STAT 478/578 Statistical Methods of Forecasting

Instructor:
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Office Hours: TWTh 10:00am - 11:00am or by appointment

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Course Information:
Time: TTh 11:00pm – 12:15pm
Location: SG304
Description:
Introduction to forecasting including use of regression in forecasting; removal and estimation of trend and seasonality; exponential smoothing; stochastic time series models; stochastic difference equations; autoregressive, moving average, and mixed models; model identification and estimation; diagnostic checking; and the use of time series models in forecasting.
PRQ: STAT 473 or consent of division.
Textbook: Time Series Analysis with Applications in R, 2nd ed. by Cryer and Chan
Chapter Covered: 1-10

Learning outcomes of this course include:
- Capacity to formulate scientific problems involving temporally correlated data
- Knowledge of univariate and time-series models, and forecasting methods
- Practical working knowledge of data-analysis using R
- Experience with a variety of time-series problems arising in real world applications

Course Activities
Assignments: Homework will be due one week after the assigned date. Assignments are to be neat and presented logically on loose leaf paper. If more than one sheet of paper is used, the assignment must be stapled together. You are required to show all work. Students are allowed to discuss homework assignments, but each student must write his/her solutions in their own way, using their own words. Late assignments will receive half credit.

Exams: There will be two exams: a midterm and a final. Make-up exams will only be allowed for excused absences with documentation. All exams are closed book. You may use a calculator at the exams, but the calculator can not be on a cell phone, PDA, laptop, etc.

Project: A class project to analyze time series data will be assigned.
573A: Graduates students will have extra problems on the homework and more challenging problems on the exams.

Grade Percentages: Homework 25%, exams 55%, and project 20%

**Grading Scale**

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<th>Grade</th>
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<tr>
<td>A</td>
<td>100~93%</td>
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<td>A-</td>
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**Accessibility**

If you have a disability, please make arrangements with the Disability Resource Center (DRC) early in the semester, and let me know. For details see: [http://www.math.niu.edu/courses/CAAR.html](http://www.math.niu.edu/courses/CAAR.html)

Northern Illinois University is committed to providing an accessible educational environment in collaboration with the Disability Resource Center (DRC). Any student requiring an academic accommodation due to a disability should let his or her faculty member know as soon as possible. Students who need academic accommodations based on the impact of a disability will be encouraged to contact the DRC if they have not done so already. The DRC is located on the 4th floor of the Health Services Building, and can be reached at: 815-753-1303 or drc@niu.edu.

NIU’s updated policies on Academic Integrity, Attendance and Accommodations for Students with Disabilities are now available at: [http://www.niu.edu/stat/courses/pdfs/Accessibility_Statement.pdf](http://www.niu.edu/stat/courses/pdfs/Accessibility_Statement.pdf)

**Academic Integrity Statement**

The Statement of Academic Integrity in the Undergraduate catalog will be strictly enforced with regard to homework assignments, quizzes, and exams.

Please see: [http://www.niu.edu/stat/courses/pdfs/Accessibility_statement.pdf](http://www.niu.edu/stat/courses/pdfs/Accessibility_statement.pdf) for policies on academic integrity, attendance and accommodations for students with disabilities.
Guidelines and General Information:

- You are encouraged to ask questions and to participate in class discussions, however talking in class while the instructor is lecturing is highly frowned upon.
- Cell phones are to be muted or turned off during lectures, recitations and visits to office hours and kept away during exams and quizzes. Violations will be considered as class disruptions, or worse, and will be treated accordingly.
- Texting during class is not allowed. If you are caught, your phone will be confiscated for the remained of the class period. If you are caught texting a second time, you will be asked to leave the class for that day.
- It is your responsibility to be sure that your work is turned in and that you receive the notes and announcements (all announcements are made at the beginning of class). Missing an announcement will not be accepted as a valid excuse for missing an event (test, quiz etc.). If you frequently miss class the instructor reserves the right to deny office hour privileges to you.
- Late arrivals and early departures from class are strongly discouraged, except in cases of emergency.
- Students are to remain for the entire session unless excused by the instructor beforehand or confronted with a serious personal emergency. For instance, it is not acceptable for students to walk in and out of class to answer cell phones, take casual bathroom and smoking breaks, or attend to other personal matters.
- It is not acceptable to use an iPod, read a newspaper, use a laptop for anything other than taking class notes, study for other classes, or engage in other behavior that distracts one from the class proceedings one the session has started.
- The syllabus may be changed at any time. Changes will be announced in lecture.

Suggestions

- To do well in this course, you should attend class regularly.
- Please try to keep up with the class. If you fall behind, then you will have to work much harder to catch up.
- Please feel free to talk to your TA or instructor. If you are falling behind or getting lost, then do not wait; act on it as soon as possible. Get help, spend more time studying, form study groups, go to your instructor's office hours, go to the Statistics Assistance Center (DuSable 326) - do whatever works for you.