SYLLABUS : Fall, 2010
STATISTICS 673 : Time Series Analysis I.

INSTRUCTOR: Dr. Mohsen Pourahmadi
OFFICE HOURS: TuTh 1-1:50 or by Appointment
OFFICE: 439 Blocker
PH. & FAX NOs: 979-845-3164, 979-845-3144
E-MAIL ADDRESS: pourahm@stat.tamu.edu

TEXT:

1. (Required) Time Series Analysis: Theory and Methods, P. Brockwell and R. Davis, 1991, Springer-Verlag.

2. (Recommended) Foundations of Prediction Theory and Time Series Analysis, M. Pourahmadi, 2001, Wiley.

3. (Recommended) Time Series Analysis with Applications in R, J. Cryer and K.-S. Chan, 2008, Springer.

4. (Recommended) Time Series Analysis and Its Applications with R Examples, Shumway, R. and Stoffer, D., 2006, Springer.

PREREQUISITE: STAT 611, its Equivalent OR Approval of the Instructor.

FOCUS OF THE COURSE: STAT 673 is for a mixed of motivated graduate students in statistics and other fields who seek a solid background in the theory and methods of time series analysis. After reviewing some background material on time series data analysis, and introducing the basic theory of stationary processes (covariance and partial correlation functions, ARIMA models, spectral representation, spectral density, forecasting,,...), the focus will shift to statistical inference (estimation of the mean, covariance, spectral density, etc) and applications to economics, engineering and biomedical sciences or areas of interest to students in the course. Early in the semester, students will be divided into smaller groups interested in similar application areas, they will be assigned a project and relevant research papers and datasets to study, analyze and present at various times in the course. We will use a wealth of datasets from the text and other sources, and R programs from texts #3-4, which are available online free of charge to students through TAMU libraries. Research papers published in the last decade or so will be used to cover emerging techniques and areas of applications of time series. Since STAT 673 is the first part of a year-long course (STAT 674, Time Series Analysis II, will be offered in Spring of 2011) sufficient attention will be paid to the theory to prepare students for the second course.

GRADE POLICY:

1. Only one midterm exam worth 100 points will be given in class. There is no final examination.

2. Homework will be assigned regularly and posted on DoStat (Reference and Registration codes are : DS- and TSA), it will contribute 50 points to the course. The quality of writing and logical presentation of the arguments leading to a result, not just the correct answer, will contribute greatly to the grade for this part of the course.

3. Quizzes will be given periodically covering the most recent topics covered in class and will contribute 50 points toward the course grade.

4. Project in the course will involve a significant amount of data analysis, reading the relevant literature in the student's area of interest, computational effort, discussion and presentation in the class. This is worth 100 points. The final project report should be organized and typed following the format of a research article in statistics or areas of applications. The quality of writing and presentation in class will contribute greatly to the grade for this part of the course.

5. The final course grade will be based on the standard scale where a total of 90 to 100 percent will be an A, 80 to 89 percent will be a B, etc.

6. Attendance and classroom participation are encouraged and will be rewarded, they are integral parts of the learning process .

7. ACADEMIC INTEGRITY STATEMENT: "An Aggie does not lie, cheat, or steal or tolerate those who do." The Aggie Honor Council Rules and Procedures are available at http://www.tamu.edu/aggiehonor.

8. STATEMENT ON PLAGIARISM: 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."

9. 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 Disability Services in Room B118 of Cain Hall. The phone number is 845-1637.