



STA 2122 Section 19

Introduction to Applied Statistics

FALL 2015

MoWe, 9:30 AM - 10:45 AM, 108 OSB

Instructor: Roumen Varbanov

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Office: 104F OSB

Office Hours: Tu 9:30 AM - 10:45 AM or by appointment

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 advance notice.

**Course Description:** 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.

**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.

**Credit Hours:** 3

**Text (optional):** *The Basic Practice of Statistics*, 7<sup>th</sup> Edition

**Authors:** Moore, Notz, and Fligner; **ISBN-13:** 978-1464142536

**Course Websites:** campus.fsu.edu

**Required Materials:** Any simple scientific calculator, such as the TI-30X or better. Lecture notes will be posted in Blackboard's Course Library no later than one day prior to the lecture they pertain to. It is your responsibility to print out those notes and bring them to class so that they can be filled out.

**Course Objectives:**

At the completion of this course, students will be able 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.

### Grade Distribution:

Common Assessment	5%	This is a mandatory assessment, similar to a short quiz, that is given to all STA 2122 classes each term as part of their <i>Liberal Studies for the 21<sup>st</sup> Century</i> curriculum.
Attendance and Participation	20%	Attendance will be taken randomly throughout the semester. You can miss one attendance check without penalty. Participation is evaluated on participation on in-class activities.
Tests	75%	There will be 3 equally-weighted, in-class tests. The third test will be given during final exam week. The coverage of the tests will not be cumulative. You will be allowed to use one <b>handwritten</b> sheet of notes (front and back) and a calculator on each test.

### Homework:

There will be practice problems and solutions posted on Blackboard for each section of notes. While these will not be graded, you are expected to work through these problems as they provide the best form of preparation for tests.

### Letter Grade Distribution:

$\geq 93.00$	A	73.00 - 76.99	C
90.00 - 92.99	A-	70.00 - 72.99	C-
87.00 - 89.99	B+	67.00 - 69.99	D+
83.00 - 86.99	B	63.00 - 66.99	D
80.00 - 82.99	B-	60.00 - 62.99	D-
77.00 - 79.99	C+	$\leq 59.99$	F

### Course Policies:

#### • Classroom Expectations

- Please be respectful of everyone in the classroom.
- Cell phones should be silenced.
- You should arrive on time and prepared for class. If you must arrive late or leave early, please do so in a way that disturbs the class minimally.
- Ask questions whenever you have them.

- **Communication**

I will communicate with you through your FSU email address and Blackboard; check both daily. The best way to reach me outside of office hours is by email. When emailing me, use your FSU email address and include STA 2122 in the title and your full name in the email. If I have not responded to your email within 24 hours, please resend your message to ensure that I have received it. It is important that you communicate any issues you may be having with the course as promptly as possible so that they can be addressed.

- **Attendance and Absences**

Attendance is required and will be taken into the calculation of your final grade. You are responsible for material presented and assessments given during class. If you miss lecture, you should obtain the missed notes from me or a classmate. You will only be allowed to make up a missed assessment with a valid excuse and within one week of your return from the absence. Excused absences are defined in the Florida State University Policy section of this syllabus.

- **Grading Appeal**

It is your responsibility to ensure that your grades are input correctly into Blackboard. If you feel that an assessment was unfairly or incorrectly graded, please bring this to my attention within one week of when the assessment was returned to you and I will address your concerns.

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

The Liberal Studies for the 21st 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.

### **FLORIDA STATE UNIVERSITY POLICY:**

#### **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.

#### **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 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; and (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](mailto:sdrc@admin.fsu.edu)

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

**Tentative Course Outline:**

Weekly coverage may change depending on the progress of the class; test coverage will be adjusted accordingly. Test dates will not change without notice. For university academic calendar, visit

[http://registrar.fsu.edu/dir\\_class/fall/acad\\_cal.htm](http://registrar.fsu.edu/dir_class/fall/acad_cal.htm).

<b>Week</b>	<b>Content</b>
Week 1 (8/24 - 8/28)	<ul style="list-style-type: none"> <li>• Coverage: Introduction, Graphs, Summary Statistics</li> </ul>
Week 2 (8/31 - 9/4)	<ul style="list-style-type: none"> <li>• Coverage: Summary Statistics, Probability</li> </ul>
Week 3 (9/7 - 9/11)	<ul style="list-style-type: none"> <li>• Coverage: Normal Distributions</li> <li>• No class on 9/7 (Labor Day)</li> </ul>
Week 4 (9/14 - 9/18)	<ul style="list-style-type: none"> <li>• Coverage: Normal Distributions, Central Limit Theorem</li> </ul>
Week 5 (9/21 - 9/25)	<ul style="list-style-type: none"> <li>• Coverage: Review</li> <li>• <b>Assessment: Test 1 (9/23)</b></li> </ul>
Week 6 (9/28 - 10/2)	<ul style="list-style-type: none"> <li>• Coverage: One-Sample Inference</li> </ul>
Week 7 (10/5 - 10/9)	<ul style="list-style-type: none"> <li>• Coverage: One-Sample Inference</li> </ul>
Week 8 (10/12 - 10/16)	<ul style="list-style-type: none"> <li>• Coverage: Non-Parametric Methods, ANOVA</li> </ul>
Week 9 (10/19 - 10/23)	<ul style="list-style-type: none"> <li>• Coverage: ANOVA</li> <li>• <b>Assessment: Common Assessment/Quiz (10/21)</b></li> </ul>
Week 10 (10/26 - 10/30)	<ul style="list-style-type: none"> <li>• Coverage: Review</li> <li>• <b>Assessment: Test 2 (10/28)</b></li> </ul>
Week 11 (11/2 - 11/6)	<ul style="list-style-type: none"> <li>• Coverage: Simple Linear Regression</li> </ul>
Week 12 (11/9 - 11/13)	<ul style="list-style-type: none"> <li>• Coverage: Multiple Regression</li> <li>• No class on 11/11 (Veterans' Day)</li> </ul>
Week 13 (11/16 - 11/20)	<ul style="list-style-type: none"> <li>• Coverage: Regression Inference</li> </ul>
Week 14 (11/23 - 11/27)	<ul style="list-style-type: none"> <li>• Coverage: Chi-Square Tests</li> <li>• No class on 11/25 (Thanksgiving Break)</li> </ul>
Week 15 (11/30 - 12/4)	<ul style="list-style-type: none"> <li>• Coverage: Chi-Square Tests, Review</li> </ul>
Finals Week (12/7 - 12/11)	<ul style="list-style-type: none"> <li>• <b>Final Exam: 10:00 AM - 12:00 PM on Wednesday (12/9)</b></li> </ul>