

STA 6166: Statistical Methods in Research I

Fall 2012

Sections 08AB, 05A1

COURSE OBJECTIVE To train graduate students in basic statistical tools with the aim of promoting sound scientific research based on good statistical thinking and practice.

PREREQUISITE STA 2023 or equivalent

INSTRUCTOR Ruth M Hummel
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CLASS WEBSITE <http://lss.at.ufl.edu/> -- Login to e-Learning in Sakai using your GatorLink username and password to access the STA 6166 page.

The **class Sakai website** will be used to distribute information, handouts, etc. to everyone in class. Be sure your campus email address is current because you are accountable for any information posted in this manner.

REQUIRED TEXTBOOK

Title: **JMP START STATISTICS**

ISBN: [9781599945729](https://www.isbn-international.org/product/9781599945729)

Author: **SALL, CREIGHTON & LEHMAN**

Edition: 5th

Publisher: **SAS INSTITUTE**

New Retail Price: **\$59.95**

RECOMMENDED TEXTBOOKS/RESOURCES

Oehlert, G. 2003. *A first course in design and analysis of experiments*.
Available for free online at <http://www.stat.umn.edu/~gary/Book.html>.

Cobb, George W. 1998. *Introduction to design and analysis of experiments*.
ISBN 0-387-94607-1.

EXAMS

There will be **three take-home exams** during the semester. Exams will focus on the material in the unit just covered, but may include material from previous units as well. You will have at least 5 days to complete each exam, including a weekend. The exams will each be worth 15% of your final grade.

HOMEWORK

Homework will typically be assigned once or twice a week and will always be due on the following Wednesday by midnight EST. In total, the homework assignments will be worth 55% of your grade, and the lowest two scores will be dropped. **Late homework will never be accepted.**

While you may consult with classmates and the instructor, the work you turn in must be your own. This means that **it is considered cheating for you to work together on an assignment**. Attempt each problem on your own and **to the best of your ability** first. Only then should you request help from a classmate or me.

GRADING

Homework – 55%; Exams – 45%

>93%	A	90-93%	A-	
87-90%	B+	83-87%	B	80-83% B-
77-80%	C+	73-77%	C	70-73% C-
67-70%	D+	63-67%	D	60-63% D-
<60%	E			

SOFTWARE

You will need a computer for the homework assignments. The main software used will be **JMP 8** or **JMP Pro 9**. (You can use either of these versions – JMP 9 has more functionality, but JMP 8 is faster to install.) JMP is available for free for all UF students and faculty, courtesy of the IFAS Statistics department, and can be used on both a Mac and a PC platform (using different installation versions). Email Mr. James Colee (colee@ufl.edu) to request a copy – be sure to mention what operating system you have!

I may also, on occasion, use SAS to illustrate some of the features available in SAS that are not available in JMP or to teach some elementary programming. You may purchase a student version of SAS for your personal computer (you must install it on a windows-based platform – SAS does not work with Mac) from the UF bookstore. You can also access SAS on your computer (Mac or PC) through the SAS OnDemand website (http://www.sas.com/govedu/edu/programs/od_academics.html). Go to (<https://support.sas.com/ctx3/sodareg/index.html?execution=e2s1>) to create a student account, specifying that you are using it for STA 6166 at UF.

Both SAS and JMP are also installed in the IFAS lab (2103 McCarty Hall B) on campus.

It is YOUR RESPONSIBILITY to make sure that you have access to a statistical package.

WARNING

You are welcome in this class, and I will work my hardest to provide you with good instruction, clear and helpful examples, and a fair, respectful and challenging working environment. I am always willing to meet with you to answer questions or provide additional examples, both during my office hours and by appointment. HOWEVER: **This course will move at a very fast pace, and, depending on your statistical background, may require a 15-20 hour time commitment per week.** This class assumes that you have a basic level of mathematics and statistics (i.e. a basic undergraduate statistic class) where some of the topics were forgotten and/or not well understood. In this class we will review/clarify/explain/expand these basic topics; however, we will be stopping only BRIEFLY in mathematical details as they are assumed to be known. If you consider that your prior statistical background is very weak then we recommend

you do not take this class and first register for an undergraduate class (e.g. STA2023, 3024, 3032), or complete a no-credit online course (we recommend The "Statistical Reasoning" free online course through Carnegie Mellon: <https://oli.web.cmu.edu/openlearning/forstudents/freecourses/statistics>), to avoid some future struggle (i.e. a C or D grade).

UNIVERSITY POLICIES

Academic Dishonesty: All members of the University Community share the responsibility to challenge and make known acts of apparent academic dishonesty. Acts of academic dishonesty (including giving or receiving unauthorized aid on an assignment, plagiarizing work, or distributing restricted materials) will not be tolerated and will be referred to the Student Honor Council.

The 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. On all work submitted for credit by students at the university, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

Academic Accommodations: If you have a documented disability and wish to discuss academic accommodations, please CONTACT ME as soon as possible. Students requesting classroom accommodation must register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. Until I receive this documentation, I CANNOT provide any accommodations.

TENTATIVE SCHEDULE OF TOPICS

Lecture Dates	Topics
Week 1	Statistics, Data, and Random Variables
Week 2	Designs, Distributions, and Parameters
Week 3	Sampling Distributions, CIs, and t-tests
Week 4	ANOVA; EXAM 1
Week 5	Nonparametrics
Week 6	Multiple comparisons
Week 7	2-factor ANOVA and interactions
Week 8	Regression
Week 9	Regression continued; EXAM 2
Week 10	Multiple regression and ANCOVA
Week 11	Model-fitting
Week 12	Chi-squared, odds, and proportions
Week 13	Chi-squared, odds, and proportions continued
Week 14	Logistic regression; EXAM 3
Week 15	Logistic regression continued