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 631 - Statistical Methods in Finance**

3. Course description (not more than 50 words): Regression and the capital asset pricing model, statistics for portfolio analysis, resampling, time series models, volatility models, option pricing and Monte Carlo methods, copulas, extreme value theory, value at risk, spline smoothing of term structure

4. Prerequisite(s) **STAT 610, 611, 608**

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? 2  Indicate the number of students enrolled for each academic period it was taught. Spring 06 - 15 students, Spring 07 - 16 students.

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

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

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

10. Prefix | Course # | Title (excluding punctuation)  
         | STAT 631 | STAT METHODS IN FINANCE  
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 | 2 | 7 | 4 | 0 | 0 | 7 | 0 | 8 | 0 | 0 | 3 | 6 | 3 | 2  

Approval recommended by:  
Head of Department:  
**Michael**  
Date: 5/16/07  
Chair, College Review Committee:  
**John**  
Date: 5/16/07  
Dean of College:  
**Jane**  
Date: 5/16/07  
Submitted to Coordinating Board by:  
Director of Academic Support Services:  
Date:  
Effective Date:  

Questions regarding this form should be directed to Sandra Williams at 845-8836.
OAR/AS – 94/07  

1 of 5 L
Statistics 631:
Statistical Methods for Finance

Instructor
Jianhua Huang, 405C Blocker, jianhua@stat.tamu.edu

Text
Statistics and Finance: An Introduction
By David Ruppert
Publisher: Springer.

Prerequisites
Matrix algebra, multivariate calculus, introductory probability and statistics. Finished first year graduate courses in the statistics department, including STAT 610, 611 and 608.

Description of Course
This course is an introduction to statistical methods useful in financial markets. Dealing with real financial data is an important ingredient of the course. The students are assumed to have some knowledge of statistical software R (at the level in STAT 608).

The course is mainly designed to the graduate students who have finished the first year courses in the statistics department. We will first cover the main topics in Ruppert's book and then students will be led to work on various data analysis projects.

Topics: regression and the capital asset pricing model, statistics for portfolio analysis, resampling, time series models, volatility models, option pricing and Monte Carlo methods, copulas, extreme value theory, value at risk, spline smoothing of term structure.

Examples of data analysis projects:
(i) estimation of large covariance matrix and its application on portfolio selection;
(ii) forecasting time series of curves with application to term structure;
(iii) cointegration and statistical arbitrage;
(iv) spline smoothing and estimation of interest rate models;
(v) dimension reduction, application of principal component analysis and factor analysis in finance;
(vi) the bootstrap method and evaluation of estimation risk in optimal portfolio construction

Grading
50% homework, 50% course project.

Statement on Disability
The Americans with Disabilities (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 Disabilities Services in Room B118, Cain Hall. The phone number is (979) 845-1637.

Statement of 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, 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 I explicitly grant permission. As commonly defined, plagiarism consists of the passing off as one's own ideas, words, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. Plagiarism is one of the worst academic sins, for the plagiarism destroys the trust among colleagues without which research can not be safely communicated. If you have any question regarding plagiarism, please consult the latest issue of the Texas A& M University Student Rules, under the section "Scholastic Dishonesty."

Aggie Honor Code

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

Please see the Honor Council Rules and Procedures on the web at http://www.tamu.edu/aggiehonor

for more information on academic integrity.
Departmental Request for a Special Topics in ... Course
Submit original form and 2 copies. Attach a course syllabus to the original.*

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

I request approval of the following Special Topics course for the Spring 2008 term in the

Department of Statistics Course: STAT 689

Title: Special Topics in Statistics and Finance

Please give a suggested 24 character abbreviation (including spaces):

Subtitle Code 49 (for office use only)

Number of hours a week: Lecture: 3 Laboratory: 0 Credit: 3

Description of course (no more than 50 words): This course is an introduction to both statistical modeling and finance, with special attention to the interaction between the two. Dealing with real financial data is an important ingredient of the course. The students are assumed to have an introductory background in

Prerequisite(s): Matrix algebra, calculus, STAT 414 or STAT 601 or STAT 610, or approval by instructor

Instructor: Dr. Jianhua Huang Instructor ID #: 116 004 - 771

Has this Special Topics course been taught before? Yes If yes, how many times? 2

Indicate the number of students enrolled Spring 06 - 15 students, Spring 07 - 16 students

and each academic period taught:

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

If this course has been approved as a new course, give prefix and course number: STAT 631 and submitted to faculty senate

Should this course be considered for approval within any category of the University Core Curriculum? N/A

If yes, see below.

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

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

Simon Sheather, Department Head

Date 9-3-2007

Dean of College

Date 9-4-2007

Office of Graduate Studies (for 689s only)

Date 10/14/07

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

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

Date ...............................
MEMO

TO: MICHAEL LONGBECKER, ASSOCIATE DEPARTMENT HEAD
DEPARTMENT OF STATISTICS

FROM: DAVID W. BLACKWELL, DEPARTMENT HEAD
DEPARTMENT OF FINANCE

SUBJECT: STATISTICAL METHODS IN FINANCE COURSE

DATE: OCTOBER 12, 2007

The Department of Finance does not object to the Department of Statistics offering the Statistical Methods in Finance course (STAT 631).

The input from our faculty is supportive and it appears that the course will complement our graduate course offerings.