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 STATISTICS
2. Course prefix, number and complete title of course: STAT 633 - Advanced Bayesian Modeling and Computation

3. Course description (not more than 50 words):
   Bayesian methods in their research, methodology, and applications of Bayesian methods in bioinformatics, biostatistics, signal processing, machine learning, and related fields.

4. Prerequisite(s) STAT 608, 613, 632 Cross-listed with None
   Cross-listed courses require the signature of both department heads.

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

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

7. Has this course been taught as a 289/489/689? [ ] Yes [ ] No If yes, how many times? ______ Indicate the number of students enrolled for each academic period it was taught. Spring 2009 - 15 students

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

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

10. Prefix Course # Title (excluding punctuation)
    STAT 633 ADV BAYES MODEL & COMPUT
    Lect. Lab SCH Subject Matter Content Code Admin. Unit Acad. Year FICE Code
    0 3 0 0 0 3 2 7 0 5 0 1 0 0 1 10 11 0 0 3 6 3 2
    Level

Approval recommended by:

Head of Department Date

Head of Department (if cross-listed course) Date

Submitted to Coordinating Board by:

Director of Academic Support Services Date

Chair, College Curriculum Committee Date

Dean of College Date

Dean of College Date

Questions regarding this form should be directed to Sandra Williams at 845-8836.
1/3/09
10/26/07

1 of 4 B9
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 STATISTICS

2. Course prefix, number and complete title of course: STAT 633 - Advanced Bayesian Modeling and Computation

3. Course description (not more than 50 words): This is a research course intended for a mixed audience of graduate students in statistics and other fields who plan to use Bayesian methods in their research. Topics covered include a broad exposure to the concepts, methodology, and applications of Bayesian methods in bioinformatics, biostatistics, signal processing, machine learning, and related fields.

4. Prerequisite(s) STAT 608, 613, 632 Cross-listed with None

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

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

7. Has this course been taught as a 289/489/689? ☑ Yes ☐ No If yes, how many times? 1 Indicate the number of students enrolled for each academic period it was taught. Spring 2009 - 15 students

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

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

M.S. and Ph.D. in Statistics

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

10. Prefix Course # Title (excluding punctuation) STAT 633 ADV BAYES MODEL & COMPUT

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Approval recommended by: Michael Longmire 2/12/09

Head of Department Date

Head of Department (if cross-listed course) Date

Submitted to Coordinating Board by: Dean of College 2/16/09

Director of Academic Support Services Date

Effective Date

Questions regarding this form should be directed to Sandra Williams at 845.8836.
OAR/AS – 04/07

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STAT 633 Advanced Bayesian Modeling and Computation

Instructor: Bani Mallick
Office: 459B Blocker
Phone: 845-1275
Office Hours: 3-4, T/R
Email: bmallick@stat.tamu.edu

Course website: http://www.stat.tamu.edu/~sray/stat689.html
Prerequisites: STAT 608, 613, 632 or approval of instructor.

Description of course

This is a research course intended for a mixed audience of graduate students in statistics and other fields who plan to use Bayesian methods in their own research. The topics covered will provide a broad exposure to the basic concepts, methodology and applications in Bioinformatics, Biostatistics, Signal Processing, Machine Learning and related areas. Students are required to work on a project with emphasis on hands-on Bayesian computation in Matlab/BUGS, and present it at the semester end.

References


Course Outline*

5. Bayesian Classification and Regression. Linear and Non-linear Regression, Support Vector Machines, Partition Models, Classification and Regression Trees.
7. Spatial Models and Markov Random Fields.
8. Bayesian nonparametrics.

* Course Material can be changed any time at the discretion of the instructor.
Grading Policy

The course grade will be based on some HWs (20%) and a major final project (80%). The final project should involve innovative methodology, theory, computation or application of Bayesian techniques so that can be published in a peer-reviewed journal. The quality of this project will mainly determine your final grade. You can have your own project or can discuss with Dr. Mallick to identify one of your interest.

Homework

Incomplete Grade: A temporary grade of I (Incomplete) at the end of a semester indicates that the student has COMPLETED THE COURSE WITH THE EXCEPTION OF A MAJOR QUIZ, FINAL EXAM, OR OTHER WORK. 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.

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

Statement on Plagiarism: The handouts used in this course are copyrighted. As such, you do not have the right to copy them unless I expressly grant permission. As commonly defined, plagiarism consists of passing off as one's own ideas, words, writing, etc., that belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you have the permission of that person. If you have any questions, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.”