

# STA 6166 – Statistical Methods in Research I

## Spring 2013

**Section 13F8: MWF 4<sup>th</sup> period (10:40-11:30) in FAB 103**

**Instructor:**

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**Office:** Griffin Floyd 116B,

**Phone:** 352 – 273 – 2972

**Office Hours:** Office Hours subject to change and will be posted on the course website

**Course Web Address:** <http://www.stat.ufl.edu/~dathien/sta6166.html> and Sakai/E-learning for posted grades (only)

### **Course Description:**

Introduce basic data analysis tools and to train graduate students in statistical tools associated with hypothesis testing and linear models. The aim is to promote sound scientific research and experimentation based on good statistical thinking and practice.

### **Course Materials Required:**

- 1) *A First Course in Statistical Methods*, by Ott and Longnecker, 2004
- 2) Calculator capable of calculating means and standard deviations

### **Software:**

You will need a computer for the homework assignments. The main software used in class will be R (<http://www.r-project.org/>) although you can use SAS (of which some links will be provided), or any other software that can yield similar results.

### **Homework and Quizes:**

There will be homework problems assigned each week. These will not be collected. However, one or more of these questions (or a slight alteration of them) will be a quiz question. There will be one **10 minute quiz once a week**, based on the assigned homework questions. The lowest quiz grade will be dropped.

There may one or two data analysis projects assigned during the semester. Students are allowed to collaborate, however, the work handed in must be unique.

**Exams:** There will be three in-class exams, given on the dates listed below.

Exam 1: February 11<sup>th</sup>

Exam 2: March 22<sup>nd</sup>

Exam 3: April 24<sup>th</sup>

Each exam is composed of multiple choice questions (approximately 75%) and some open-ended questions.

If a student is unable to take an exam at the scheduled time, they must notify the instructor as early as possible. If an emergency situation precludes an advance arrangement, you should let the instructor know within 24 hours of the missed exam. Each case will be reviewed individually. You will be required to provide official documentation to be eligible for make-up examination.

**Grades:**

Each exam is worth 25% the final grade and the quizzes the additional 25%.

Note: Lowest exam's weight of final grade may be reduced and highest exam's increased.

**Grading Scale:**

The grading scale will be as follows:

A:	92-100%,	A-:	88- <92%,		
B+:	84- <88%,	B:	80- <84%,	B-:	77- <80%,
C+:	74- <77%,	C:	70- <74%,	C-:	67- <70%,
D+:	64- <67%,	D:	56- <64%,		
E:	< 55%.				

To see the effect of the + and – grades on your GPA, look at the following link:

<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>.

**Course Policies:**

**Academic Dishonesty:** I adhere to the University of Florida rules and guidelines for handling instances of academic dishonesty. Please refer to the Office of Students Services for detailed information about the current policies.

**Instructor's Honor Code:** We the members of the University of Florida community pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

**Grading:** Grades will be changed only when an error has been made by the instructor.

**Incomplete:** Incompletes are only assigned when extraordinary circumstances, arising after the date for dropping off the course, prevent the student from completing the course requirements. The student must be currently passing the course and discuss the circumstances with the instructor before the final exam takes place. Having a failing grade in the course is not a valid reason for requesting an incomplete.

**Getting Help:** Students may ask questions during the lectures (preferred) or the office hours. The TAs will answer questions during office hours. A list of private tutors (if needed) may be obtained from the Statistics Department Secretary in Griffin Floyd 103.

**Students with disabilities:** Students requesting classroom accommodation must first register with the Dean of Students office. The Dean of Students will provide documentation to the students who must then provide this documentation to the Instructor when requesting information.

**Privacy Policies:** Student records are confidential. Only information designated "UF directory information" may be released without your written consent. UF views each student as the primary contact for all communication. If your parents contact me about your grade, attendance or other information that is not "UF directory information". I will ask them to contact you.

**Tentative schedule:**

	Subjects	Sections
	Introduction, Data Collection/Summaries, Populations/Samples	1.1-3.9
	Probability, Random Variables, Graphical Representation	4.1-4.10
	Sampling and Sampling Distributions, Estimating a Mean	4.11-4.13, 5.1-5.3
	Statistical Test for a Mean	5.4-5.7
	Comparing Two Population Means and Medians	6.1-6.6
	Introduction to $F$ , chi-square Distributions, Inference on Variances	7.1-7.4
	Introduction to Analysis of Variance and Experimental Design	8.1-8.3
	1-Way ANOVA: Assumptions, Rank-Based Tests, Post-hoc tests	8.4-8.6
	Randomized Complete Block Design	9.1-9.2
	Latin Square Design, 2-Factor ANOVA	9.3-9.6
	Categorical Data Analysis: Estimating and Comparing Proportions	10.1-10.3
	Contingency Tables, chi-square-Tests, Odds Ratios	10.5-10.6
	Introduction to Linear Regression	11.1-11.5
	Correlation and ANOVA intro to Multiple Regression	11.7, 12.1-12.2
	Multiple Linear Regression	12.1-12.5
	Logistic Regression	12.6

The instructor reserves the right to update any parts of this syllabus as necessary. Students will be notified of any changes.

**Note:** There will be no classes on the following days

January 21 <sup>st</sup>	Martin Luther King Day
March 2 <sup>nd</sup> - 9 <sup>th</sup>	Spring Break