



**Department of Statistics**  
**STA 2122, Section 21**  
**Introduction to Applied Statistics**  
**Syllabus, Spring 2015**

**Instructor:** Robert P. Clickner, Ph.D.      **Office:** OSB 201E      **Email:** rclickner@stat.fsu.edu

**Office Hours:** Tue and Thu, 12:00-12:30 pm and 1:45-2:15 pm, or by appointment. Please email me to make an appointment.

**Class Meeting Time and Location:** Tue, Thu    12:30 am - 1:45pm    Room 108 OSB

**Blackboard Course Website:** To access the blackboard site go to <http://campus.fsu.edu/> and login using your ACNS username and password. Grades, notes, announcements and other important information will be available through this site. This will be an important tool! It is your responsibility to check Blackboard and be aware of all information posted on Blackboard and e-mailed to you.

## **COURSE DESCRIPTION**

**Prerequisite:** A grade of "C-" or better in MAC 1105 College Algebra (or equivalent).

**Special Note:** No credit given for STA 2122 if a grade of "C-" or better is earned in STA 2171, STA 3032 or QMB 3200.

The course covers Normal distributions, sampling variation, confidence intervals, hypothesis testing, one-way and two-way analysis of variance, correlation, simple and multiple regression, contingency tables and chi-square tests, non-parametric statistics.

The purpose of this course is to prepare students for further study and job preparation in the field of Natural Sciences. It will emphasize understanding of data and interpretation of statistical analyses. It will require students to think of data, and report the results of their analyses, in context.

## **COURSE OBJECTIVES**

By the end of the course, students will demonstrate the ability to:

- (1) Analyze and address problems drawn from real world scenarios by applying appropriate mathematical, statistical, logical, and/or computational models or principles.
- (2) Interpret and evaluate data and information as presented in a variety of modes (such as tables, graphs, and charts), using appropriate technology. They will also be able to clearly communicate a summary of their findings to peers.

*The above two competencies will be assessed in the L.S. Quantitative Assessment for STA 2122, which includes a written summary of results.*

- (3) Use descriptive statistics and graphical methods to summarize data accurately.
- (4) Use inferential statistics to make valid judgments based on the data available.
- (5) Select the appropriate statistical tools to analyze a particular problem.
- (6) Describe the goals of various statistical methodologies conceptually.
- (7) Develop a healthy skepticism toward statistical studies and their results based on a sensible consideration of the techniques employed.

## LIBERAL STUDIES FOR THE 21<sup>st</sup> CENTURY

### Quantitative and Logical Claims

The *Liberal Studies for the 21<sup>st</sup> Century Program* at Florida State University builds an educational foundation that will enable FSU graduates to thrive both intellectually and materially and to support themselves, their families, and their communities through a broad and critical engagement with the world in which they live and work. Liberal Studies offers a transformative experience; this course has been approved as meeting the Liberal Studies requirements and thus is designed to help you become a critical analyzer of quantitative and logical claims.

In order to fulfill the State of Florida's College mathematics and computation requirement the student must earn a "C" or better in the course.

## COURSE MATERIALS

**Textbook:** The textbook *The Basic Practice of Statistics (6th edition)* (2013) by David S. Moore, William I. Notz, and Michael A Fligner is required.

**Statistical Software:** I will use *JMP Pro 11* extensively in class presentations. You will be expected to use JMP in homework and on tests. Directions for downloading and installing JMP on your laptop (Windows and Mac versions) are posted on the course Blackboard.

**Calculator:** Any simple scientific calculator, such as the TI-30X or better. It is your responsibility as the student to learn how to use the calculator. Cell phones and PDAs may **not** be used as calculators.

## GRADES

**Liberal Studies Quantitative Assessment (5%):** This is a common assessment (not the final exam) that will be given to all STA 2122 classes. It will be administered on March 5. The assessment will cover one-sample Z-intervals.

**Homework (5%):** Homework will be assigned after almost every lecture. Problems will be graded as done or not done and spot checked for correctness. The homework may be done with the help of other people in and out of the class. It is designed to help you to prepare for the tests. There will be a Q&A session on the homework at the beginning of each class. Some of the test problems will be homework problems.

**Midterm Exams (65%):** There will be either three midterm exams or two exams and a project. The first two exams will be worth 20% each and the third exam/project will be worth 25%. The second exam will include the quantitative assessment. They are unit exams and are only cumulative in the sense that the material is naturally cumulative. A make-up exam will be given only under a circumstance that is beyond a student's control. If you

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need to miss an exam you must notify me *in advance* and provide proper documentation. If you miss an exam without notifying me *in advance* you will receive a zero for that exam.

**Final Exam (30%):** There will be a cumulative final. **It will be given on Tuesday, April 28, 3:00 pm to 5:00 pm.** Everyone will take the final exam on the same day and time. There will be no early finals. No exceptions! Mark your calendars now and do not plan on leaving town before the final exam. If you have already made reservations, revise them now.

*There will be no extra credit assignments and no opportunities for grade improvement after the last day of class.*

#### Overall Course Grade:

Letter	Final Pct	Letter	Final Pct	Letter	Final Pct	Letter	Final Pct	Letter	Final Pct
FSU does not award A+		B+	87 - 89	C+	77 - 79	D+	67 - 69	F	0-59
A	93-100	B	83 - 86	C	73 - 76	D	63 - 66		
A-	90 - 92	B-	80 - 82	C-	70 - 72	D-	60 - 62		

### ATTENDANCE AND DROP/WITHDRAWAL

First day attendance is mandatory per university regulations. Thereafter attendance may be taken at unannounced times. I fully expect you to be present at every class meeting. Drop/Withdrawal deadlines are given in the University's academic calendar at [http://registrar.fsu.edu/dir\\_class/summer/acad\\_cal.htm](http://registrar.fsu.edu/dir_class/summer/acad_cal.htm).

**University Attendance Policy:** Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

### CLASSROOM POLICIES:

The classroom environment is an important factor for effective learning. In order to not distract or cause interruption in the attention of other students please follow the following classroom policies.

- Turn off **all** audible alarms (cell phones, pagers, calculators, watches etc.) Using cell phones in class shows a lack of respect and gives suspicions of cheating.
- Do not eat or drink in the classroom.
- Please show respect for everyone in the classroom. Part of the learning process includes making mistakes and learning from those mistakes. This should be an environment where everyone feels comfortable participating in class without having to worry about what others will say.
- There is no such thing as a stupid question, except the one that is not asked. Always ask your questions, no matter how "stupid" you think they are. If something is bothering you then it certainly needs to be cleared up.

### DURING TESTS:

- Do not communicate with anyone outside of the classroom, either remotely or in person, do not ask anyone inside the classroom for help, and do not help classmates.
  - You may **not** use a cell phone or PDA as a calculator.
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- I will ask you to move to another seat if I suspect that you, or persons around you, may be cheating. This will be a subjective judgment on my part.
- Please bear in mind that cheating, test question disclosures, and the like reduce the worth of the degree you are working toward.

I promise to give you the same measure of respect that I expect from you.

**Class Cancellations:** If I need to cancel class, I will email you or post an announcement on the Blackboard course website, so please check your @my.fsu.edu email and the Blackboard course website frequently for the latest information. If the University closes due to bad weather, or any other reason, then class is automatically cancelled, so please check the University alerts webpage <http://alerts.fsu.edu/> at such times.

**Email:** Please check your @my.fsu.edu email often. When you send e-mails remember the following:

- Always e-mail from your FSU accounts. Email sent from outside the FSU domain may not get through.
- Always write your full name at the end of each e-mail message you send.
- Always write STA 2122-20 at the beginning of the subject line.

**Students Completing an Incomplete or Auditing:** If you are not actually registered for this course, make yourself known to me so that I may let you have access to the Blackboard websites. If you are completing an 'incomplete,' give me the name of your former instructor was so that I may give him/her your grade at the end of the term.

**Missing Grades:** It is the responsibility of the student to make sure that their grades are correctly entered into Blackboard. I will do my best to post all the grades correctly, but in the case of a missing or incorrect grade, let me know within one week of the grades being posted. I cannot promise to resolve a missing grade issue if it is reported more than one week after the grades are entered.

**Appeals:** A written statement of the grade appeals must be provided within one week of the test/assignment being returned to the class. Give me the work in question and a clear, brief explanation of why you think you deserve additional credit.

**Help Outside of Class:** You are strongly encouraged to come for help during my office hours. If your schedule conflicts with the office hours, you can make an appointment. You may ask me brief questions by e-mail, but you may be asked to come to office hours if the questions are better answered in person. During office hours I will not re-teach large portions of material that you may have missed. Office hours are intended to provide assistance with specific items that you may still be having trouble with after you have read the relevant material and attempted the problems on your own.

**Free Tutoring from FSU:** On-campus tutoring and writing assistance is available for many courses at Florida State University. For more information, visit the Academic Center for Excellence (ACE) Tutoring Services' comprehensive list of on-campus tutoring options - see <http://ace.fsu.edu/tutoring> or contact [tutor@fsu.edu](mailto:tutor@fsu.edu).

## ACADEMIC HONOR POLICY

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "... be honest and truthful and ... [to] strive for personal and institutional integrity at

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Florida State University.” (Florida State University Academic Honor Policy, found at <http://fda.fsu.edu/Academics/Academic-Honor-Policy>.)

### **AMERICANS WITH DISABILITIES ACT:**

Students with disabilities needing academic accommodation should:

1. Register with and provide documentation to the Student Disability Resource Center
2. Bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class. This syllabus and other class materials are available in alternative format upon request.

For more information about services available to FSU students with disabilities, contact the

Student Disability Resource Center

874 Traditions Way

108 Student Services Building

Florida State University

Tallahassee, FL 32306-4167

(850) 644-9566 (voice)

(850) 644-8504 (TDD)

sdrc@admin.fsu.edu

<http://www.disabilitycenter.fsu.edu/>

**Syllabus Change Policy:** Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advanced notice.

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**Course Outline  
STA 2122, Section 21  
Spring 2015**

<b>Topic</b>	<b>Chapters</b>	<b>Beginning Date (Tentative)</b>
<b>Introduction</b>		<b>January 8</b>
<b>Exploring Data</b>		
Graphs	1	January 13
Summary Statistics	2	January 15
Scatterplots, Correlation and Simple Linear Regression	4, 5	January 22
<b>Test 1</b>		<b>February 3</b>
<b>From Exploration to Inference</b>		
Normal Distributions	3	February 5
Sampling, Distributions: The Central Limit Theorem	8, 11	February 17
Confidence Intervals and Tests of Significance: The Basics	14, 15, 16	February 26
<b>Test 2, Including Quantitative Assessment</b>		<b>March 5</b>
<b>Spring Break</b>		<b>March 9-18</b>
<b>Inference about Variables and Relationships</b>		
One Sample Inference	18	March 17
One-Way Analysis of Variance	25	March 24
Two Categorical Variables: Chi-square Tests	23	March 31
<b>Test 3 (?)</b>		<b>April 7</b>
Regression Inference	24, 28	April 9
<b>Final Exam</b>	<b>All</b>	<b>April 28, 3:00</b>