Math 8444 – Time Series Methods – Fall 2009

Instructor:  Jesse Frey  
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Office Hours:  5:00 – 6:00 PM Wednesday and by appointment

Textbook:  *Introduction to Time Series and Forecasting*, second edition, by Brockwell and Davis (ISBN: 0-387-95351-5). We will cover most of Chapters 1 to 6 along with other topics from later chapters. We may also touch upon some topics that are not in the book. I will provide appropriate reading material for these additional topics.

Course topics:  Stationary processes, Moving averages, Autoregressive processes, ARMA processes, Forecasting, Diagnostic techniques, Seasonal time series models, Classical decomposition, and other topics.

Course prerequisites:  Statistical Methods I and II (Math 7404 and 7405)

Course webpage:  Start at www.homepage.villanova.edu/jesse.frey/ and follow the link for Math 8444. Assignments and homework solutions will be posted on this page.

Grading:  Your grade will be determined by your homework average (30%), your score on a test given near the middle of the course (25%), your score on a test given near the end (25%), and your grade on the course project (20%). Grades will be assigned either according to the following scale or according to one more favorable to you:

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<tr>
<th>Grade</th>
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<tr>
<td>A</td>
<td>92-100</td>
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<td>A-</td>
<td>89-91</td>
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<td>B+</td>
<td>86-88</td>
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<td>B</td>
<td>82-85</td>
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<td>C+</td>
<td>76-78</td>
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<td>C</td>
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<td>F</td>
<td>&lt; 70</td>
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Computing:  We will use Minitab and SAS for our computing needs. Each of these is available through the university via www.citrixweb.villanova.edu.

Homework:  Homework will be assigned and collected on a weekly basis. You are encouraged to consult with others in the class, but you must submit your own solutions. Assignments should be written up neatly, and multiple-page submissions should be stapled. Typically, you must show your work to receive full credit. Homework assignments will be due at an announced class time, and late assignments will not be accepted without prior arrangements. If you know you will be absent on a day when an assignment is due, please talk with me to arrange an alternate submission plan.

Tentative Dates for Tests:  October 7 and December 2. You will be allowed to bring a specified number of hand-written formula sheets to use during each of these tests.
Course Project: Part of your grade in the course will be based on a data analysis project that you complete during the semester, write up as a short paper, and present to the class in a short talk near the end of the semester. The project must be your own work, and it must include a full time series analysis using the methods from the course. Your data set should consist of one or more related time series, and your analysis should include model fitting, model checking, and forecasting. More details on the project will be given soon.

Other Important Dates:
October 14 (Fall Break) – No class.
November 25 (Thanksgiving Break) – No class.
December 16 – Our final exam period (to be used for project presentations).

Academic Integrity: All work that you submit must be your own. Violations of the University Code of Academic Integrity will be addressed in accordance with the university-wide procedure.

Students with disabilities: Appropriate accommodations will be made for individuals with disabilities. Before I can make these accommodations, however, you must contact the Office of Learning Support Services at (610) 519-5636. It is a good idea to do this early in the semester.

Make-up Tests: Make-up tests will be given only in the case of an excused absence. If you have an excused absence, you should contact me as soon as you are able.

Attendance: Attendance is essential if you wish to do well in this course, and you are expected to attend each class meeting. If you do miss a class, it is your responsibility to find out what was covered and what was assigned. The course website can help with this.