Sample Syllabus
Honors Statistics for Social and Behavioral Sciences (STAT2017)

Lectures: TR 9:30 - 10:45 a.m. Thach 204
Lecturer name TBA Thach xxx (844-xxx) emailaddress @ auburn.edu
Office Hours: TBA
If you have a quick question, drop by my office or call me. If you need to talk
to me more extensively, call me to set up an appointment. When you send me
an e-mail, I will try to answer back within 24 hours; if you don’t receive an
answer in that period, e-mail me again.

Labs: MW 9:00- 9:50 a.m. Thach 202
GTA name TBA Thach 210 (844-5658)
Office Hours: TBA

Course Description
Statistical data analysis is pervasive in sciences, many professions, the media, in social and educational issues, in
business, and in everyday life. Statistical techniques are extremely useful tools for formulating data-based answers to
research questions. However, in order to properly use these tools is advisable to know: (1) the appropriate techniques to
use, (2) the assumptions that make the techniques work as intended, (3) the general software and specialized statistical
software that provide the number-crunching capability required for the analyses, and (4) the proper way to convey the
data-based answers to an audience by using graphs, tables and written reports. This is an honor course aimed to these
four goals by focusing on social and behavioral science examples. The course provides an introduction to the more
commonly used statistical techniques and emphasizes the written report as the final output of any statistical analysis.
During lectures and labs students will participate in several activities that make an important part of the learning
experience in the course, as well as students’ grades.

Pre-requisites
MATH 1100 or MATH 1200

Objectives of the Course
1. Identify and apply the basic descriptive statistics procedures
2. Identify and check the assumptions of the basic inferential procedures, as well as apply them.
3. Use Excel, SPSS and Minitab to produce statistical analyses and graphs
4. Write data analysis results following APA-style

Textbook and Reference


Lectures and Labs Organization
During the lectures we will engage in brief quizzes, individual and group demonstrations and activities that will give
you hands-on experience with the content of the course. Besides short lectures during class, we will spend a substantial
amount of time in class working on activities. You are responsible for reading the notes, book chapters, and
presentations before coming to lectures. We will use e-instruction’s CPS-RF clickers for quizzing and collecting data
during lectures. You can get the actual clicker in the University Bookstore, but to activate it you have to follow the
instructions detailed at the end of this syllabus. For the computer labs you will need a USB flash drive to save your work.
During these labs you will generate data using simple experiments, and use these data, or other available data, to illustrate
statistical concepts. You will also learn to use Excel, SPSS, and Minitab to analyze data of your own or from external sources.

Students needing accommodations should arrange a meeting the first week of class. Come during office hours or email for an alternate time. Bring the Accommodation Memo and Instructor Verification Form to the meeting. Discuss items needed in this class. If you do not have an Accommodation Memo but need special accommodations, make an appointment with The Program for Students with Disabilities, 1244 Haley Center, 844-2096 (V/TT) or email: haynemd@auburn.edu.

Grading
Your final score in the course will be given by Exams, Lecture Activities, Lecture quizzes, Computer Lab Reports, Homework Assignments, and APA-style reports. The weights of these components are as follow:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Exams</td>
<td>55%</td>
</tr>
<tr>
<td>Lecture Quizes</td>
<td>5%</td>
</tr>
<tr>
<td>Lecture Activities</td>
<td>10%</td>
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<tr>
<td>Computer Lab Reports</td>
<td>5%</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>10%</td>
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<tr>
<td>APA-Style Result Reports</td>
<td>15%</td>
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All your grades will be posted in the course web page using a code name of your choice. Please, do not use any of the numbers in your SSN. To assign letter grades I will use the following table:

- A = 90 - 100%
- B = 80 - 89%
- C = 70 - 79%
- D = 60 - 69%
- F = 59% or less.

You can withdraw from the course, with a W in your transcript, until mid-semester.

Exams.
There will be six exams during the semester: five midterms and one final exam. The midterms will include only the most recently covered material during lectures, and they will be given during lab time. The exception is the final exam that will also include topics covered in previous midterms. The final exam will be held on the University-set time and date. If you know ahead of time that you will miss one of the exams due to a University-valid excuse (see Tiger Cub), contact me to schedule your exam in another time. If you miss an exam without telling me ahead of time, and you have a University-valid excuse, you have to contact me no more than one week after the original exam date in order to schedule a make up version of the missed exam.

The exam weights and schedule are as follows:

- Exam 1 8% Howell (2007) Chapters 1 to 3
- Exam 2 8% Howell (2007) Chapters 4, 5 & parts of 7
- Exam 3 8% Howell (2007) Chapters 7 and 8
- Exam 4 8% Howell (2007) Chapters 9 and 10
- Exam 5 8% Howell (2007) Chapters 11 and 12
- Exam 6 12% Howell (2007) Chapter 13 and previous chapters

Lecture Quizes
At the beginning of each lecture I will give you a very short quiz (most of the time four or five questions) about terminology, definitions, concepts, short computations, etc. These quizzes will always be about topics covered during the immediately previous lecture. These quizzes cannot be made up.

Lecture Activities
During lectures you will be asked to participate in individual or group activities. These activities are of different types. Some of them require you to solve short computational problems, others to answer conceptual questions, and others will request you to produce data. During these activities I will walk around the groups to answer questions about the activity. If students have a university-valid excuse for missing lectures (see the Tiger Cub for more information) the students can make up the lecture activity by contacting their GTA within one week of the original activity.
Computer Lab Reports
During the computer labs you will use data from simple experiments run during lab time, or data from other available sources. You will learn to use Excel, SPSS, and Minitab to analyze the data. Usually, on Mondays you will be assigned an activity that involves collecting or generating data, and on Wednesdays you will perform a computer analysis and write a report about the data collected on Mondays. The computer lab reports will be turned in at the end of the Wednesday lab. The report format to be used in the course will be given during the first lab. You can work in pairs during these computer activities. If a student has a university-valid excuse for absence (see the Tiger Cub for more information) the student can make up the lab activity by contacting their GTA and turning in the missed activity within one week from the missed lab date.

Homework Assignments:
During the semester there will be 7 homework assignments. The answers to the problems in the assignment should be summarized on a homework cover sheet attached to the rest of the pages showing your work. You can work the homework assignments in groups of up to three students. The GTA will grade the answers only on the cover sheet and they will compare the answers with the attached work at random. Homework assignments will be due during lab time on the specified days stated in the course syllabus. Homework assignments that are not turned in during a student’s lab time will be considered LATE. Late homework’s may be given to the GTA before 5:00 p.m. on the due date. However, late homework assignments will be penalized by reducing 15% from its score. Because the key for the homework assignment will be available in the course web page after 5 p.m. on the due day, no homework’s will be accepted after 5:00 p.m. on that day. If you anticipate that you will miss the computer lab when the homework is due, please turn your homework assignment early or email it to your GTA.

APA-Style Result Reports
During the semester there will be five short APA-style result reports. You will be assigned a data set and a research question to be answered. You have to write --following APA style-- a report containing the way the data was analyzed, a description of the data, and a statement stating the conclusions of the analyses. Usually the report will consist of (1) a one paragraph introduction section stating the research question, (2) a short Method section describing participants, variables, and procedures, (3) the main part of the report describing the analysis performed and the results obtained --including tables and figures-- following the APA style requirements, and finally (4) a brief discussion section with a paragraph summarizing your answer to the research question.

Course Schedule
Week 1: Introduction, Measurement Scales
Miller (2004) Chapter 1 & 2
APA (2001) Chapter 1 & 2

Week 2: Describing and Exploring Data
Miller (2004) Chapter 4, 6, 7
APA(2001) Sections 3.62 to 3.74, and 3.75 to 3.86

Week 3: Measures of Central Tendency and Variability
APA (2001) Sections 3.42 to 3.49, and 3.53 to 3.61

Week 4: Measures of Location - Standard Scores - Normal Distribution
APA (2001) Sections 3.01 to 3.33
Exam 1.
APA-report 1: Descriptive report.

Week 5: Introduction to Sampling Distribution and Hypothesis Testing
Howell (2007) Chapter 4. General introduction to hypothesis testing terminology: sampling distribution, statistical hypothesis, test-statistic, type-I and type-II errors, one and two-tailed tests, effect size.

Week 6: Introduction to Probability

Week 7: Introduction to Hypothesis Tests for Means
Exam 2.

Week 8: Testing Hypothesis about Means - t-test
Miller (2004) Chapter 10 and 11

Week 9: Testing Hypothesis about Means - Power
Howell (2007) Chapter 7 and 8. T-test for two-independent samples, effect size, power for t-tests.
Exam 3
APA-report 2: Two-groups experiment report

Week 10: Correlation

Week 11: Regression
Exam 4
APA-report 3: Regression-correlation report

Week 12: One-way ANOVA

Week 13: Multiple Comparisons
Exam 5
APA-report 4: Experimental report

Week 14: Factorial ANOVA

Week 15: Factorial ANOVA
APA-report 5: Factorial ANOVA report

Final Exam Period:
Exam 6