, datasets, etc., that were originally created by another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you have the permission of the original author. Plagiarism is cheating. It is a violation of personal and academic integrity, and it will not be tolerated. If you have any doubt that you might be committing, or about to commit, an act of plagiarism, stop and consult me or another faculty member first.

It is impossible to stress how seriously I take the Honor Code. If you are found to be in violation of the honor code, you will be sent through the proper Bush School and TAMU channels, you will likely fail this course, and you may be expelled.

If you have any questions about Honor Council Rules and Procedures, you may find more information at http://www.tamu.edu/aggiehonor.

Students with Disabilities:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for person with disabilities. Among other things, this legislation requires that all students with disabilities e 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 Department of Student Life, Services for Students with Disabilities, in Cain Hall or at 845-1637.
## Course Schedule and Assignments:

<table>
<thead>
<tr>
<th>Unit #</th>
<th>Topic/Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit 1</strong> <em>(Weeks 1-2)</em></td>
<td><em>International Issues, Globalization, Non-Profits, and NGOs</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit #</th>
<th>Topic/Reading</th>
</tr>
</thead>
</table>
| Unit 2 (Weeks 3-5) | **INGOs In the US: Implementers and Funders**  
US-based INGOs at home and abroad  
US third sector on the world stage |
Unit 3 (Week 6) | **Managing INGOs: Accountability In Activities and Relationships**  
<table>
<thead>
<tr>
<th>Unit 4 (Weeks 7-13)</th>
<th>INGOs and Development: Major Debates and Cultural Contexts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Michael Edwards and Alan Fowler, eds., <em>The Earthscan Reader on NGO Management</em> (London: Earthscan, 2002), selected readings TBA.</td>
</tr>
</tbody>
</table>
| | A. Micou and B. Lindsnaes, eds., *The Role of Voluntary Organizations in Emerging Democracies: Experience and Strategies in Eastern and *
<table>
<thead>
<tr>
<th>Unit 5 (Week 14-15)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Week 13 – Implications of INGO participation in Development</strong></td>
</tr>
<tr>
<td><strong>Conclusion: NGO Management and Policy in our Future</strong></td>
</tr>
<tr>
<td><strong>Week 14</strong></td>
</tr>
<tr>
<td><strong>Week 15</strong></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.

1. This request is submitted by the Department of Bush School of Government and Public Service.
3. Catalog course description (not to exceed 50 words): Course provides an overview of emergency management and its connection with homeland security. Topics include emergency management cycles, activities that fall into mitigation, preparedness, response, and recovery phases of emergency management. Other topics may include emergency management of terrorism, disaster communication, media relations, and performance assessment for emergency management organizations.

4. Prerequisite(s): Graduate Classification

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

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

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

MPSA (Master of Public Service and Administration Program)

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

9. Prefix Course # Title (excluding punctuation)
   P S A A 6 0 4 E M R G N C Y M G M T & H M L N D S E C
   Lect. Lab SCI CIP and Fund Code Admin. Unit Acad. Year FICE Code
   0 3 0 0 3 4 5 1 0 0 1 1 3 6 4 1 0 - 1 1 0 0 3 6 3 2

Approval recommended by:

Jeryl L. Mumphrey
Department Head - Type Name & Sign Date

Chair, College Review Committee
Date

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

Dean of College
Date

October 8, 2009

Submitted to Coordinating Board by:

Associate Director, Curricular Services
Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 3/09
Course title and number
PSAA 604 – Emergency Management and Homeland Security

Term
XXXX

Meeting times and location
9:35-12:15 T – Allen 1107

Course Description and Prerequisites
The prominence of homeland security has raised awareness of the complexities involved in preparing for and responding to disasters. This course provides an overview of the field of emergency management and how emergency management connects with homeland security. Topics include the emergency management cycles and the activities that fall into mitigation, preparedness, response, and recovery phases of emergency management. Other topics may include the distinctive elements of emergency management of terrorism, disaster communication, media relations, and the challenges of performance assessment for emergency management organizations.

Prerequisites: graduate classification

Learning Outcomes or Course Objectives
The course will introduce students to a variety of key concepts in emergency management and homeland security including: the emergency management cycle, hazard mitigation, disaster preparedness, disaster response, and disaster recovery. Students will also develop key skills in emergency management including disaster communications and media relations.

Instructor Information
Name
Professor Scott E. Robinson

Telephone number
979-458-8033

Email address
srobinson@bushschool.tamu.edu

Office hours
Wednesdays 2-3pm and by appointment

Office location
Allen 1090

Textbook and/or Resource Material

Grading Policies
The course evaluation system will consist of two elements. Students will write a series of three case notes on the cases discussed in the course. Each case note is worth 25% of the semester grade. The first case note must be turned in by or on week 4 to avoid a grade penalty. The second should be turn in by or on week 9 to avoid a grade penalty.

Each student will also write a research-based term paper due at the end of the course. This paper will be worth 25% of the grade. The term paper should select a subject of interest relevant to the course and conduct a literature review, design a research proposal, or conduct original research. Additional information will be provided on these different forms of papers.

The standard Texas A&M University grading scale will apply:

90 - 100 A
80 - 89 B
70 - 79 C
Course Topics, Calendar of Activities, Major Assignment Dates

Case notes are due the day they cover is discussed in class.

The term paper is due the day of “student presentations” – on which date each student should be prepared to present the findings of their research paper.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (9/1)</td>
<td>Definition of Emergency Management</td>
<td>Haddow et al (1), Lindell et al. (1-3)</td>
</tr>
<tr>
<td>2 (9/8)</td>
<td>Hazards and Risk Assessment</td>
<td>Haddow et al (2), Lindell et al (5-6),</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Howitt and Leonard (2)</td>
</tr>
<tr>
<td>3 (9/15)</td>
<td>Mitigation</td>
<td>Haddow et al. (3), Lindell et al (7),</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Howitt and Leonard (1)</td>
</tr>
<tr>
<td>4 (9/22)</td>
<td>Preparedness</td>
<td>Haddow et al. (6), Lindell et al (9),</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Howitt and Leonard (13)</td>
</tr>
<tr>
<td>5 (9/29)</td>
<td>Response</td>
<td>Haddow et al. (4), Lindell et al. (10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Howitt and Leonard (3)</td>
</tr>
<tr>
<td>6 (10/6)</td>
<td>Recovery</td>
<td>Haddow et al. (5), Lindell et al. (11)</td>
</tr>
<tr>
<td>7 (10/13)</td>
<td>Impact of Disasters</td>
<td>Lindell et al. (8)</td>
</tr>
<tr>
<td>8 (10/20)</td>
<td>Communications and Disasters</td>
<td>Haddow et al. (7), Lindell et al. (4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Howitt and Leonard (7)</td>
</tr>
<tr>
<td>9 (10/27)</td>
<td>Media Relations</td>
<td>Haddow et al. (7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Howitt and Leonard (6)</td>
</tr>
<tr>
<td>10 (11/3)</td>
<td>Terrorism and Emergency Management I</td>
<td>Haddow et al. (9), Lindell et al. (15)</td>
</tr>
<tr>
<td>11 (11/10)</td>
<td>Terrorism and Emergency Management II</td>
<td>Howitt and Leonard (8 and 12)</td>
</tr>
<tr>
<td>12 (11/17)</td>
<td>Accountability in Emergency Management</td>
<td>Lindell et al. (12)</td>
</tr>
<tr>
<td>13 (11/24)</td>
<td>The Future of Emergency Management</td>
<td>Haddow et al. (10), Lindell et al. (15)</td>
</tr>
<tr>
<td>14 (12/1)</td>
<td>Student Presentations</td>
<td>Howitt and Leonard (4 and 5)</td>
</tr>
</tbody>
</table>

Americans with Disabilities Act (ADA)

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Academic Integrity

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

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

1. This request is submitted by the Department of
Bush School of Government and Public Service

2. Course prefix, number and complete title of course:
PSAA 605: Homeland Security Policies, Strategies, and Operations

3. Catalog course description (not to exceed 50 words):
In-depth examination of past, current, and emerging national and international homeland security policies, strategies, and selected strategic operations. Emphasis on national and global risks, the national security management system, risk and crisis management, longer-term community recovery, and the strategies of other countries applicable to the United States.

4. Prerequisite(s):
Graduate Classification

Cross-listed with:

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

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

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

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

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

MPSA (Master of Public Service and Administration Program)

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

9. Prefix Course # Title (excluding punctuation)

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Approval recommended by:

Jeryl L. Mumpower
Department Head - Type Name & Sign
Date

Chair, College Review Committee
Date

Dean of College
Date

October 8, 2009

Submitted to Coordinating Board by:

Associate Director, Curricular Services

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 3/09

COPY
Texas A&M University
The Bush School of Government and Public Service

Course: PSAA 605 Homeland Security Policies, Strategies, and Operations

Instructor: Dr. Sharon Caudle
scaudle@bushschool.tamu.edu
Office Phone: 979-845-1673
Office Hours Monday and Wednesday, 10 a.m. to 11 a.m. or by individual scheduling.

Course Description
This course provides an in-depth examination of past, current, and emerging national and international homeland security policies, strategies, and selected strategic operations. Specific course content will include national and global risks, the requirements of the national security management system, risk and crisis management, and longer-term community recovery and resilience after a major disaster. Class activities and assignments will examine the development, implementation, and sustainability of the homeland security policies, strategies, and operations and their intersection with national security activities. The course also will cover the context in which other nations determine their national and homeland security policies and actions and the applicability of those approaches to the United States.

Textbooks and Case Studies
The following books will be used in this course:


Four formal case studies will be part of the course learning. The following Kennedy School or Harvard Business School cases and case analysis guide can be purchased online at http://www.ksgcase.harvard.edu and http://harvardbusinessonline.hbsp.harvard.edu/hbsp/course_materials.jsp.

- X-Treme Planning: Ohio Prepares for Pandemic Flu (Kennedy School of Government Case C16-07-1867.0)
- Security Planning for the 2004 Democratic National Convention (A) and (B) (Kennedy School of Government Case C16-05-1807.0 and C15-05-1808.
- "Broadmoor Lives": A New Orleans Neighborhood's Battle to Recover from Hurricane Katrina (A) and (B) (Kennedy School of Government Case C14-08-1893.0 and C14-08-1894.0)
- The Dubai Ports World Debacle and Its Aftermath (Harvard Business School Case 9-707-014, revised August 29, 2007)
- How to Analyze a Case (Harvard Business School Product No. 2449BC-PDF-ENG)

Additional readings and cases and instructions may be placed on electronic reserve at the Policy Studies and Economics Library e-reserve site, listed with a website, emailed to students, or posted by the instructor on the class project folder on the S drive.
Key Resources
There are many other resources that students are encouraged to explore. First, there are numerous excellent homeland security and homeland defense research sources. The Integrative Center for Homeland Security (ICHS) at TAMU (homepage http://homelandsecurity.tamu.edu) provides a wealth of material, including electronic newsletters, summaries of documents, an RSS feed, weekly radio programs, and audio newsletters. In addition, students should become familiar with the broad scope of homeland security sources and links available from the TAMU Policy Sciences Economic Library (PSEL) (http://library.tamu.edu/subject-guides/homeland-security). In addition, the TAMU Library can be accessed at http://library.tamu.edu. As a student, you have access to e-books, e-journals, databases, and other library resources such as live chats with a librarian, citation guides, and research guides. Through PSEL, students can access a considerable amount of policy, strategy, and operational material from the Naval Postgraduate School Homeland Security Digital Library collections, including Congressional Research Service and Government Accountability Office reports pertaining to homeland security. The PSEL is open during regular business hours and you can reach a reference librarian at 979.862.3544.

If the PSEL link is not used, the Center for Homeland Defense and Security (http://www.chds.us/) at the Naval Postgraduate School has an easily accessible link to Homeland Security Affairs and the Center’s own podcasts and interviews. This website also has a link to all of the masters’ theses which provide students with different perspectives on homeland security research designs, observations, and findings. Further, students should subscribe to the free weekly newsletter from the Homeland Security Institute (http://www.homelandsecurity.org) and policy and management alerts. The Department of Homeland Security has its own email lists and blogs. The George Washington University’s Homeland Security Policy Institute (http://www.gwumc.edu/hspi/) issues periodic papers and briefs. The Council for Foreign Affairs provides a daily news brief that often contains information important for homeland security (http://www.cfr.org/). RAND has a robust homeland security and terrorism program (http://www.rand.org/research_areas/terrorism/), as does the Heritage Foundation (http://www.heritage.org/LeadershipForAmerica/protect-america.cfm). These sources will be useful for class discussion and research on current and emerging homeland security issues. Journals students should pay close attention to are the Journal of Homeland Security, the Journal of Homeland Security and Emergency Management, Homeland Security Affairs, and Homeland Security Review.

Course Requirements and Assignments
Graduate study means learning to learn from every possible source—from readings, peers, life experiences, the instructor, and research projects. The intent in any graduate course is to develop a learning community in which individuals’ ideas are freely expressed and the class works together to support and challenge each others’ work and ideas. The success of the learning experience in this class—and ultimately each student’s grade—is critically dependent on the excellence of each student’s preparation, written assignment submissions, and participation in discussions where each student presents ideas and considers what others have to say as part of a reasoned, thoughtful discourse. Each student and his/her contributions should be treated with respect—not only taking them seriously but also challenging ideas. No student should feel left out, minimized, or otherwise discriminated against. Students should be on time for class. The instructor will quickly and directly counter any discussions or comments that do not display professionalism and respect for the contributions of others. While in class, students may use their computers to take notes and do internet research for class exercises, but may not do email, text messages, or other activities not directly related to the class.
Several components will determine each student’s final course grade, discussed below. The written assignments should be in Microsoft Word, 12 point type, single-spaced, with 1 inch margins and a space between paragraphs, and with all pages numbered. The written assignments, unless instructed otherwise, should cite sources and present a bibliography using American Political Science Association (APS) style manual. The manual can be found at http://www.ipsen.org/data/files/APSANStyleManual2006.pdf.

1. **Class Contribution** (15 percent of grade). It is essential that each student be prepared to effectively contribute to class discussions every single class session. Each student is expected to actively participate in every discussion, including those on current homeland security events, readings, lectures, and case studies.

2. **Written Assignment: Case Analyses** (40 percent of grade). The class will include four cases (Security Planning for the 2004 DNC, “Broadmoor Lives,” Dubai Ports, and X-treme Planning). Each student or team of two students will respond to prepare an analysis during the week the case is included in the class readings. The analysis will be due on Wednesday of the week the case is discussed. Each analysis counts 10 percent toward your overall grade.

3. **72 Hour Analysis** (25 percent of grade): This assignment will require each student to conduct a homeland security policy analysis and write a report recommending a course of public action, all within 72 hours. Each student will have to work quickly and decide where to focus their attention to provide a comprehensive argument in the allotted time with limited resources. The assignment will be provided by email on a Friday by 8 a.m. with a choice of at least two topics. Each student will then have 72 hours to answer the question and write a homeland security policy analysis memo of *no more than seven* pages, including a one-paragraph executive summary. A hard copy of the memo is due to instructor on the following Monday at the beginning of class. The memo should make an argument and be presented in such a way that a busy decision-maker can understand the argument quickly. In class, students will be grouped by the problems to develop a consensus on a course of action which will then be presented to the entire class. The class also will discuss how each student approached the analysis, and what was learned about quickly evaluating a major homeland security public policy problem.

4. **Written Assignment: National Homeland Security Strategy Analytical Memorandum** (20 percent of grade). For the final assignment, each student or a team of two students should analyze and prepare recommendations to address weaknesses and thus significantly strengthen the 2007 National Strategy for Homeland Security for the United States of America. Drawing on class discussions, lectures, readings, and other research, the student(s) should produce an 8 to 10 page memorandum to the Homeland Security Council that contains an analysis of the content of the current National Strategy for Homeland Security and provides recommendations, with a rationale for each recommendation, for revising or replacing the current Strategy's coverage. Formal citations of sources are not necessary. There is no set format, but students may want to take a look at policy issue briefs and occasional papers issued by the RAND Corporation, Brookings, or the Heritage Foundation for possible formats. Students will present their findings in class using either powerpoint or talking points.
Grading Standards
The standard Texas A&M University grading scale will apply:

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

Other Considerations: Honor Code, Plagiarism, Students with Disabilities: Every student is expected to adhere to the Aggie Honor Code: “An Aggie does not lie, cheat, or steal or tolerate those who do.” Adherence to the Code means, for example, that students should not copy the work of another person and turn it in as their own. To avoid plagiarism, it is necessary when using a phrase, a distinctive idea, concept, or sentence from another source to reference that source in your text, a footnote, or endnote. On all course work, the following Honor Pledge must be printed and signed by the student: “On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work.”

The Americans with Disabilities Act (ADA) is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room B118 of Cain Hall or call 845-1637.

Student Concerns. As is true for all graduate school work and the learning experience, each student is responsible for absorbing and applying class material in and out of class. The instructor will provide guidelines for learning and completing class assignments—but students will not be given deliverable step-by-step instructions or in-depth “remedial” instruction, such as how produce a well-researched and written assignment. However, if any student has a question, concern, or complaint about the course, please raise it with the instructor first. If, for whatever reason, a student prefers not to do that or, if student has done so and believes the issue to be unresolved, he or she should bring any question, concern, or complaint to Dr. Mumpower or Dr. Hermann.
Class Topics and Schedule

Week 1: Homeland Security and Lessons from the Past
What have we learned and unlearned from past events? This week will review major events that have impacted homeland security and their implications for current strategies, policies, and operations. It also will provide an overview of the rest of the course. The learning objective for this week is to assess the policies, strategies, and operations in play during past homeland security events and the lessons for future events.

Readings

Class Discussion Questions to Consider
1. Kettl asks two central questions in his book: Why is the nation not better prepared for major events that are sure to strike with devastating consequences? Why does the governmental system fail to respond more effectively after such events underline our vulnerability? Drawing on his work and the Perrow and Lagadec readings, what are the possible answers?
2. Barnett integrates political, economic, and military elements in posing a model of eradicating “disconnectedness” as the defining security task of our age. If he were asked about how his observations would apply to homeland security, what would he say? Drawing on the other readings, to what extent do you believe the authors would agree or disagree with Barnett’s observations?

Week 2: The Maturing of Homeland Security
What is the current vision and objectives for homeland security? This week will review the definition and current homeland security issues. The learning objective for this week is to demonstrate and apply basic knowledge of historical and current expected United States homeland security coverage and issues.

Readings:


• How to Analyze a Case (Harvard Business School Product No. 2449BC-PDF-ENG).

• The Dubai Ports World Debacle and Its Aftermath (Harvard Business School Case 9-707-014, revised August 29, 2007).

**Class Discussion Questions to Consider**

1. In testimony, DHS Secretary Napolitano said “To secure the homeland means to find and kill the roots of terrorism, to stop those who intend to hurt us, to wisely enforce the rule of law at our borders, to protect our nation’s infrastructure, and to be prepared for and to respond to homeland disasters with speed, skill, compassion, effectiveness, and common sense.” To what extent has she captured the central definitions of homeland security posited by Bellavita? If you were constructing a definition for her to propose as a new definition for Congressional legislation to replace the current definition in the Homeland Security Act, what would it be?

2. Drawing on the material discussing homeland security challenges and weaknesses, where are the points of agreement? Disagreement?

**Dubai Ports Written Assignment Case Analysis**

The Dubai Ports case illustrates issues concerning foreign investment and control over important infrastructure and its security. In your analysis, and utilizing the readings (other source material may also be used), discuss (1) why the Bush administration supported the DP World deal and contrast that with the views of Congress, (2) what DP World might have done differently in responding to the security concerns, and (3) what criteria, if any, should determine if a foreign acquisition undermines the nation’s national and homeland security.

**Week 3: Assumption Based, Capabilities-Based, and Scenario-Based Planning Approaches**

This week will focus on homeland security strategic planning and the basic concepts and steps of several planning approaches useful for homeland security: assumption-based planning; capabilities-based planning; effects-based planning, and scenario-based planning approach. The learning objective for this week is to understand and apply one or more different strategic planning approaches in a homeland security context.

**Readings**


Class Discussion Questions to Consider

1. In 1993, Dewar and his colleagues presented a new strategic planning methodology to help the Army with its long- and mid-range planning by surfacing underlying assumptions of plans and bring the assumptions explicitly into the planning process. What do you see as the most significant implicit and explicit assumptions in the DHS Strategic Plan?

2. Authors who write about scenario-based planning discuss how important such an approach is to think about the future impact of current decisions and actions. Scenario-based planning is intended to help organizations conceptualize the environment in which actions will take place and how those actions will fit with, or stand against, prevailing forces, trends, attitudes, and influences. The Department of Homeland Security is applying capabilities-based planning in its development and execution of the National Planning Guidelines and in addressing its scenarios (all short term). How would you meld capability-based planning and scenario-based planning to meet short and long term homeland security scenarios?

Week 4: National Homeland Security Management System

What are the major management documents in the National Homeland Security Management System? This week’s content centers on the primary homeland security national security management documents and their underlying security principles and expectations. The learning objective for this week is to analyze the overall coverage and intent of the national security management system documents.

Readings


• X-Treme Planning: Ohio Prepares for Pandemic Flu (Kennedy School of Government Case C16-07-1867.0).

Class Discussion Questions to Consider
1. In Bellavita's article on shaping patterns, not programs from week 2, he said that "the homeland security strategy is a patchwork of multiple strategies, laws, presidential directives, grant guidance, and related documents. It includes the strategies and practices of state, local, and regional entities. It incorporates whatever the private sector is—or is not—doing." That said, as you review the national homeland security management documents, what are 4 to 5 principles or themes that consistently underlay them? For example, one theme or principle might be adherence to an all-hazards approach. How do they differ within individual documents, if at all?

2. Beginning in fiscal year 2009 and repeating every four years, the DHS Secretary is to conduct a homeland security review of the United States, similar to the quadrennial defense review. This comprehensive examination is to include recommendations regarding the long-term strategy and priorities for homeland security and guidance on the Department's programs, assets, capabilities, budget, policies, and authorities. Selecting either the National Incident Management System or the National Response Framework, what analytical questions would you recommend the quadrennial review team ask?

X-Treme Planning Written Assignment Case Analysis
The X-Treme Planning case illustrates the influenza pandemic planning challenges. Hundreds of government agencies, hospitals, health care providers, social service providers, and first responders would have to work interdependently in existing facilities and in alternative care centers to take care of the thousands of patients the hospitals could not accommodate. There was no general agreement about what agency or organization, in either the public health or health care systems, should establish, manage and operate such centers. In your analysis, discuss challenges and recommendations (1) in using the ICS for planning and if a better approach might have been used, (2) in choosing DiOrio as the incident commander for the planning process, and (3) ensuring the development and implementation of pandemic plans at the community level.

Week 5: Crisis Management
What do we need to know about managing crises? This week discusses crisis management challenges and leadership, including crisis development, communication, and coordination preparation and implementation. It will also cover communication and the effect of the media on the formulation of public policy regarding homeland security and the response to natural disasters, including the public's perception of crisis management. The learning objective for this week is to understand and apply crisis management approaches.

Readings:
• Light, Paul. 2008. *Predicting Organizational Crisis Readiness: Perspectives and Practices Toward a Pathway to Preparedness*, The Center for Catastrophe Preparedness and
Response and Public Entity Risk Institute, available at


Class Discussion Questions to Consider

1. Gerber identifies key organizational, institutional, and behavioral factors that make effective crisis management very difficult in the United States and states that constraints on effective disaster management policy in the United States' system is really an intractable problem. Would the authors of the other readings agree—why or why not?

2. What are the four or five specific lessons regarding crisis management that you drew from the readings you believe are absolutely essential in actually building a crisis-ready organization, including other organizational partners, or what Farazmand calls a surprise management system?

Week 6: Risk Management

What are the essentials of risk management for possible events? This week covers risk management principles and strategies, including threats and the development of strategies to address their vulnerabilities and consequences through risk management. It will also cover determination of risk perception and risk tolerances and issues in preparation for, response to, and recovery from man-made risks such as terrorist attacks and natural catastrophic events. The learning objectives for this week are to assess risk management approaches and specific strategies and their application in different situations. The 72 hour analysis assignment will be provided this week on Friday.

Readings

• Security Planning for the 2004 Democratic National Convention (A) and (B) (Kennedy School of Government Case C16-05-1807.0 and C15-05-1808).

**Class Discussion Questions to Consider**
1. Many of the readings call for more of a risk-based approach to decisionmaking. OMB’s September 2007 document provides updated principles for risk analysis. In the initial call for comment as OMB was drafting the principles, OMB asked for comments on what should be principles for homeland security risk analysis. Homeland security specifics were not included in the final OMB publication. What three to five principles would you suggest for homeland security risk analysis and strengthening of a risk-based approach?
2. Risk tolerance is defined as an organization’s appetite for uncertainty or the degree of comfort with various levels of risk. How would you determine risk tolerance for a community? A nation? A global region, such as North America?

**Security Planning Written Assignment Case Analysis**
This case examines the many actors and perspectives in planning for a major event with high political visibility. Your analysis should discuss the key elements of potential risk (e.g., political, economic, social, and so on) from the perspectives of the Secret Service, the City of Boston, and the DNC. It also should present the primary security strategy options for the convention at the Fleet Center and your assessment of their strengths and weaknesses. The analysis should conclude with your key “take aways” from the case study about risk management approaches and the difficulty of implementation.

**Week 7: 72 Hour Homeland Security Analysis**
*What are the challenges in quickly responding to a homeland security policy issue?* This week will be the 72 hour analytical presentation and discussion of student analytical findings. The discussion will also cover challenges in finding and assessing the validity and reliability of homeland security policy material that could be used in a rigorous analysis. Homeland security policy analysis memo due to the instructor by Monday at the beginning of the Monday class.

**Week 8: Global Systemic Risk Trends and Strategies**
*What are global systemic risk trends and suggested strategies that have or will impact homeland security?* This week discusses emerging and evolving global systemic risks and their meaning for homeland security strategies. It will cover the interdependence of homeland security, national security, and global security. The learning objectives for this week are to assess the strategic implications of global risks in the short and long term for management decision-making.

**Readings**


Class Discussion Questions to Consider

1. Where do the authors appear to have similar views on global dangers and trends and their implications for national and homeland security? Where do they differ and what appear to be the reasons for the differences?

2. Drawing on the readings, what do you believe are the top global dangers or trends that the United States should integrate fully into its homeland security policies, strategies, and operations?

Week 9: A Terrorist Attack: Strategy, Policy, Operational Issues

*What can we learn from a potential terrorist bombing attack and biological attack and how officials might react to them?* Class viewing and discussion of *City Under Siege* and *Bioattack* (provided in class). The learning objectives are to highlight lessons learned from the attack scenarios.

Readings: Targeted readings will be posted on the S drive with discussion questions the week prior to week 9.

Week 10: National and Community Resiliency

*What are the issues and possible strategies regarding national and community resiliency in returning to a normal state after a disaster or catastrophe?* This week emphasizes the many issues surrounding resiliency—short and long-term recovery to national or community normalcy after an event. The learning objectives for this week are to evaluate and apply different perspectives on national and community resiliency for homeland security action.

Readings


• “Broadmoor Lives”: A New Orleans Neighborhood’s Battle to Recover from Hurricane Katrina (A) and (B) (Kennedy School of Government Case C14-08-1893.0 and C14-08-1894.0).

Class Discussion Questions to Consider

1. DHS defines recovery as “the development, coordination, and execution of service- and site-restoration plans; the reconstitution of government operations and services; individual, private-sector, nongovernmental, and public assistance programs to provide housing and to promote restoration; long-term care and treatment of affected persons; additional measures for social, political, environmental, and economic restoration; evaluation of the incident to identify lessons learned; postincident reporting; and development of initiatives to mitigate the effects of future incidents.” Drawing on the readings, what would be a definition of national resiliency you would recommend that DHS adopt? A definition of community resiliency?

2. Drawing on the readings and using an integrative, meta-analysis approach, what are the key points made by the authors important for any homeland security decision-maker to know?

Broadmoor Written Assignment Case Analysis

The Broadmoor case describes the efforts to restore a New Orleans neighborhood after Hurricane Katrina. Your analysis should (1) identify the major challenges for short and long term recovery/return to normalcy of the neighborhood, (2) the major decisions made by central federal, state, or local officials that helped or hindered full recovery, (3) whether the neighborhood should have been allowed to recover at all, and (4) lessons learned for any community resiliency policy.

Week 11: Societal Security Strategies and Selected Approaches in Western Democracies:
Part I

What are societal security strategy approaches in selected countries that might inform the United States? This week centers on societal security strategies and developments in the European Union, United Kingdom, and the Netherlands to illustrate homeland security, national security, and societal security strategies in the context of shared and unique threat, legal, operational, and partnership environments. The learning objectives for this week are to evaluate the similarities and differences across selected international societal security strategy approaches.

Readings:


**Week 12: Societal Security Strategies and Selected Approaches in Western Democracies: Part II**

*What are the challenges in implementing and sustaining societal security strategy approaches?* This week emphasizes implementation and sustainability of societal security strategies, drawing on United States and other Western democratic countries. The learning objectives for this week are to evaluate challenges and possible strategies.

**Class Discussion Questions to Consider**

1. The European Security Strategy, the United Kingdom National Security Strategy and Update, and the Netherlands Strategy and Work Programme present different perspectives on the breadth and depth of a security strategy, whether regional or national. What do you see as the basic differences across these strategies? What are their strengths and weaknesses in guiding subsequent implementation policies and programs?

**Readings:**


Class Discussion Questions to Consider
1. The United Kingdom's national security strategy effort was spurred in large part by Edwards' DEMOS report. Fitz-Gerald discussed the United Kingdom's need for a national security "grand design." After the issuance of the United Kingdom National Security Strategy, Cornish took issue with it, but did see it as a start. In June 2009 the Update was issued, as was the comprehensive Institute for Public Policy Research document on a national security strategy for the United Kingdom. How responsive is the Update to the concerns raised by Cornish and the discussion in the IPPR document? What additional updates, if any, would you recommend to the Cabinet Office to respond to Cornish and IPPR observations in the next Strategy?

Week 13: Atlantic Storm: Managing an International Catastrophe
What can we learn from potential international events and how officials might react to them? This week presents the Atlantic Storm exercise. The learning objective for this week is to draw on the past class learning to assess the decisions of world leaders in responding to a terrorist attack that spreads smallpox worldwide.

Readings
Atlantic Storm instructions and written exercise material will be made available on the S drive.

Possible Class Discussion Questions
1. Atlantic Storm was convened in January 2005. Since that time there have been considerable efforts relating to pandemic event preparedness, such as the pandemic flu efforts (see, for example, http://www.pandemicflu.gov). As you review the events and decision of the world leaders to the terrorist-initiated smallpox outbreaks, what do you believe remain very difficult, if not intractable, issues for world leaders as they confront a global crisis such as this event?
2. One of the conclusions reached at the end of the exercise is that homeland security cannot be achieved without attention to the abilities of neighboring states and allies to prevent and respond to large epidemics. If you were tasked with designing a holistic approach to homeland security looking beyond geographic borders, what would be the central components of your program?

Week 14: Student National Strategy Analytical Memo Briefs
What should be the content and implementation approach for a new national homeland security strategy? Student presentations of their final product.

Week 15: Lessons Learned from Israel
What can we learn from a "best practice" country? This week the class will discuss Israel's counterterrorism strategies and practices and applications to the United States.

Readings:
Possible Class Discussion Questions
1. Some argue that Israel presents a very weak case example for other countries to follow because of differences in size, resources, and threats. What do you think?
Texas A&M University

Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus.

1. This request is submitted by the Department of ___________ Bush School of Government and Public Service

2. Course prefix, number and complete title of course: PSAA 606: Environmental Policy and Management

3. Catalog course description (not to exceed 50 words): Covers environmental policy areas, including air and water pollution, toxic waste disposal, public land use, sustainable development, and resource conservation. Explores actions of governmental institutions and actors at all levels in their efforts to implement and manage environmental policy.

4. Prerequisite(s):
   Graduate Classification
   Cross-listed with:
   Cross-listed courses require the signature of both department heads.

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

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

7. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)
   MPSA (Master of Public Service and Administration Program)

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

9. Prefix

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    Lect. | Lab | SCH | CIP and Fund Code | Admin. Unit | Acad. Year | CICE Code |
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Approval recommended by:

Jeryl L. Mumpower
Department Head - Type Name & Sign Date

Chair, College Review Committee
Date

Dean of College
Date

October 8, 2009

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.
Environmental Policy and Management
PSAA 606
Tues & Thurs/8:00-9:15AM
Room 1055

Instructor: Dr. Ann Bowman
Office: Allen 1089
Office Hours: Tuesdays & Thursdays 9:30 – 11:00 AM, and by appointment
Contact information: E-mail: abowman@bushschool.tamu.edu Phone: 979-862-4779

Course description:
This course offers a wide-ranging analysis of contemporary environmental policy and management in the U.S. In the political arena, the theoretical traditions of environmentalism—pastoralism and progressive conservatism—encounter the reality of the dominant social paradigm: free market economics, growth and progress, and faith in science and technology. It is in this context that environmental policymaking occurs. PSAA 689-601 covers an array of environmental policy areas, e.g., air and water pollution, toxic waste disposal, public land use, sustainable development, and resource conservation, as well as various stages of the policy process. In addition, the course explores the actions of governmental institutions and actors at all levels in their efforts to implement and manage environmental policy.

Course objectives:
This course is designed primarily for students who anticipate employment in fields related to environmental policy or management. Therefore it aims to provide (a) relevant theory and background, (b) contemporary research on environmental policy and management, (c) exposure to actual jurisdictions and policymakers, and (d) opportunities for students to develop and apply appropriate policy development and management skills. Also, there may be students taking this course who are simply interested in this policy area, despite their career goals. Both groups of students are welcomed!

Texts (required):

Class environment:
1. Respect is important for an effective learning environment. Please arrive on time and prepared to contribute. Please turn pagers and phones to silent mode. Do not talk over others (that is,
interrupt) during class discussions. Respect, in this setting, requires that (a) you are prepared and (b) your contributions reflect that preparation.

2. **We will operate with a “screens down” approach to laptops during the class, except as indicated by your instructor.**

3. **Readings are to be completed before the class for which they are assigned.**

4. Please **check email and ELearning regularly**. I will communicate with you via email, both individually and as a class, and via the course website on ELearning. You are responsible for being aware of the information distributed through these media.

5. For **writing assignments**, use either Times New Roman (11 or 12 point) or Arial (10 or 11 point). All written work should be single-spaced and comply with instructions and Bush School standards. Assignments should be submitted electronically to the E-Learning website for this class on the Tuesday of the week it is due (except DQs, as noted below). Include your name in the document’s name for each assignment. Students are to work independently on all assignments.  
   **NOTE:** **writing quality matters. Poorly-written papers containing the same substantive information as well-written papers will receive lower grades.**

**Assignments:**
The maximum number of points possible in this class is 100.

**Discussion questions**
(10 points total)
Due dates: Weeks 4 - 13

Each student will prepare 3 discussion questions based on assigned readings for the week. These questions are to be posted on the E-Learning site by Monday at noon of the week they are due so that other students can access them prior to class. These questions will guide our in-class discussion of the readings.

**Briefs**
(10 points each, 30 points total)
- Policy brief: Develop a proposal for a new EP or RC policy to a city council (2 pp.) Week 3  
  - Council members react to the proposal/raise questions.
  - Write a follow-up brief addressing the council’s concerns/questions (2 pp.) Week 5
- Implementation brief: Develop a plan for the policy’s implementation (2 pp.) Week 7  
  - City manager reacts to the plan raises questions.
  - Write a follow-up brief responding to the manager’s concerns/questions (2 pp.) Week 9
- Case brief: dissect a case, summarizing the facts, identifying key issues, designing solutions, making recommendations. (3 pp.) Variable weeks.

**Memos**
(10 points each, 30 total.)
- Write a memo summarizing the key features of major federal legislation. In-class assignment, Week 4 (Th)
- Write a memo identifying and discussing the implementation issues in major federal legislation. Make recommendations for improvements. In-class assignment, Week 6 (Th)
• Write a memo outlining a promotional campaign for a new environmental program adopted by a major city. (The actual program will be determined by your instructor.) Defend the new program, decide how you will promote it, select appropriate policy instruments, and sell the program to skeptical residents. Anticipate resistance. Identify performance measures used to gauge the campaign's success. (3 pp) Week 10

Research Paper: Environmental Protection Policy OR Resource Management
(20 points)
Due dates:
Select the issue/problem/challenge in Week 3 (Th), subject to approval by your instructor.
Submit paper Week 14.
In class presentation Week 14 (and Week 15, if necessary, depending on size of class).
Periodic informal progress reports are required.

Environmental Protection Policy: Each student will identify an environmental issue/problem, research the politics of it, and propose a policy solution (in the form of a new ordinance, regulation, or legislation). While your proposed solution should be informed by what has happened in other jurisdictions (e.g., San Francisco bans the use of plastic checkout bags at grocery stores, Salt Lake City allows drivers of hybrid vehicles to park free in city parking garages, the state of Michigan imposes a refundable deposit on beverage containers, the state of California is committed to reducing the emission of greenhouse gases over a specific time period, etc.), it has to be applied to the state of Texas or a city, county, or metro area in the state. Students are expected to gather data (collect information such as the background of the issue/problem, the options for addressing it, the potential obstacles, the unintended consequences, etc.) from various sources. Interviews with policymakers and other stakeholders are likely.
10 pages in length (bibliography, tables, graphs should be included in an appendix).

OR

Resource Management: From a list of specific resource management challenges (e.g., biodiversity in the Florida Everglades, pollution in the Chesapeake Bay, sustainability in the city of Houston, etc.), students will select one to resolve. One-third of paper will describe the extant management approach to the issue and the relative strengths and weaknesses of this approach. Two-thirds of the paper will be devoted to developing, explaining, and justifying an original solution to the management challenge. (Be creative but within the realm of possibility.) Completing this assignment successfully will require the close acquaintance with the specifics of the issue, use of documents, interviews, online information, and other research that has been conducted. If the problems were easy to resolve, they would have been fixed long before now.
10 pages in length (bibliography, tables, graphs should be included in an appendix).
Due date: Week 14, before the start of class

Class contribution
(10 points)
Students are expected to participate in class. This means having read the week's readings and being prepared to take part in discussions about the readings (including cases and the simulation). Some
students are more talkative than others, but if we learn to discuss issues effectively, we will learn from all class members.

Grade standards:

<table>
<thead>
<tr>
<th>Points</th>
<th>Grade</th>
<th>Standard / Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 – 100</td>
<td>A</td>
<td>Demonstrates consistently exceptional performance. Demonstrates a clear, thorough understanding of the material. Assignments are professional, clear, concise, well written. Supports class knowledge through positive interaction with other students. Demonstrates a mastery of the material.</td>
</tr>
<tr>
<td>80 – 89.99</td>
<td>B</td>
<td>Meets requirements of the course. Solid performance demonstrates proficiency and understanding of the material. Assignments are written and edited at a level that is acceptable. Contributes to class discussions.</td>
</tr>
<tr>
<td>70 – 79.99</td>
<td>C</td>
<td>Demonstrates a minimal understanding of the material or satisfies the minimal requirements of assignments. Assignments may be poorly written or edited, or their logic may be faulty. Quality of work may be uneven.</td>
</tr>
<tr>
<td>60 – 69.99</td>
<td>D</td>
<td>Performance indicates a substandard understanding of the material. Most assignments lack the quality that is expected of a student in graduate school. Research is inadequate, as is the presentation of the ideas orally or in writing.</td>
</tr>
<tr>
<td>&lt; 60</td>
<td>F</td>
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</table>

Course Schedule

<table>
<thead>
<tr>
<th>Dates</th>
<th>Topic</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Introduction to the course Video: Hot Politics</td>
<td>Instructor’s handouts</td>
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<tr>
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<tr>
<td>Week 2</td>
<td>Environmentalism: the beginning</td>
<td>Carson, Silent Spring</td>
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<tr>
<td></td>
<td></td>
<td>• Kraft, Environmental Policy and Politics, 2007, Chapters 5 &amp; 6;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• O'Connor, et al., Who Wants to Regulate GHG? SSQ 2002;</td>
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<td></td>
<td></td>
<td>• Webber, Earth Day, RPR 2008</td>
</tr>
<tr>
<td>Week 3</td>
<td>Background: U.S. Environmental Protection and Natural Resource policy</td>
<td>AEP 1 &amp; 2;</td>
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<tr>
<td></td>
<td></td>
<td>• Scheberle, Evolving Matrix of Environmental Federalism, Publius 2005;</td>
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<tr>
<td></td>
<td></td>
<td>• Arrandale, Pollution Puzzle, Governing 2002</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• CASE 1</td>
</tr>
<tr>
<td>Week 4</td>
<td>Federal policymaking gridlock</td>
<td>AEP 3 &amp; 4;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Davis, Forest Ranger, RPR 2008;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• O'Hare, Environmental Agencies’ Funding, PSJ 2006</td>
</tr>
</tbody>
</table>
| Week 6 | The Role of the Courts in Environmental Policy, Collaboration and regulatory strategies | • *AEP* 5 & 6  
• Meyer & Konisky, Local Institutions & Environmental Outcomes, *PSJ* 2007;  
• Koehler, Effectiveness of VEPs, *PSJ* 2007 |
|---|---|---|
| Week 7 | The States and Environmental Policy  
Green drift | • *AEP* 7 & 8;  
• Woods, Race to Bottom SSQ 2006;  
• Rabe, States on Steroids *RPR* 2008  
• CASE 2 |
| Week 8 | Sustainable cities I | • *TSCS* 1-3;  
| Week 9 | Sustainable cities II | • *TSCS* 4-8 |
| Week 10 | Environmental management basics | • *Managing*, Part 1;  
• Koontz, Federal & State Public Forest Administration, *PAR* 2007  
• CASE 3 |
| Week 11 | Environmental stakeholders | • *Managing*, Part 2;  
• Busenberg, Managing the Hazard, *RPR* 2008;  
• Pautz, Perceptions of the Regulated Community, *RPR* 2009 |
| Week 12 | Delivering environmental protection | • *Managing*, Parts 3 & 4 |
| Week 13 | Simulation: Resolving environmental dilemmas | • Raymond, Cooperation without Trust, *PSJ* 2006;  
• Schlager & Heikkila, Resolving Water Conflicts, *PSJ* 2009;  
• Lubell & Fulton, Local Policy Networks, *JPART* 2008  
• Vock, Great Lakes States Protect Their Water, stateline.org |
| Week 14 | Research presentations | • No additional reading |
| Week 15 | Research presentations |

**Academic Integrity Statement:** AGGIE HONOR CODE

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

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

On all course work, assignments, or examinations at Texas A&M University, the following Honor Pledge shall be pre-printed and signed by the student:

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

For work submitted electronically in PSAA 689, please include this statement at the end of the assignment:

In submitting this assignment I affirm that, on my honor as an Aggie, I have neither given nor received unauthorized aid on this academic work.

Plagiarism

The University Student Rules define plagiarism as "failing to credit sources used in 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," (p. 19).

Plagiarism is an extremely serious form of academic dishonesty and could have severe consequences for any individual who engages in such practices including course failure and dismissal from the Bush School and the university. It is critically important that each student understand the correct manner in which to cite material quoted or paraphrased from another source including material drawn from public or electronic sources.

If a student is uncertain as to where and how to acknowledge material drawn from another source, it is imperative that he or she obtain guidance from the appropriate faculty member or the Bush School writing consultant before making a presentation or submitting a paper that uses material from others. Students working together on team projects should be careful to make certain that other members of their group have conformed to correct citation practices. Failure to do so can make all members of the group responsible for a collectively submitted work. It is important that everyone understand that plagiarism is not only about academic integrity, it is also about intellectual property rights and respect for others.

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 or call 845-1637. For additional information, visit http://disability.tamu.edu
From: "Mumpower, Jeryl" <jmumpower@bushschool.tamu.edu>
To: "Sarah Bednarz" <s-bednarz@tamu.edu>
CC: "Kirkpatrick, Sam" <skirkpatrick@bushschool.tamu.edu>
Date: 10/11/2009 6:01 PM
Subject: RE: Proposed new Bush School course PSAA 606 Environmental Policy and Management

Sarah,

Many thanks.

Jeryl

Jeryl L. Mumpower
Professor and Director of the Master in Public Service and Administration Program

Joe R. and Teresa Lozano Long Chair
The Bush School of Government and Public Service
Texas A&M University
1092 Allen Building, 4220 TAMU
College Station, TX 77843-4220
Direct: 979-458-8022 FAX: 979-845-4155
<mailto:jmumpower@bushschool.tamu.edu> jmumpower@bushschool.tamu.edu
http://bush.tamu.edu

From: Sarah Bednarz [mailto:s-bednarz@tamu.edu]
Sent: Sunday, October 11, 2009 1:44 PM
To: Jeryl Jeryl Mumpower
Subject: Fwd: Proposed new Bush School course PSAA 606 Environmental Policy and Management

From the Director of Environmental Programs, Geosciences. I will forward what I get from the Head of Geography when I receive it.

Thanks--

Sarah Bednarz

Begin forwarded message:
From: Andrew Millington <acmillington@gmail.com>

Date: October 10, 2009 2:52:53 AM CDT

To: Sarah Bednarz <s-bednarz@tamu.edu>

Subject: Re: Proposed new Bush School course PSAA 606 Environmental Policy and Management

Dear Sarah

From the viewpoint of Environmental Programs in Geosciences, there is no objection to this course.

Andrew Millington

On Fri, Oct 9, 2009 at 10:23 PM, Sarah Bednarz <s-bednarz@tamu.edu> wrote:

Gentlemen: Please review and let me know by an email I can forward (which will be part of the record for this course) that PSAA is, in fact, not in conflict with our offerings.

Many thanks,

Sarah

Begin forwarded message:

From: "Mumpower, Jeryl" <jmumpower@bushschool.tamu.edu>

Date: October 9, 2009 3:06:40 PM CDT

To: "James R. Rogers" <ROGERS@politics.tamu.edu>, <s-bednarz@tamu.edu>

Cc: "Reeves, Kimberly" <kreeves@bushschool.tamu.edu>

Subject: Proposed new Bush School course PSAA 606 Environmental Policy and Management
Dear Jim and Sarah:

I am writing in my capacity as Program Director for the Master in Public Service and Administration Program at the Bush School.

I understand from Sam Kirkpatrick that the Graduate Council would like to ascertain whether either of you has any objection to a new course being proposed by the Bush School, PSAA 606 Environmental Policy and Management.

The course objectives state

This course is designed primarily for students who anticipate employment in fields related to environmental policy or management. Therefore it aims to provide (a) relevant theory and background, (b) contemporary research on environmental policy and management, (c) exposure to actual jurisdictions and policymakers, and (d) opportunities for students to develop and apply appropriate policy development and management skills.

I'm also attaching a copy of the syllabus for your review.

Let me know if you need any further information.

Thanks,

Jeryl

__________________________
Jeryl L. Mumpower
Professor and Director of the Master in Public Service and Administration Program

Joe R. and Teresa Lozano Long Chair
The Bush School of Government and Public Service
Texas A&M University
1092 Allen Building, 4220 TAMU
College Station, TX 77843-4220
Sarah Witham Bednarz
Associate Dean for Academic Affairs
Professor of Geography
College of Geosciences
Texas A&M University
College Station, Texas 77843-3148
s-bednarz@tamu.edu

PHONE: 979/845-3651
FAX: 979/845-0056
CELL: 979/229-7247
http://agsss.tamu.edu <http://agsss.tamu.edu/>
http://geft.tamu.edu <http://geft.tamu.edu/>
SKYPE: sarahbednarz

"I should never have surrendered. I should have fought until I was the last man alive."
Geronimo, February 17, 1909

--
Dr. Andrew Millington,
Director of Environmental Programs in the College of Geosciences
Professor of Geography,

Mailing address: O&M Building 810, Texas A&M University, College Station
TX 77843-3147, USA

Office: 204 O&M Building
T: +1 979 845 6324,
F: +1 979 862 4487, E: millington@geog.tamu.edu

Faculty profile: http://geography.tamu.edu/profile/AMillington
Environmental Programs: http://enst.tamu.edu/

_______________________________________________________________

Sarah Witham Bednarz
Associate Dean for Academic Affairs
Professor of Geography
College of Geosciences
Texas A&M University
College Station, Texas 77843-3148
s-bednarz@tamu.edu

PHONE: 979/845-3651
FAX: 979/845-0056
CELL: 979/229-7247
http://agsss.tamu.edu
http://geft.tamu.edu
SKYPE: sarahbednarz

_______________________________________________________________

"I should never have surrendered. I should have fought until I was the last man alive."

Geronimo, February 17, 1909
Texas A&M University
Departmental Request for a Change in Course
Undergraduate ♦ Graduate ♦ Professional
Submit original form and attachments

1. This request is submitted by the Department of
   Ecosystem Science and Management

2. Course prefix, number and complete title of course: ESSM 663 Applied Spatial Statistics

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

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

   d. Change in course title and description. Enter complete current course title and current course description in item 4; enter proposed course title and proposed course description in item 5.

   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 6. Attach a course syllabus.

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

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

6. a. As currently in course inventory:

   Prefix  Course #  Title (excluding punctuation)
   ESSM  663  APPLIED SPATIAL STATISTICS

   Lect.  Lab  SCH  CIP and Fund Code  Admin. Unit  EICE Code  Level
   0 2 0 2 0 3 2 7 0 5 0 1 1 0 0 2 0 8 4 1 0 3 6 3 2 6

   b. Change to:

   Prefix  Course #  Title (excluding punctuation)
   ESSM  663  APPLIED SPATIAL STATISTICS

   Lect.  Lab  SCH  CIP and Fund Code  Admin. Unit  Acad. Year  EICE Code  Level
   0 3 0 3 0 4 2 7 0 5 0 1 1 0 0 2 0 8 4 1 0 - 1 1 0 3 6 3 2

   Approval recommended by:
   Jianbang Gan
   Department Head – Type Name & Sign  Date

   Wayne Smith
   Department Head – Type Name & Sign (if cross-listed course)  Date

   Chair, College Review Committee
   Date

   Dean of College
   Date
   October 8, 2009

   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 – 12/08
Dear all
I am forwarding the original email of endorsement for Applied Spatial Statistics (AGRO 663 FRSC 663) by Dr. Sheather, Head of the Statistics department. You might note that we labeled the class 653 before we realized a number conflict and changed the number to 663 in the original request. Also attached is the updated syllabus with a grading scale and the ADA statement (that was already there).

Is there anything else?
Sincerely,
Cristine

=================================
Cristine Morgan
Assistant Professor of Soil Science
Dept. of Soil & Crop Sciences
Texas A&M University
Phone: 979.845.3603
E-mail: cmorgan@ag.tamu.edu

>>> "Simon Sheather" <sheather@stat.tamu.edu> 8/14/2006 3:35 PM >>>
Cristine

Thank you for your email. I am happy to endorse your course

AGRO/FRSC 653 Applied Spatial Statistics.

Please let me know if you require anything else.

Regards

Simon

Simon Sheather
Professor and Department Head
Department of Statistics
Texas A&M University
3143 TAMU
College Station, TX 77843-3143
E-Mail: sheather@stat.tamu.edu

Telephone: 1 979 845 3141
Fax: 1 979 845 3144

Assistant: Jennifer S. Reyes
Telephone: 1 979 845 3191
E-mail: jennifer@stat.tamu.edu

From: Cristine L Morgan [mailto:cmorgan@ag.tamu.edu]
Sent: Monday, August 07, 2006 11:02 AM
To: Simon Sheather
Subject: I need your approval - RE: our spatial stats class

Dear Simon,

Marian and I are applying for a number for the applied spatial stats class we taught this past spring. The class went very well and Mike Sherman gave an excellent guest lecture for the course.

We want to give it a AGRO/FRSC 653 number and call the class Applied Spatial Statistics. If you prefer a different name for the class, we can change it. I would like to have your approval of this request to make this a numbered class.

I have attached the syllabus for your information. Would you please send me an email acknowledging your support for our class? I will then forward the email to Lynette Hovel to accompany our request for a number.

Sincerely,
Cristine

===============================================
Cristine Morgan, Ph.D.
Assistant Professor, Dept. of Soil & Crop Sciences
Texas A&M University
Phone: 979.845.3603
E-mail: cmorgan@ag.tamu.edu

file://C:\Documents and Settings\huval\Local Settings\Temp\XPgrpwise\4AB8CDB8wpodom1A... 9/22/2009
June 29, 2009

MEMO

RE: Request for change in credit hours for SCSC/ESSM 663

FROM: Cristine Morgan, Assistant Professor Soil & Crop Sciences
Marian Eriksson Associate Professor Ecosystem Science and Management

Drs. Morgan and Eriksson have been teaching SCSC/ESSM 663, Applied Spatial Statistics, every spring semester since spring semester 2005. Based on student evaluations, which primarily comment on 1) the workload is very high and 2) desire to see more application of methods, we have decided to request a change to increase the credit hours for this class. We would like to increase the lecture time by one hour, making the class a total of 4 credits. This would change the class from its current 2 hr. lecture and 2 hr. lab to a 3 hr. lecture and 2 hr. lab. The extra hour of lecture will be used to further discuss homework assignments, 2) provide more examples, and 3) discuss recent literature that has successfully applied spatial statistics to research problems. In addition we have gone from students reviewing and reporting on one peer-reviewed publication to students writing a literature review (approx. 8 pages) containing at least 10 peer-reviewed journal articles on a statistically relevant topic of their choice. To compensate for a portion of the work load increase, exams have been dropped from the course. We feel these additions to class discussion and additions to the writing assignment warrant an increase in classroom time and credit hours, while also better preparing graduate students for their thesis/dissertation work and future employment.

Supporting documents include an older syllabus (SCSCESSM663_syllabus_2008.doc), our newly revised syllabus with changes highlighted (SCSCESSM663_syllabus_200X.doc), and documentation of the new literature review assignment.
SYLLABUS

Instructors:  Dr. Marian Eriksson, Centeq 230 or HFSB 320, Phone: 845-6638  
             m-eriksson@tamu.edu  
             Dr. Cristine Morgan, Heep Center 545, Phone: 845-3603  
             cmorgan@ag.tamu.edu

Office Hours: By appointment, after class

Course Description:  An introduction to the theory and practice of spatial statistics as applied to the natural resources.  Spatial analyses focusing primarily on kriging; point processes; lattice data.  Prerequisites: MATH 141, 142; STAT 302; ESSM 461, or the equivalent.  Spatial statistics and other spatial modeling techniques are being used at an increasing rate in the natural resources fields and are often misunderstood.  Practitioners often want to use the “push-button” approach to analyzing spatial data and lack an understanding of the tools they are using.  As such, assumptions underlying the statistical tools may not be met and/or an intuitive and thorough understanding and interpretation of the results is lacking.

Objectives:  The specific objectives of this course are to introduce the student to the field of spatial statistics and to give the student an opportunity to analyze and interpret data sets associated with the natural sciences.  At the end of this course, we expect the student to be able to do the following:

1. Understand basic techniques for analyzing spatial data
2. Use basic R code (written in lab & homework) to explore, describe, analyze and interpret spatial data
3. Apply techniques learned in class to their own research data.

Students will not leave this course as experts in the field of spatial statistics, but with a sufficient understanding of the tools and their use so that they are equipped to build on their knowledge as their careers, academic and professional, demand.

Students should leave this course with:

(1) An appreciation of the difference between spatial smoothing and spatial interpolation and between stochastic and deterministic fitting of models to spatial data.

(2) An understanding of the foundations upon which simple and ordinary kriging models are built.

(3) An understanding of spatial correlation, spatial covariance, variograms, and the relationships between these quantities.

(4) An appreciation of how covariance/variogram models are fitted, the use of computer software to fit variogram models, and an awareness of some of the differences between spatial statistical computer programs.

(5) An appreciation of the effects of trend and how to deal with trend and an awareness of other kriging and spatial regression models.

(6) An awareness of characteristics of point processes, contagion, and of various tests for spatial randomness and distribution.

(7) An awareness of the characteristics lattice data that differentiate it from “geostatistical” data and the existence of spatial regression models based on BW configurations.

Course Conduct: The course will be divided into four distinct sections. In the first section, lasting about four weeks, we will review matrix algebra, constrained and unconstrained minimization of polynomials, simple linear regression and multiple linear regression as motivated by geographically weighted regression. In the second section, about two weeks, we will focus on measures of spatial dependence and will introduce analysis tools for lattice-type data; the third section, lasting about five weeks will introduce
the concepts of covariance/variogram modeling and spatial interpolation using kriging. In the final section, we will consider tests for spatial distribution of regular, random, and clustered point processes.

Formally the course is comprised of three hours of lecture and two hours of lab each week. Weekly or biweekly homework will be assigned. All materials will be downloadable from the course website at [http://tarc.tamu.edu](http://tarc.tamu.edu). You will also use this website to upload digital solutions; written solutions may, of course, be given to the instructors. Your initial login password will be your first initial, dash, last name (all lower case) as in m-eriksson. YOU SHOULD CHANGE this password the first time you log in.

**GRADING:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Regular Homework/Labs</td>
<td>70%</td>
</tr>
<tr>
<td>Discussion of Literature</td>
<td>10%</td>
</tr>
<tr>
<td>Written Research Paper</td>
<td>20%</td>
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**GRADE SCALE:**

<table>
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<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90-100</td>
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<td>80-89</td>
<td>B</td>
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<td>70-79</td>
<td>C</td>
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<td>60-69</td>
<td>D</td>
</tr>
<tr>
<td>&lt; 60</td>
<td>F</td>
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</tbody>
</table>

**Homework:** The importance of homework assignments cannot be overemphasized. Almost all of your learning will take place while working on the assigned problems. You are encouraged to work together if that is how you believe you best learn, but the work is expected to be your own. In the case of “hand” calculations, you must show all of your work in order to receive full credit.

**Research Paper:** Throughout the semester, each student will be working on a literature review. As part of lecture, we will be assigning and discussing literature in the class. The literature review will be on a spatial statistics topic of your choice (for example, geostatistical methods in soil mapping in the last 10 years), and preferably in your area of research interest. The goal of this assignment is to get you educated on spatial statistics in your discipline and to give hands-on writing and editing experience.

No “special” extra credit will be made available. If a discrepancy or disagreement should arise over the grading of any material in this course, the student should write an explanation of the problem and why he or she believes some adjustment should be made, attach the explanation to the material in question, and present the material to the instructor within one week of when the material was returned to the student. The instructor will evaluate all written requests of grading reviews and make any necessary adjustments.

**Required Text:** Eriksson, M. and C. Morgan. Draft. *Spatial Statistics for Natural Resource Applications*. [http://tarc.tamu.edu](http://tarc.tamu.edu). We have yet to find a text book that is comprehensive and moderately priced. Hence we have many text books for you to look at or check out in the Soil’s library in room 540 Heep Center.

**Aggie code of honor:** “An Aggie does not lie, cheat, or steal or tolerate those who do.”

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information please visit: [www.tamu.edu/aggiehonor/](http://www.tamu.edu/aggiehonor/)
Americans with Disabilities Act (ADA) Policy Statement: The Americans with Disabilities Act (ADA) is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room B118 of Cain Hall or call 845-1637.
<table>
<thead>
<tr>
<th>Wk</th>
<th>Lect. #</th>
<th>Date</th>
<th>Topic</th>
<th>Lab/Homework Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Jan. 20</td>
<td>Housekeeping; Review matrix algebra</td>
<td>R Basics, Matrices</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Jan. 22</td>
<td>Constrained and unconstrained minimization</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>Jan. 27</td>
<td>Simple linear regression; Correlation</td>
<td>Regression in R</td>
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<tr>
<td></td>
<td>4</td>
<td>Jan. 29</td>
<td>Multiple linear regression</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>Feb. 03</td>
<td>Generalized least squares</td>
<td>OLS, GLS, ANOVA</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Feb. 05</td>
<td>Geographically weighted regression</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>Feb. 10</td>
<td>Continue GLS, GWS, assumptions</td>
<td>GLS, GWR</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Feb. 12</td>
<td>Continue GLS, GWS, assumptions</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td>Feb. 17</td>
<td>Lattice: neighborhood structures</td>
<td>Analyzing data with Geary's C and Moran's I</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Feb. 19</td>
<td>Geary’s C and Moran’s I</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>Feb. 24</td>
<td>SAR CAR</td>
<td>Using SAR models; simulating lattice data</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Feb. 26</td>
<td>SAR CAR</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>13</td>
<td>Mar. 03</td>
<td>Lattice versus GWS Analysis</td>
<td>Intro to kriging</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Mar. 05</td>
<td>Kriging as an interpolator; MSPE;</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>15</td>
<td>Mar. 10</td>
<td>Minimization of the Lagrangian</td>
<td>Variogram models; Covariance Matrices</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>Mar. 12</td>
<td>Covariance and variograms; Simple kriging</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Spring Break March 16-20</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>17</td>
<td>Mar. 24</td>
<td>Variogram models</td>
<td>Variogram modeling; Fitting empirical models</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>Mar. 26</td>
<td>Variogram modeling; local and global</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>19</td>
<td>Mar. 31</td>
<td>Anisotropy, nuggets, stationarity</td>
<td>Fitting empirical models and transformations</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>Apr. 02</td>
<td>Mike Sherman: Assuming isotrophy</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>21</td>
<td>Apr. 07</td>
<td>Removing trend, Universal kriging</td>
<td>Transformations and anisotropy</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>Apr. 09</td>
<td>Other interpolators – cokriging</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>23</td>
<td>Apr. 14</td>
<td>Introduce point processes</td>
<td>Testing and simulating point processes</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>Apr. 16</td>
<td>SSI, CSR, clustered data; Quadrant analysis</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>25</td>
<td>Apr. 21</td>
<td>Quadrant analysis, Lhat</td>
<td>Analyzing point processes</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>Apr. 23</td>
<td>Ghat, F and K tests</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>27</td>
<td>Apr. 28</td>
<td>Review, catch-up</td>
<td>Presentation of papers</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>Apr. 30</td>
<td>Review</td>
<td></td>
</tr>
</tbody>
</table>
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
- Submit original form and attachments -

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

2. Course prefix, number and complete title of course: HORT 611 Urban Landscape Ecology

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

4. Complete current course title and current catalog course description: Urban Landscape Ecology. Basic concepts and current topics in urban landscape ecology. Urban and fragmented ecosystems ranging from individual plant responses to ecosystem scale changes. Students will participate in discussion and critique recent literature in the field of urban plant ecology. Prerequisite: an undergraduate or graduate course in plant biology or plant ecology is recommended.

5. Complete proposed course title and proposed catalog course description (not to exceed 50 words): Ecology of Urban Landscapes. Basic concepts and current topics in ecology or urban landscapes. Role of plants in urban and fragmented ecosystems ranging from individual plant responses to changes in ecosystem function. Students will discuss recent literature in the field of urban plant ecology. Prerequisite: an undergraduate or graduate class in plant biology or plant ecology is recommended.

6. As currently in course inventory:

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course #</th>
<th>Title (excluding punctuation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORT</td>
<td>611</td>
<td>URBAN LANDSCAPE ECOLOGY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lect.</td>
<td>Lab</td>
<td>SCH CIP and Fund Code Admin. Unit FICE Code Level</td>
</tr>
<tr>
<td>0</td>
<td>3</td>
<td>0 0 3 2 6 0 7 0 2 1 5 2 0 0 3 6 3 2 6</td>
</tr>
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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>HORT</td>
<td>611</td>
<td>ECOLOGY URBAN LANDSCAPE</td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lect.</td>
<td>Lab</td>
<td>SCH CIP and Fund Code Admin. Unit Acad. Year FICE Code Level</td>
</tr>
<tr>
<td>0</td>
<td>3</td>
<td>0 0 3 2 6 0 7 0 2 1 5 2 0 1 0 0 3 6 3 2 6</td>
</tr>
</tbody>
</table>

Approval recommended by:

David Byrne
Department Head – Type Name & Sign Date

Chair, College Review Committee Date

Dean of College Date

October 8, 2009

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra-williams@tamu.edu.
Curricular Services – 17/08

134 of 149 B
A change in course title and description for HORT 611 Urban Landscape Ecology to HORT 611 Ecology of Urban Landscapes is requested so that the course title and description better fit the course content. The term Landscape Ecology is generally used to describe landscape scale processes using techniques such as geographical information systems (GIS). The course content is focused on the role that plants play in the ecology and function of urban landscapes. Thus, the title “Ecology of Urban Landscapes” better fits the course content. The description has been modified to better reflect the content as well.
HORT 611 Ecology of Urban Landscapes – Spring 2011

Prerequisites
An undergraduate or graduate class in basic plant biology and/or plant ecology is recommended.

Instructor
Dr. Astrid Volder
Office: 406 Horticulture/Forest Science Building (HFSB)
Phone: 845-9277
Email: a-volder@tamu.edu

Office hours
I will set aside time for open office hours after class. However, please feel free to send me email anytime with questions, comments, or to arrange a meeting in person. I will typically reply to email within 1-2 days.

Web-based course materials
A companion website for the course is located on https://www.horticulture.tamu.edu/courses/ . As a registered student, you will have access to the website through the internet. The website is an essential course tool. Grades will be posted on WebCT as per TAMU guidelines.

Course objectives
Upon completion of this course you will be able to:
• Identify what types of environmental stress are typical for urban landscapes.
• Explain how plants in urban landscapes respond to urban stresses and projected climate change using your knowledge of plant physiology
• Identify what ecosystem services are, what role vegetation plays in providing these services, and which ones are particularly important in urban landscapes
• Create a conceptual diagram of the most important factors affecting plant growth in urban environments.
• Critically analyze and critique recent literature in the field of urban plant ecology
• Discuss how global change may alter the ecology of urban landscapes.

Course description and format
Hort 611 Ecology of Urban Landscapes is a 3-credit lecture course. We will explore basic concepts and current topics in urban landscape ecology through assigned readings, classroom discussion, lectures and slide shows. We will cover both urban and fragmented ecosystems, from individual plant responses to landscape scale changes. Students are expected to actively participate in the discussions, and find, present, and critique recent literature in the field of urban plant ecology.
RESPONSIBILITIES AND EVALUATION

1) **Required reading**
You will read the assigned material before each class period and participate in discussions, lectures, and activities. To excel in this course, attendance at all class sessions is mandatory. The lectures and in class activities will usually focus on the same topics, but may address either the specific reading or completely different materials, depending on the comprehensiveness or importance of the reading, its difficulty, and the total information that needs to be covered. Therefore, do not assume that materials in the readings will be covered in class. In addition to the assignments, supplemental readings may be assigned for some topics. These readings will be posted on the course website. Even if no review (see below) is made for the reading, I will assume that you have read the readings and the topic may come back in class discussions or exams.

2) **Paper reviews**
For each Wednesday class (see schedule) you will prepare a review of one of the assigned (scientific) papers. The review must assess the background & objectives (1 paragraph), methods & results (1 paragraph), a discussion of the results (1 paragraph), and your overall opinion of the paper (1 paragraph) for one of the scientific papers assigned. Use some of the following questions as a guideline for your summary/review.
1. What major questions is the research presented here meant to answer?
2. Are these questions relevant/important in your opinion?
3. Are the methods designed to answer the questions? Are there any problems with the methodology?
4. Are the results clearly presented and relevant to the questions?
5. Does the discussion discuss the questions/hypotheses posed in the introduction?
6. Does the discussion stick to the facts (i.e. do the results found support the discussion)?
7. Overall, was this a worthwhile paper to read? Did you learn anything?
**The review is due at 1 pm on the Wednesday that the assignment is due.** This is important because I use the reviews to make any last minute adjustments to the lecture based upon issues that may be raised in the reviews. There will be 20 points per review for ten reviews, 200 points maximum. If you submit more reviews (i.e. for 12 class sessions), the ten highest grades will count.

3) **Presentations**
You will present several times (depending on the number of students enrolled) throughout the course, depending on the amount of available time slots. Each student is expected to find one original, peer-reviewed, research paper that fits the topic of the day and present the findings of these papers to the class for discussion. It must be clear from the presentation what the hypotheses in the papers were, how the experiments were designed, what the major results were and how these results fit with the topic of the day. You will need to search for additional background information beyond the paper presented and you should use this information to help your audience (which has not read the paper) understand the framework for the research. You will have to critically evaluate the work presented in the papers and will take the lead in discussing the papers. Please contact me at least one week in advance to make sure that the papers you have chosen are of appropriate length and fit the topic. More information will be given in class and a grading guide will be posted on WebCT. The total points for the presentations is 600, if there is one presentation per student the presentation will be worth 600 points, if there are 2 presentations, each will be worth 300 points, etc. **These presentation will be peer-reviewed and graded, which will account for fifty percent of the points!!**
4) **Evaluation and final grade**

<table>
<thead>
<tr>
<th>Course Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active class participation</td>
<td>200</td>
</tr>
<tr>
<td>10 Reviews submitted</td>
<td>200</td>
</tr>
<tr>
<td>Mid-term</td>
<td>500</td>
</tr>
<tr>
<td>Presentations (total)</td>
<td>600</td>
</tr>
<tr>
<td>Final exam</td>
<td>800</td>
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<tr>
<td><strong>Total</strong></td>
<td>2300</td>
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**Course letter grades**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Course letter grade</th>
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</thead>
<tbody>
<tr>
<td>≥ 90</td>
<td>A</td>
</tr>
<tr>
<td>≥ 80</td>
<td>B</td>
</tr>
<tr>
<td>≥ 70</td>
<td>C</td>
</tr>
<tr>
<td>≥ 60</td>
<td>D</td>
</tr>
<tr>
<td>&lt; 60</td>
<td>F</td>
</tr>
</tbody>
</table>

*I reserve the right to lower the point totals for the letter grade categories.*

**Other policies**

**Classroom environment.** Please silence cell phones, pagers, and other electronic devices before class. Please respect your fellow classmates by arriving on time and remaining in class the entire period.

**Participation credit.** In order to receive participation credit you have to be present for all sessions unless you have a university excused absence. If you miss a class session, and have a university excused absence, please contact me within 24 hours via e-mail or give me advanced notice.

**Exams and assignments**

All assignments and exams must be written and researched by the individual student. Answers will be checked for cheating (see below). During in-class exams, only pens, pencils and paper will be allowed.

**Late assignments.** No late assignments will be accepted. Credit on late assignments will only be granted for authorized, properly documented, university excused absences.

**Make-up exams.** Make-up exams are not permitted except for properly documented university excused absences. If you are not able to take the exam, please contact me before the scheduled exam time or within a 24-hour period after the scheduled exam period at the latest.

**Appeals.** Appeals for reevaluation of any exam questions will be accepted in writing. You are granted until 5 P.M. on the second full weekday following the return of an exam to present your case. Your argument must be a written statement concerning why you think your answer was right or did not receive the credit it deserved.
Course incompletes. The official TAMU regulations are: "The instructor shall give this grade only when the deficiency is due to an authorized absence or other cause beyond the control of the student."

Academic Integrity Statement

AGGIE HONOR CODE

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

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System.

Scholarship depends upon open and honest inquiry. Students have an ethical and moral responsibility to avoid cheating and to help prevent others from cheating. Texas A&M University expects academic integrity and strictly enforces policies against any form of scholastic dishonesty (See the Honor System website: http://www.tamu.edu/aggiehonor/). Please review the Student Rules at http://student-rules.tamu.edu/ for more information regarding these policies. Sanctions range from grade penalties (e.g. F*, 0 on an assignment), probation, and expulsion from the University.

AGGIE HONOR CODE - continued

The Texas A&M University Student Rules and Honor System define several forms of academic dishonesty, these include:

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

2. Fabrication: Making up data or results, and recording or reporting them; submitting fabricated documents.

3. Falsification: Manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.

4. Multiple Submission: Submitting substantial portions of the same work (including oral reports) for credit more than once without authorization from the instructor of the class for which the student submits the work.

5. Plagiarism: The appropriation of another person's ideas, processes, results, or words without giving appropriate credit.

6. Complicity: Intentionally or knowingly helping, or attempting to help, another to commit an act of academic dishonesty.

Americans with Disabilities Act (ADA) Policy Statement

The following ADA Policy Statement (part of the Policy on Individual Disabling Conditions) was
submitted to the University Curriculum Committee by the Department of Student Life. The policy statement was forwarded to the Faculty Senate for information. The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, 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.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Lecture or Activity</th>
<th>Review</th>
<th>Student Presentations</th>
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<tbody>
<tr>
<td>1b</td>
<td></td>
<td>Introduction to Urban Landscapes</td>
<td>What is urban? Ecosystem Services in Urban Areas</td>
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<td></td>
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<tr>
<td>2a</td>
<td></td>
<td>Plant responses to their physical environment</td>
<td>General climate; temperature, solar radiation, precipitation &amp; plant physiology</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>2b</td>
<td></td>
<td></td>
<td>Urban Soils; texture and structure; problems in urban areas</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>3a</td>
<td></td>
<td></td>
<td>Water and soils; water potential; drought and flooding; run-off and pollution in urban systems</td>
<td></td>
<td>Yes</td>
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<tr>
<td>3b</td>
<td></td>
<td></td>
<td>Biogeochemical cycles in an (semi) urban environment; the effects of vegetation and environmental changes</td>
<td></td>
<td>Yes</td>
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<tr>
<td>4a</td>
<td></td>
<td></td>
<td>Water cycle &amp; green roofs &amp; green roof plants</td>
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<td>Yes</td>
</tr>
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<td>4b</td>
<td></td>
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<td>Water quality and conservation – effects of urbanization</td>
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<td>Yes</td>
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<tr>
<td>5a</td>
<td></td>
<td></td>
<td>Carbon, nitrogen and air pollutants – effects of urban vegetation</td>
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<td>Yes</td>
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<td>5b</td>
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<td>Extra credit for seminar attendance at 4 pm (Horticulture &amp; Invasive Species in Urban Areas), HFSB 104</td>
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<tr>
<td>6a</td>
<td></td>
<td></td>
<td>Mid-Term exam</td>
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<tr>
<td>6b</td>
<td></td>
<td></td>
<td>Plant species diversity; survey methods, value and importance – role of urban parks &amp; gardens</td>
<td></td>
<td>Yes</td>
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<tr>
<td>7a</td>
<td></td>
<td></td>
<td>SPRING BREAK</td>
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<td></td>
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<tr>
<td>7b</td>
<td></td>
<td></td>
<td>Habitat fragmentation and species diversity in (semi) urban environments</td>
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<tr>
<td>8a</td>
<td></td>
<td></td>
<td>Invasive plant species in urban habitats</td>
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<td>Yes</td>
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<tr>
<td>8b</td>
<td></td>
<td></td>
<td>Global climate change – background.</td>
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<td>Yes</td>
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<tr>
<td>9a</td>
<td></td>
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<td>Global environmental change</td>
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<td>9b</td>
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<td>Carbon sequestration – planting trees</td>
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<tr>
<td>10a</td>
<td></td>
<td></td>
<td>Other research in urban areas</td>
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<tr>
<td>10b</td>
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<td>LTER research</td>
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<tr>
<td>11a</td>
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<td>Final Exam (comprehensive) May 12, 10:30-12:30</td>
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<td>11b</td>
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<tr>
<td>11c</td>
<td></td>
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</tbody>
</table>

1 Lecture order and topics may vary from the schedule described above.
2 Readings and discussion question postings are to be completed prior to lecture on the date shown. Additional required readings will be assigned for some topics.
3 The number of presentations per student will depend on the number of students signed up for the class.
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
Submit original form and attachments.

1. This request is submitted by the Department of Soil and Crop Sciences

2. Course prefix, number and complete title of course: SCSC 663 Applied Spatial Statistics

3. Change requested
   a. Prerequisite(s): From: ____________________________ To: ____________________________
   b. Withdrawal (reason): ____________________________
   c. Cross-list with: ____________________________
      Cross-listed courses require the signature of both department heads.
   d. Change in course title and description. Enter complete current course title and current course description in item 4; enter proposed course title and proposed course description in item 5.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 6. Attach a course syllabus.

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

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

6. a. As currently in course inventory:

<table>
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<th>Title (excluding punctuation)</th>
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<tbody>
<tr>
<td>SCSC</td>
<td>663</td>
<td>APPLIED SPATIAL STATISTICS</td>
</tr>
</tbody>
</table>

   Lect. | Lab | SCH | CIP and Fund Code | Admin. Unit | FIIE Code | Level |
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   Approval recommended by: ____________________________
   Date: ____________________________

   Wayne Smith
   Department Head – Type Name & Sign
   Date: 8-20-09

   Chair, College Review Committee
   Date: 9/14/07

   Dean of College
   Date: ________________________________________

   October 8, 2009

b. Change to:

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   Lect. | Lab | SCH | CIP and Fund Code | Admin. Unit | Acad. Year | FIIE Code | Level |
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   Approval recommended by: ____________________________
   Date: ____________________________

   David Williams
   Date: 9/14/07

   Dean of College
   Date: ________________________________________

   October 8, 2009

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 – 12/08

142 of 149 B
From: Cristine L Morgan
To: Gan, Jim; Huval, Lynette; Leatham, David; Reed, David; Smith, C. Wayne
Date: 9/22/2009 1:14 PM
Subject: Fwd: RE: I need your approval - RE:our spatial stats class
CC: Eriksson, Marian
Attachments: AGROFRSC663syllabus_200X_cmedit.doc

Dear all,
I am forwarding the original email of endorsement for Applied Spatial Statistics (AGRO 663 FRSC 663) by Dr. Sheather, Head of the Statistics department. you might note that we labeled the class 653 before we realized a number conflict and changed the number to 663 in the original request. Also attached is the updated syllabus with a grading scale and the ADA statement (that was already there).

Is there anything else?
Sincerely,
Cristine

=================================
Cristine Morgan
Assistant Professor of Soil Science
Dept. of Soil & Crop Sciences
Texas A&M University
Phone: 979.845.3603
E-mail: cmorgan@ag.tamu.edu

>>> "Simon Sheather" <sheather@stat.tamu.edu> 8/14/2006 3:35 PM >>>
Cristine

Thank you for your email. I am happy to endorse your course

AGRO/FRSC 653 Applied Spatial Statistics.

Please let me know if you require anything else.

Regards

Simon

Simon Sheather

Professor and Department Head

Department of Statistics

Texas A&M University

3143 TAMU

College Station, TX 77843-3143

E-Mail: sheather@stat.tamu.edu

Telephone: 1 979 845 3141
Fax: 1 979 845 3144

Assistant: Jennifer S. Reyes
Telephone: 1 979 845 3191
E-mail: jennifer@stat.tamu.edu

From: Cristine L Morgan [mailto:cmorgan@ag.tamu.edu]
Sent: Monday, August 07, 2006 11:02 AM
To: Simon Sheather
Subject: I need your approval - RE:our spatial stats class

Dear Simon,

Marian and I are applying for a number for the applied spatial stats class we taught this past spring. The class went very well and Mike Sherman gave an excellent guest lecture for the course.

We want to give it a AGRO/FRSC 653 number and call the class Applied Spatial Statistics. If you prefer a different name for the class, we can change it. I would like to have your approval of this request to make this a numbered class.

I have attached the syllabus for your information. Would you please send me an email acknowledging your support for our class? I will then forward the email to Lynette Hovel to accompany our request for a number.

Sincerely,
Cristine

=================================
Cristine Morgan, Ph.D.
Assistant Professor, Dept. of Soil & Crop Sciences
Texas A&M University
Phone: 979.845.3603
E-mail: cmorgan@ag.tamu.edu
June 29, 2009

MEMO

RE: Request for change in credit hours for SCSC/ESSM 663

FROM: Cristine Morgan, Assistant Professor Soil & Crop Sciences
       Marian Eriksson Associate Professor Ecosystem Science and Management

Drs. Morgan and Eriksson have been teaching SCSC/ESSM 663, Applied Spatial Statistics, every spring semester since spring semester 2005. Based on student evaluations, which primarily comment on 1) the work load is very high and 2) desire to see more application of methods, we have decided to request a change to increase the credit hours for this class. We would like to increase the lecture time by one hour, making the class a total of 4 credits. This would change the class from its current 2 hr. lecture and 2 hr. lab to a 3 hr. lecture and 2 hr. lab. The extra hour of lecture will be used to further discuss homework assignments, 2) provide more examples, and 3) discuss recent literature that has successfully applied spatial statistics to research problems. In addition we have gone from students reviewing and reporting on one peer-reviewed publication to students writing a literature review (approx. 8 pages) containing at least 10 peer-reviewed journal articles on a statistically relevant topic of their choice. To compensate for a portion of the work load increase, exams have been dropped from the course. We feel these additions to class discussion and additions to the writing assignment warrant an increase in classroom time and credit hours, while also better preparing graduate students for their thesis/dissertation work and future employment.

Supporting documents include an older syllabus (SCSCESSM663_syllabus_2008.doc), our newly revised syllabus with changes highlighted (SCSCESSM663_syllabus_200X.doc), and documentation of the new literature review assignment.
SYLLABUS

Instructors:  Dr. Marian Eriksson, Centeq 230 or HFSB 320, Phone: 845-6638  
             m-eriksson@tamu.edu  
             Dr. Cristine Morgan, Heep Center 545, Phone: 845-3603  
             cmorgan@ag.tamu.edu

Office Hours: By appointment, after class

Course Description: An introduction to the theory and practice of spatial statistics as applied to the natural resources. Spatial analyses focusing primarily on kriging; point processes; lattice data. Prerequisites: MATH 141, 142; STAT 302; ESSM 461, or the equivalent. Spatial statistics and other spatial modeling techniques are being used at an increasing rate in the natural resources fields and are often misunderstood. Practitioners often want to use the “push-button” approach to analyzing spatial data and lack an understanding of the tools they are using. As such, assumptions underlying the statistical tools may not be met and/or an intuitive and thorough understanding and interpretation of the results is lacking.

Objectives: The specific objectives of this course are to introduce the student to the field of spatial statistics and to give the student an opportunity to analyze and interpret data sets associated with the natural sciences. At the end of this course, we expect the student to be able to do the following:

1. Understand basic techniques for analyzing spatial data
2. Use basic R code (written in lab & homework) to explore, describe, analyze and interpret spatial data
3. Apply techniques learned in class to their own research data.

Students will not leave this course as experts in the field of spatial statistics, but with a sufficient understanding of the tools and their use so that they are equipped to build on their knowledge as their careers, academic and professional, demand.

Students should leave this course with:

1. An appreciation of the difference between spatial smoothing and spatial interpolation and between stochastic and deterministic fitting of models to spatial data.
2. An understanding of the foundations upon which simple and ordinary kriging models are built.
3. An understanding of spatial correlation, spatial covariance, variograms, and the relationships between these quantities.
4. An appreciation of how covariance/variogram models are fitted, the use of computer software to fit variogram models, and an awareness of some of the differences between spatial statistical computer programs.
5. An appreciation of the effects of trend and how to deal with trend and an awareness of other kriging and spatial regression models.
6. An awareness of characteristics of point processes, contagion, and of various tests for spatial randomness and distribution.
7. An awareness of the characteristics lattice data that differentiate it from “geostatistical” data and the existence of spatial regression models based on BW configurations.

Course Conduct: The course will be divided into four distinct sections. In the first section, lasting about four weeks, we will review matrix algebra, constrained and unconstrained minimization of polynomials, simple linear regression and multiple linear regression as motivated by geographically weighted regression. In the second section, about two weeks, we will focus on measures of spatial dependence and will introduce analysis tools for lattice-type data; the third section, lasting about five weeks will introduce
the concepts of covariance/variogram modeling and spatial interpolation using kriging. In the final section, we will consider tests for spatial distribution of regular, random, and clustered point processes.

Formally the course is comprised of three hours of lecture and two hours of lab each week. Weekly or biweekly homework will be assigned. All materials will be downloadable from the course website at http://tapc.tamu.edu. You will also use this website to upload digital solutions; written solutions may, of course, be given to the instructors. Your initial login password will be your first initial, dash, last name (all lower case) as in m-eriksson. YOU SHOULD CHANGE this password the first time you log in.

**GRADING:**

<table>
<thead>
<tr>
<th>Component</th>
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<tr>
<td>Regular Homework/Labs</td>
<td>70%</td>
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<tr>
<td>Discussion of Literature</td>
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<tr>
<td>Written Research Paper</td>
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**GRADE SCALE:**

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<td>B</td>
<td>80-89</td>
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<tr>
<td>C</td>
<td>70-79</td>
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<tr>
<td>D</td>
<td>60-69</td>
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<tr>
<td>F</td>
<td>&lt; 60</td>
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**Homework:** The importance of homework assignments cannot be overemphasized. Almost all of your learning will take place while working on the assigned problems. You are encouraged to work together if that is how you believe you best learn, but the work is expected to be your own. In the case of “hand” calculations, you must show all of your work in order to receive full credit.

**Research Paper:** Throughout the semester, each student will be working on a literature review. As part of lecture, we will be assigning and discussing literature in the class. The literature review will be on a spatial statistics topic of your choice (for example, geostatistical methods in soil mapping in the last 10 years), and preferably in your area of research interest. The goal of this assignment is to get you educated on spatial statistics in your discipline and to give hands-on writing and editing experience.

No “special” extra credit will be made available. If a discrepancy or disagreement should arise over the grading of any material in this course, the student should write an explanation of the problem and why he or she believes some adjustment should be made, attach the explanation to the material in question, and present the material to the instructor within one week of when the material was returned to the student. The instructor will evaluate all written requests of grading reviews and make any necessary adjustments.

**Required Text:** Eriksson, M. and C. Morgan. Draft. *Spatial Statistics for Natural Resource Applications*. http://tapc.tamu.edu. We have yet to find a text book that is comprehensive and moderately priced. Hence we have many text books for you to look at or check out in the Soil’s library in room 540 Heep Center.

**Aggie code of honor:** “An Aggie does not lie, cheat, or steal or tolerate those who do.”

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information please visit: www.tamu.edu/aggiehonor/
Americans with Disabilities Act (ADA) Policy Statement: The Americans with Disabilities Act (ADA) is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room B118 of Cain Hall or call 845-1637.
## Tentative Schedule

<table>
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<tr>
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<th>Date</th>
<th>Topic</th>
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<td>One 2-hr lab per week</td>
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<td>Jan. 20</td>
<td>Housekeeping; Review matrix algebra</td>
<td>R Basics, Matrices</td>
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<td>2</td>
<td>Jan. 22</td>
<td>Constrained and unconstrained minimization</td>
<td>Regression in R</td>
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<td>3</td>
<td>Jan. 27</td>
<td>Simple linear regression; Correlation</td>
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<td>4</td>
<td>Jan. 29</td>
<td>Multiple linear regression</td>
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<td>5</td>
<td>Feb. 03</td>
<td>Generalized least squares</td>
<td>OLS, GLS, ANOVA</td>
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<td>Feb. 05</td>
<td>Geographically weighted regression</td>
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<td>7</td>
<td>Feb. 10</td>
<td>Continue GLS, GWS, assumptions</td>
<td>GLS, GWR</td>
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<td>Feb. 12</td>
<td>Continue GLS, GWS, assumptions</td>
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<td>Feb. 17</td>
<td>Lattice: neighborhood structures</td>
<td>Analyzing data with Geary’s C</td>
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<td>Geary’s C and Moran’s I</td>
<td>and Moran’s I</td>
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<td>11</td>
<td>Feb. 24</td>
<td>SAR CAR</td>
<td>Using SAR models; simulating lattice</td>
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<td>Feb. 26</td>
<td>SAR CAR</td>
<td>data</td>
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<td>Mar. 03</td>
<td>Lattice versus GWS Analysis</td>
<td>Intro to kriging</td>
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<td>Mar. 05</td>
<td>Kriging as an interpolator; MSPE;</td>
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<td>Mar. 10</td>
<td>Minimization of the Lagrangian</td>
<td>Variogram models; Covariance Matrices</td>
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<td>16</td>
<td>Mar. 12</td>
<td>Covariance and variograms; Simple kriging</td>
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<td>Spring Break March 16-20</td>
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<td>17</td>
<td>Mar. 24</td>
<td>Variogram models</td>
<td>Variogram modeling; Fitting</td>
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<td>Variogram modeling; local and global</td>
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<td>Anisotropy, nuggets, stationarity</td>
<td>Fitting empirical models and</td>
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<td>Mike Sherman: Assuming Isotrophy</td>
<td>transformations</td>
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<td>Removing trend, Universal kriging</td>
<td>Transformations and anisotropy</td>
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<td>Other interpolators – cokriging</td>
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<td>Apr. 14</td>
<td>Introduce point processes; SSI, CSR, clustered data; Quadrant analysis</td>
<td>Testing and simulating point processes</td>
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<td>Quadrant analysis, Lhat</td>
<td>Analyzing point processes</td>
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<td>Apr. 23</td>
<td>Ghat, F and K tests</td>
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<td>Apr. 28</td>
<td>Review, catch-up</td>
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