

Syllabus

USC, Department of Statistics, Spring 2015

Course STAT 720: Time Series Analysis

Class Time: 9:40 am–10:30 am MWF (from January 12 to April 27, 2015)

Class Place: LeConte College 201A

Prerequisite: MATH 142 or equivalent

Instructor: Dewei Wang

Office: LeConte 219B (Tel: 803-777-4348)

Email: deweiwang@stat.sc.edu

Office Hours: 13:45 am–14:45 am MWF in LeConte 219B

Course Website: <http://people.stat.sc.edu/wang528/STAT720.html>

All the lecture notes and handouts will be posted here.

Textbook: Peter J. Brockwell and Richard A. Davis (2002). [Introduction to time series and forecasting](#).

Peter J. Brockwell and Richard A. Davis (2009). [Time Series Theory and Methods](#).

Learning Outcomes:

- Understand the properties of stationary process
- Be able to forecast stationary time series based on linear prediction
- Make statistical inference of stationary time series models
- Know how to deal with non-stationary time series

Topics Covered:

- Stationary processes
- ARMA models, causality and invertibility, ACF
- Spectral representation of a stationary process
- Prediction of stationary processes
- Estimation for ARMA models
- ARIMA, ARCH and GARCH

Attendance and Email:

I expect you to attend every class. Very few students are able to master this material without keeping up on a regular basis. When you miss class, you miss important information. If you are absent, you are responsible for learning materials covered in class. If you are absent when an assignment is due, you must have submitted the assignment prior to the due date to receive full consideration.

Do not block my email. I will regularly send you announcements via email, so make sure to check your inbox daily. While email is the quickest way to reach me outside of class, it is more efficient to answer your questions face-to-face.

Homework:

There will be four homework assignments. Working together on homework assignments is very welcomed and encouraged, but each student should write up his/her solutions independently of others. Copying someone else's work is not tolerated. If it happens, both parties will receive a 0 for the assignment as well as being reported to the Office of Academic Integrity.

Exam:

There will be one midterm and one final. Both of which are take home exams. You MUST complete the exams individually. The only person you can discuss with is me. Any violation will be reported to the Office of Academic Integrity.

Grade Breakdown:

Your course grade will be determined by your performance on homework (30 percent), the midterm exam (30 percent each), and the final exam (40 percent).

Final course grades will be assigned according to the following protocol,

- A: $[90, +\infty)$
- B: $[80, 90)$
- C: $[70, 80)$
- D: $[60, 70)$
- F: $(-\infty, 60)$

Academic Integrity:

Students are expected to follow the University of South Carolina Honor Code and should expect that every instance of a suspected violation will be reported. Students found responsible for violations of the Code will be subject to academic penalties under the Code in addition to whatever disciplinary sanctions are applied. Cheating on an exam or copying someone else's work, will result in a 0 for the work, possibly a grade of F in the course, and, in accordance with University policy, be referred to the University Committee for Academic Responsibility and may result in expulsion from the University.

Expectations for Classroom Behavior:

All cell phones are to be turned off or silenced during class (not on vibrate). All cell phones are to be put away out of view during class; there is no text messaging, web browsing, etc, during class. Please be respectful of each other, the instructor, and any guest while in class. We are all here to learn! Any disrespectful or disruptive behavior may result in your referral to the Office of Student Judicial Programs.

Accommodating Disabilities:

I would like to talk to anybody with a disability that may require special attention with examinations or other aspects of the course. Please talk with me no later than Friday, Jan. 23, 2014.

Note that reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, contact the Office of Student Disability Services: 777-6142, TDD 777-6744, email sasds@mailbox.sc.edu, or stop by LeConte College Room 112A. All accommodations must be approved through the Office of Student Disability Services.