

Youngstown State University

Department of Mathematics and Statistics

Course Outline for Statistics 5848

- Course Title: Applied Regression and Time Series
- Text: Forecasting, Time Series, and Regression, by Bowerman, O'Connell, and Koehler, fourth edition, Brooks/Cole, 2005.
- Course Credit: 3 s.h.
- Course Prerequisite: STAT 3717 or STAT 3743 or STAT 5844
- Course Description: Statistical methods for studying time series data with uses in forecasting seasonal and non-seasonal trends. Topics include: applied linear regression analysis with model fitting and diagnostics, time series regression and decomposition methods, exponential smoothing, and the Box-Jenkins methodology.

Course Objectives: The goals for students in the course include:

- developing an understanding of the fundamental concepts of time dependent data, forecasting methods, and interpreting conclusions.
- developing the ability to communicate in statistics and produce well written statistical summaries
- developing the ability to work on statistics with peers in and outside the class

Course Assignments: Chapter Topics

1	An Introduction to Forecasting
2	Basic Statistical Concepts
3	Simple Linear Regression
4	Multiple Linear Regression
5	Model Building and Residual Analysis
6	Time Series Regression
7	Decomposition Methods
8	Exponential Smoothing
9	Nonseasonal Box-Jenkins Models and Tentative Identification
10	Estimation, Diagnostic Checking, and Forecasting for Nonseasonal Box-Jenkins Models
11	Box-Jenkins Seasonal Modeling
12	Advanced Box-Jenkins Modeling*

(* indicates optional chapter)

Students will be using SAS or SPSS or other software packages to perform statistical analysis.

Grading:

- The grade for this course will be determined by the student's performance on exams, homework assignments, and a comprehensive final which may include an oral exam or written project.
- Graduate students will be given extra reading assignments and expected to do additional problems in tests and homework.
- An attendance and grading policy will be distributed by the instructor.

Students with Disabilities : In accordance with University procedure, if you have a documented disability and require accommodations to obtain equal access in this course, please contact the Office of Equal Opportunity and Disability Services at the beginning of the semester or when given an assignment for which an accommodation is required. Students with disabilities must verify their eligibility through the Office of Disability Service (330-941-1372) intake procedure.

Semester: Spring 2006.

Last Day to Withdraw with a "W": Friday, March 24, 2006.