

## Math 414 Spring 2015 Time Series Analysis

**Instructor:** Dr. Kathy Temple

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**Office Hours:** MWF 9 - 9:50AM, Th 12 - 12:50PM, and by appointment.

**Course Goals:** This is an applied course designed to give students the tools they need to handle time series data. Students will learn and apply the standard models for time series data, parameter estimation, diagnostic checking, and forecasting, with a particular emphasis on economic applications.

**Prerequisite:** Math 410A or permission.

**Required Text:** None. A set of typed lecture notes will be available on Canvas at the beginning of the quarter. Note, however, that this will not be a duplicate of, nor a substitute for, the discussion that takes place in class. In particular, examples, etc. may be different.

### **Evaluation:**

- Homework (20%)
- Lab write-ups (30%)
- Two exams (20% each); tentative dates Friday, May 8 and Friday, June 5.
- Final project (10%); due Tuesday, June 9, by noon.

**Software:** As you may have noted, this class meets in the computer lab (BU 103) on Fridays. We will be making extensive use of statistical software to help us analyze time series data. I am currently anticipating that all or most Fridays will be devoted to working on lab assignments. I will be using the software package R in class, and will write lab assignments assuming that you are using R. R and RStudio (an interface for R) are installed in BU 103. They are also available for free to download on any machine, anywhere. You may wish to install these packages on your personal computer. Exams will be given in the computer lab and will also make use of statistical software.

**Lab Write-ups:** As mentioned in the previous paragraph, on most Fridays you will have a lab assignment to work on during class. A write-up of this assignment must be submitted on Canvas by Wednesday at noon. Your write-ups should be written in complete English sentences using correct spelling and grammar - proofread carefully! Follow the guidelines for explanation given below. No credit will be given for late work.

**Homework:** Homework will be assigned about once/week and due dates will be announced at the time of the assignment. Homework must be done neatly, *stapled*, and written on clean-edged paper. Your work should be clear, in a logical order, and provide sufficient explanation. What's sufficient explanation? A good guide is to think about whether another student in the class who didn't know how to do this particular problem could understand your solution. This will also help you understand your solutions later! Credit will not be given for late homework.

**Final Project:** There will be a final project due during the final exam week. This project is designed for you to show that you can put the pieces of the course together and apply them to a data set of your own choosing. More details will be given later in the quarter.

**Academic conduct:** Students are expected to adhere to the academic code of conduct, as laid out in the university catalog (see the Appendix, Section Two). In particular, academic dishonesty in any form will not be tolerated and will result in a complaint to the Dean of Student Success. For written homework and lab reports, I expect that the work turned in for grading will be your own. Discussion of the assignments with other students is permitted, but you should always write up the work independently. Working with other students does not mean that your work will be identical! Credit will not be given to any party for work which is identical or substantially identical.

**Miscellaneous:** Any changes to the tentative exam dates will be announced ahead of time in class. Make-up arrangements must be made prior to an exam unless you can document an unexpected circumstance beyond your control that prevented you from taking the exam.

Students with disabilities who wish to set up academic adjustments in this class should give me a copy of their “Confirmation of Eligibility for Academic Adjustments” from the Center for Disability Services as soon as possible so we can discuss how the approved adjustments will be implemented in class. Students without this form should contact the Center for Disability Services, Bouillon 140 or [dssreceipt@cwu.edu](mailto:dssreceipt@cwu.edu) or 963-2171.

Note that the second exam is tentatively scheduled during the last week of classes. It will not be a cumulative exam and will cover only the new material since the first exam. In addition, there will be a lab write-up due on Wednesday of the last week of classes and there may be a homework assignment due.