

ADVANCED APPLIED STATISTICS

MA472

CRN 12095

WEST 2905

M,W,F 9:00-9:50

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Office: NSF 1009, ext. 2558

Office hrs*:	M,W	12:00-1:50, 4:00-5:00
	T, R	9:00-12:00, 4:00-5:00
	F	12:00-2:50

*Appointments must be made via e-mail in advance.
Other times may be available upon request.

GRADING

- 3 tests (approx. every three weeks) 60%
- Homework (collected randomly) 10%
- Final Exam* 30%
 - Tests and exams will always be announced at least one day in advance and always open-book, open-notes with computer access.
 - *Final exam exemption at the discretion of the instructor pending class performance and grade average.

This course satisfies the Formal Communication Studies requirement. This course is designed to introduce students to the ways in which information and ideas are expressed using a communication system other than English. Such courses should foster the student's ability to conceptualize and communicate in an orderly, rational manner. Characteristics of a communication system include: 1) possession of a grammar; 2) operation from an established set of rules; 3) reasoning properties such as deduction, inference drawing and problem solving. This includes courses in languages and those in which the central focus of the course is on statistics, computers or formal logic.

DISABILITY SERVICES

If you have need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Disability Services by: coming into the office at 2001 C.B.Hedgcock, calling 227-1700; or e-mailing disserv@nmu.edu.

Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.

Tentative Course Syllabus

note: dates (esp. test dates) subject to change

Week	Date	Chapters	Lecture Topics
1	1/14-1/18	Ch. 1,2	Statistical Terminology, Intro. To R-program
2	1/20-1/25	Ch.3,4	Examining Data – visually and numerically
3	1/28-2/1	Ch. 5.1	Linear Least Squares Regression - Simple Regression
4	2/4-2/8	Ch. 6.1	Statistical Inference - Simple Regression
5	2/11	Test 1	Chapters 1-4, 5.1, 6.1
5,6	2/13-2/22	Ch.5.2	Linear Least Squares Regression – Multiple Regression
7	2/25-3/1	Ch. 6.2	Statistical Inference – Multiple Regression
8	3/4-3-8	SPRING BREAK	Take-home Project
9	3/11-3/15	Ch. 7	Dummy -Variable Regression
10	3/18-3/22	Ch. 11	Linear Model Diagnostics – Influential Observations
11	3/25-3/29	Ch. 13	Variable Selection - Collinearity
12	4/1	Test 2	Chapters 5.2, 6.2, 7, 11, 13
12,13	4/3-4/12	Ch. 8.1,, 8.2	Analysis of Variance Part I – One-way and Two-Way
14	4/15-4/19	Ch. 8.3, 8.4, 8.5	Higher-way ANOVA, ANOCOVA, Linear Contrasts
15	4/22	Test 3	Chapter 8
15	4/24 ,4-26	Review	Review and Special Topics
16	5/1	Final Exam	Good Luck!

Measurable Course Objectives

- The objectives of this course are to:
 - review basic principles of probability and advanced statistical methods including the analysis of linear models (regression, ANOVA, some multivariate techniques).
 - provide a basic framework for performing and understanding numerical data analyses using standard computer software.
 - instruct in the interpretation of and assessment of statistical conclusions in research studies.
- Measurement of these objectives will use test results and successful assignment completion as outlined in the grading procedures.

Required Resources

- Texts –
 - Fox, John. Applied Regression Analysis and Generalized Linear Models, second edition. Sage 2008.
 - Fox, John and Sanford Weisburg. An R Companion to Applied Regression, second edition. Sage 2011.
- Microsoft Excel 2007 with Analysis Tool-Pak
- R- computer program (free download instructions available)
- SPSS with Advanced Statistical Add-ons (available from NMU computing center)
- Hand-held calculator

- All exams will be open book/open notes.

Supplemental Reference Texts

- Weisburg, Sanford. Applied Linear Regression, third edition. Wiley, 2005.
- Mickey, Ruth M., Olive Jean Dunn, and Virginia A. Clark. Applied Statistics – Analysis of Variance and Regression, third edition. Wiley, 2004.
- Hocking, Ronald R.. Methods and Applications of Linear Models, second edition. Wiley, 2003.
- Montgomery, Douglas C., Elizabeth A. Peck and G. Geoffrey Vining. Introduction to Linear Regression Analysis, fifth edition. Wiley, 2012.
- Michael H. Kutner, Christopher J. Nachtsheim, and John Neter. Applied Linear Regression Models, fourth edition. McGraw-Hill, 2004.
- Mason, Robert L., Richard F. Gunst and James L. Hess. Statistical Design and Analysis of Experiments with Applications to Engineering and Science, second edition. Wiley, 2003.