Texas A&M University

Departmental Request for a Change in Course

Undergraduate  Graduate  Professional

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

2. Course prefix, number and complete title of course: **STAT 605 - Advanced Topics in Computational Statistics**

3. Change requested:
   a) Prerequisite(s): From STAT 612 To STAT 612 and 648
   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; complete proposed course title and proposed course description in items 4 and 5.
   e) Change in credit/contact hours. Complete item 6b. Underline change(s). Attach a course syllabus.

4. Complete current course title and current course description: **Advanced Topics in Computational Statistics**: Algorithms in constrained and unconstrained optimization; time series analysis; multivariate analysis; use and development of modern graphical exploratory data analysis; methods for interfacing programs with existing computer environments.

5. Complete proposed course title and proposed course description (not to exceed 50 words): **Advanced Statistical Computations**: Programming languages, statistical software and computing environments; development of programming skills using modern methodologies; data extraction and code management; interfacing lower-level languages with data analysis software; simulation; MC integration; MC-MC procedures; permutation tests; bootstrapping?

6. a) As currently in course inventory:

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<th>Prefix</th>
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   b) Change to:

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Approval recommended by:

**Michael Longhurst** 2-19-2009
Head of Department

Chair, College Review Committee

Dean of College

Submitted to Coordinating Board by:

**Director of Academic Support Services**

Questions regarding this form should be directed to Sandra Williams at 845-8836.

OAR/AS – 04/07
February 12, 2009

MEMORANDUM

TO: University Curriculum Committee

FROM: Michael Longnecker
Associate Department Head, Statistics

SUBJECT: Change in Statistics Courses

The Department of Statistics has recently conducted an in-depth analysis of its Ph.D. program. The result of this analysis was a revision of several courses and the development of new courses to reflect new areas of research in statistics. The follow courses required changes in the topics covered in the course and/or changes in the course prerequisites: STAT 604, STAT 605, STAT 612, STAT 613, STAT 614, STAT 620, STAT 621, and STAT 632.
STAT 605: Advanced Statistical Computations

Spring 2009
Wednesday & Friday
11:15am - 12:30pm
Blocker 457

David B. Dahl
Assistant Professor
Department of Statistics
Texas A&M University

Class Mailing List: 605@ddahl.org
E-mail to Dr. Dahl: stat605@ddahl.org
Office Number: 436 Blocker
Office Hours: 3:30-5:00pm on Mondays & Wednesdays
or by appointment

Course Calendar & Materials

Description

Programming languages, statistical software, and computing environments;
Development of programming skills using modern methodologies; Data extraction and
code management; Interfacing lower-level languages with data analysis software.
Methodology topics include optimization, simulation and Monte Carlo integration,
Markov-chain Monte Carlo, permutation tests, and bootstrapping. Prerequisite: STAT 612
and STAT 648.

Textbooks

The following are the required textbooks (only one of which is not free):
• Computational Statistics, by Geof H. Given and Jennifer A. Hoeting. ISBN:
0471461245. This book is available at the MSC Bookstore, but may be cheaper
from Amazon.
• An Introduction to R. This book is free and available in two formats, optimized for
printing and web browsing.

- Introduction to Programming Using Java, by David J. Eck. This book is free and available in three formats, optimized for printing, online reading, and web browsing.

The following books are highly recommended for those wanting to go deeper:


Grading

Course grades will be based on exams (10% midterm, 25% final), several projects (totaling 55%), and participation (10%). See the Course Calendar & Materials for dates as they become available. Makeup exams are given for a University Approved Absence. Late projects are only accepted in very extraordinary circumstances. Waiting to the last hour and then experiencing a computer problem is not grounds to accept late homework. Unless others specified, projects must be submitted individually and reflect your own effort. You are encouraged to interact with other students, but under no circumstances should a student give or accept even partially complete solutions.

Academic Integrity Statement

The Aggie Honor Code states, "An Aggie does not lie, cheat, or steal or tolerate those who do." You are encouraged to collaborate with your colleagues on the homework and projects. You may receive assistance from and provide assistance to other students in the class, but you may not receive or distribute complete or partial solutions. Everything you submit must be your own work and reflect your own understanding of the material. Individuals who have cheated or facilitated cheating may fail the course.

Americans with Disabilities Act 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 a reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Office
of Support Services for Students with Disabilities in Room 126 of the Koldus Student Services Building. The phone number is 845-1637.

**Statement on Plagiarism**

The handouts used in this course are copyrighted. By "handouts," I mean all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, materials posted on the web, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission. As commonly defined, plagiarism consists of passing off as one's own ideas, words, writing, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. 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."