

AMS316 (Fall 2011) Introduction to Time Series

- Meeting time:** MW, 3:50-5:10pm
- Classroom:** Light Engineering, 102
- Instructor:** Haipeng Xing (xing@ams.sunysb.edu)
Office: Math Tower 1-102.
OH: Monday, 5:20pm-7:20pm
- Graders:** Yang Yu (yuyang.fe@gmail.com)
OH: Tuesday, 1-3pm (Math Tower, B-148(7))
Ziqi Meng (ver.lover@hotmail.com)
OH: Tuesday, 4-6pm (Harriman 010)
Youngbum Hur (killer8970@gmail.com)
OH: Thursday, 1:15-3:15pm (Harriman 010)
- Prerequisite:** AMS311 (Probability theory) and AMS315 (Data analysis)

For your information, AMS311 covers probability spaces, random variables, moment generating functions, algebra of expectations, conditional and marginal distributions, multivariate distributions, order statistics, law of large numbers; and AMS315 covers statistical analysis of data, exploratory data analysis, estimation, parametric and nonparametric hypothesis tests, power, robust techniques, use and interpretation of statistical computer packages, such as SPSS.

Course website: <http://www.ams.sunysb.edu/~xing/AMS316/index.html>

Grading policy: homework (30%), midterms (30%), final (40%)

1. There is homework almost every week, and it is due in the first 30 minutes of the lecture. Late homework is NOT accepted. Homework solutions will be posted on the course website.
2. Midterm will be on the week of October 31, and there won't be make-up midterm under any circumstances.
3. Final is on December 19, 2011.

Main reference for the course:

1. Chris Chatfield. The Analysis of Time Series: An Introduction (6th ed.). Chapman & Hall/CRC.
2. My course notes.

This course will cover linear time series models, moving average (MA), autoregressive (AR), ARMA and ARIMA models, estimation and forecasting, interval predictions, and forecast errors.

Tentative syllabus:

The following is a tentative agenda for homework, midterms, projects and presentation (the schedule is subject to change).

Week 1 (Aug 28,31)	Introduction, review of probability and statistics
Week 2 (Sept 7)	Chap2
Week 3 (Sept 12,14)	Chap2 and R introduction I
Week 4 (Sept 19,21)	Sec 3.1-3.3 (probability concepts)
Week 5 (Sept 26)	Sec 3.4.1-3.4.3 (MA models)
Week 6 (Oct 3,5)	Sec 3.4.3-3.4.4 (MA and AR models)
Week 7 (Oct 10,12)	Sec 3.4.4 (AR model)
Week 8 (Oct 17,19)	Sec 3.4.5 (ARMA model)
Week 9 (Oct 24,26)	Sec 3.4.6 (ARIMA model)
Week 10 (Oct 31, Nov 2)	Midterm
Week 11 (Nov 7,9)	Sec 4.1 (Estimation of ACF), R introduction II
Week 12 (Nov 14,16)	Sec 4.2 (Estimation of AR)
Week 13 (Nov 21)	Sec 4.3 (Estimation of MA)
Week 14 (Nov 28,30)	Sec 4.4 (Box-Jenkins method), R introduction II
Week 15 (Dec 5,7)	Chap 5 (forecasting)
Week 16 (Dec 12)	review

Americans with Disabilities Act:

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational

Communications Center) Building, room128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Academic Integrity:

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculties are required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary/>

Critical Incident Management:

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.