

The University of Iowa
College of Liberal Arts and Sciences
Department of Statistics & Actuarial Science

22S:156 Applied Time Series Analysis

Spring Semester, 2008, 15 SH

Course web-page: www.stat.uiowa.edu/~kchan/S154.htm

The administrative home of this course is the College of Liberal Arts and Sciences.

- Instructor: Kung-Sik Chan
- Office hours: 263 SH, Monday and Friday 9:30-10:30, Wednesday 10:30-11:30, and by appointment
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- DEO: Luke Tierney, 241 SH, 335-0712, luke-tierney@uiowa.edu
- Textbook: “Time Series Analysis with Applications in R ” By Jonathan Cryer and Kung-Sik Chan. This book will be published by Springer Verlag by March, 2008. Photocopies of the book is available at the IMU bookstore very soon.
- The objective of the present course is to introduce some statistical methods useful for analyzing univariate time series obtained from scientific studies with emphasis on forecasting and statistical inference. We plan to cover chapters 1 to 11 and other selected topics from the book, if time permits.
- Prerequisite: 22S:152, or 056:176 and 22S:120 or 22S:154 or equivalent.
- Course requirements:

	date	percent
Homework		10%
Quizzes	2/6, 2/20, 3/28, 3/11	20%
Exam 1	March, 5 (Wednesday)	25%
Exam 2	April, 25 (Friday)	25%
Project presentation	12:00pm Thursday, May 15 2008	20%

Unless stated otherwise, homework assignments will be collected on each Wednesday. Homework must be handed in by the BEGINNING of the lecture on the due date. Late homework will be marked but NO CREDIT will be

given. Each homework carries approximately equal weight and the one with the lowest mark will be dropped from the determination of the final grade. Discussion with fellow students on the exercises of the homework is allowed. However, each student should submit his or her OWN solutions. There are four quizzes; each are about 15 minutes long. If possible, we will schedule exams in the evenings so that there will be enough time for the exams. Exams and quizzes are closed book; however, you may have one page (8.5×11) of notes. Each student is required to work INDIVIDUALLY on a project analyzing a real time series, and write a project report. Each student will be required to do an approximately 10-minute presentation on May 15. The project report has to be submitted on May 15.

- Grades: Your grade for this course will be assigned according to the following *approximate* scale:

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

This scale is not absolute, and the cutoff points may vary depending on the difficulty of the exams. Also, borderline cases may receive a + or -.

- Project: A real time series, of length ≥ 40 , should be used for the analysis. A one-page proposal outlining the scientific questions to be addressed and the relevant techniques to be employed, with a separate listing of the data, has to be handed in during class on April 21. The final written report should be typed and include a one-page non-technical summary of the findings, followed by the background of the scientific questions, the body of technical analyses with interpretations, a conclusion and the listing of the data. Including graphics, the report ordinarily should not exceed 15 pages in length. Typed report has to be handed in by the time of presentation.
- Statistical softwares: We will mainly use R (GNU Splus) for statistical analysis. R will be available at the ITC in Schaeffer Hall. R can be freely downloaded from <http://www.r-project.org/> An R package called TSA has been specifically developed that implements almost all methods introduced in the book. The lone exception requires SAS.
- Academic Fraud
Plagiarism and any other activities that result in a student presenting work that is not his or her own are academic fraud. Academic fraud is reported to the departmental DEO and then to the Associate Dean for Academic Programs and Services in the College of Liberal Arts and Sciences.
www.clas.uiowa.edu/students/academic_handbook/ix.shtml

- Making a Suggestion or a Complaint
Students have the right to make suggestions or complaints and should first visit with the instructor, then with the course supervisor if appropriate, and next with the departmental DEO. All complaints must be made within six months of the incident.
www.clas.uiowa.edu/students/academic_handbook/ix.shtml#5
- Accommodations for Disabilities
A student seeking academic accommodations first must register with Student Disability Services and then meet with a SDS counselor who determines eligibility for services. A student approved for accommodations should meet privately with the course instructor to arrange particular accommodations.
www.uiowa.edu/~sds/
- Understanding Sexual Harassment
Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. Visit www.sexualharassment.uiowa.edu/ for definitions, assistance, and the full policy.
- Administrative Home of the Course
The administrative home of this course is the College of Liberal Arts and Sciences, which governs academic matters relating to the course such as the add / drop deadlines, the second-grade-only option, issues concerning academic fraud or academic probation, and how credits are applied for various CLAS requirements. Please keep in mind that different colleges might have different policies. If you have questions about these or other CLAS policies, visit your academic advisor or 120 Schaeffer Hall and speak with the staff. The CLAS Academic Handbook is another useful source of information on CLAS academic policy:
www.clas.uiowa.edu/students/academic_handbook/index.shtml