STA 2122 – Applied Statistics

Fall 2015 – Section 13

INSTRUCTOR INFORMATION

Instructor: Mark Orndorff   **Office:** OSB 208B

Email: morndorff@stat.fsu.edu

Office Hours: 930AM – 11AM Tuesday and Thursday, or by appointment. To make an appointment, please email me.

CLASS INFORMATION

Class Meeting Times and Location: TR 8:00AM-9:15AM in OSB 110. There are no recitations for this section.

Course Website: Blackboard (campus.fsu.edu)

Course Prerequisites: 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.

Course Credit Hours: 3

Course Materials:

- Lecture notes will be provided on-line. Any additional (or changes to) the lecture notes/slides will be added on the course website so it is important to check the course website before class days. You will be filling in the notes during lecture, so it is vital that they are printed out before class.
- There is no textbook required for this class. The lecture notes are self contained.
- A TI-83 or equivalent is **REQUIRED**. If you wish to use your own calculator, make sure to check with me that it will be able to do the required calculations. Also, if you use a different type of calculator, you will be responsible for learning how to perform the required calculations. They will be used on every exam and often used during class, so bring your calculator to every class. Cell phones are not an acceptable calculator for tests or quizzes.

COURSE GOALS

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.

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 Liberal Studies 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.

GRADES

Quizzes (20%): A total of five quizzes will be given, each equally weighted. Your LOWEST SCORE WILL BE DROPPED. The problems will reflect the material covered in class and in the lecture notes in the time since the last quiz. Quizzes will be given on the course Blackboard site. They will be typically be due at 11:59PM, on Sunday. Each quiz will typically contain material from lectures up until the Thursday before the quiz. **Please remember to take the quiz**! I will attempt to send email reminders and mention it in class, but the responsibility is yours. See the tentative schedule for quiz dates. I encourage you to program them into your phone's calendar function now so that you do not forget. Because you have several days to take the quiz and the lowest score is dropped, there will be no make-ups for quizzes.

Course Assessment (8%): There will be one Course Assessment, worth 8% of your final grade. It will be given Thursday, March 5, during normal class time. You will be allowed on 8 ½ by 11 in. note sheet. This assessment will be cumulative. This is the "Liberal Studies Quantitative Assessment", referred to in the course objectives.

Midterm Exams (42%): There will be two midterm exams. Each exam will be worth 21% of your final grade each. They are unit exams and are only cumulative in the sense that the material is naturally cumulative. You are allowed <u>one</u> hand-written (two-sided) 8 ½ x 11 in. note sheet on each midterm exam. A make-up exam will be given only under the circumstances documented by the university's excused absence policy. If you are going miss an exam you must notify me *in advance* and provide proper documentation. You must make up a midterm within one week. For more details, see the attendance policy.

Final Exam (30%): There will be a cumulative final. You are allowed one hand-written (two-sided) 8 ½ x 11 in. note sheet on the final exam. **It will be given on Wednesday, December 9th, 10:00 AM to 12:00 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. Please note that this exam is given on a 'block' schedule, and thus the time of the exam does not depend on the meeting time of the class.
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NOTE: The meeting place for the final exam has not been decided upon yet. This is done by FSU administrators, and is typically decided on in early November.
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Group Work/Activities: There will be several in-class activities during the semester which will be designated 'group work'. If you are on task and participating during the activity, you will be eligible for a small amount of extra credit at the end of the semester, typically around 2-3 percentage points on your final grade. You can complete these with several people or individually. Typically, I will announce the date of an activity the class period before. There are no make-up opportunities for extra credit points.

Practice Problems: For each section of the lecture notes, I will provide practice problems. It is STRONGLY encouraged that you do enough practice problems that you feel mastery of the material. Material on the examinations will closely parallel the practice problems.

Overall Course Grade:

Letter	Final Pct	Letter	Final Pct	Letter	Final Pct	Letter	Final Pct	Letter	Final Pct
FSU does not award A+		B+	87-89.99	C+	77-79.99	D+	67-69.99	F	0-59.99
A	93.0-100	B	83-86.99	C	73-76.99	D	63-66.99		
A-	90-92.99	B-	80-82.99	C-	70-72.99	D-	60-62.99		

Missing Grades:
It is the responsibility of the student to make sure that their grades are correctly inputted 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.

Requesting a Re-Grade:
If you disagree with the grade you received on an exam or quiz, you need to contact me within one week of the day the assessment was returned. Otherwise, the grade you received will be used to compute your final grade.

TENTATIVE SCHEDULE

The following schedule is subject to update and roughly refers to sections of the lecture notes. For more information, please see the lecture notes on Blackboard. Test and quiz dates are unlikely to change, and if they do, you will be told well in advance.

Week Starting	Tuesday	Thursday	Quiz?
24-Aug	Intro/Graphs	Sample Statistics	
31-Aug	Sample Statistics	Normal Distribution	QUIZ!
7-Sep	Normal Distribution	Normal Distribution	
14-Sep	Central Limit Theorem	Central Limit Theorem	QUIZ!
21-Sep	Probability	Test 1	
28-Sep	Confidence Intervals	Confidence Intervals	
5-Oct	Hypothesis Testing	Hypothesis Testing	QUIZ!
12-Oct	Hypothesis Testing	Hypothesis Testing	
19-Oct	Course Assessment	Non-Parametric Statistics	QUIZ!
26-Oct	ANOVA	ANOVA	
2-Nov	Test 2	Linear Regression	
9-Nov	Linear Regression	Linear Regression	
16-Nov	Linear Regression	Chi-Square Test	QUIZ!
23-Nov	Chi-Square Test	No Class	
30-Nov	Two-Way ANOVA	Review	
7-Dec	Final Exam December 9th 10:00-12:00		

ATTENDANCE POLICY

- As per university regulations, first day attendance is mandatory. After that, attendance is not required, but highly encouraged. Keep in mind that quizzes are highly dependent on the content covered during class, and you may find it difficult to obtain a good grade on a quiz if you miss lecture.
- If you know you are going to miss a test or group work, please contact me ahead of time.
- In the case of a missed examination without prior notice, you must notify me within two days of the missed examination. Make-ups must be completed within one week of the missed assignment, and documentation for the absence must be provided. Make-ups will be accommodated according to the university attendance policy (see next bullet). If you are unsure if your absence will be excused, ask me before you miss the assignment – not after.
- 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 POLICY

- Cell phones should be turned off or turned to silent during class.
- You should arrive on time and prepared for class. If for an unavoidable reason you must arrive late or leave early, please do so in a way that disturbs the class minimally.
- 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.

EMAIL POLICY

- I will send all course announcements to your FSU e-mail account. You should check your FSU account daily as you are responsible for all information sent by e-mail.
- Anytime you e-mail me regarding this class, put STA 2122 and your section number in the subject line, sign your full name at the end of your e-mail, and use your FSU e-mail account to ensure that I receive your e-mail.
- If you are sending me an e-mail about a test or quiz, e-mail me at least 24 hours in advance.

EXAM POLICY

- Calculators use is encouraged during midterms and final exams.
- 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.
- 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.

LIBERAL STUDIES FOR THE 21ST CENTURY

Students with disabilities:
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.

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://dof.fsu.edu/honorpolicy.htm.)

Students with disabilities:
Students 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 and type of accommodation.
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 sdrc@admin.fsu.edu
108 Student Services Building (850) 644-9566 (voice)
Florida State University (850) 644-8504 (TDD)
Tallahassee, FL 32306-4167 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 advance notice. If any changes are made, an updated version of this syllabus will be posted on the course website.