

STATISTICS 651, Statistics in Research I: Section 601

Fall Semester, 2019

INSTRUCTOR: Dr. Suhasini Subba Rao

OFFICE: BLOCKER 432

LECTURE: Monday, Wednesday and Friday - 10:20-11:10,

LECTURE ROOM: Blocker 150.

TELEPHONE: Statistics Front Office +1 979 845 3141

OFFICE HOURS: Monday and Wednesday 4-5 (and by appointment)

email address: suhasini@stat.tamu.edu

Open access lab sessions (staffed by our graduate students):

- Monday, Tuesday, Wednesday and Thursday: 10:00-12:00, 13:00-15:00, 17:00-19:00

These takes place in BLOCKER Room 162 (close to Blocker cafe). Use this opportunity to get an alternative perspective on the material I cover.

T.A.: akundu@stat.tamu.edu, Office BLOCKER Office hours:

WWW: www.stat.tamu.edu/~suhasini/teaching.html

TEXTBOOKS: *An Introduction to Statistical Methods and Data Analysis* by R. Lyman Ott and Michael Longnecker. There are two editions (5 and 6).

A useful free book if you are new to statistics (undergraduate level text): https://www.openintro.org/stat/textbook.php?stat_book=os

PREREQUISITE: MATH 102, or equivalent.

COURSE DESCRIPTION: This course is designed to introduce students to the statistical analysis of data and statistical software. This is a graduate for non-statistics majors. It gives a non-calculus exposition of the concepts, methods and usage of statistical data.

I will be doing practical demonstrations in class. To learn this better, if you have a laptop you can bring it for the practical demonstrations.

Computer Information

- Grades can be accessed through eCampus.
- Many of the practical demonstrations in class will be done using JMP. You are strongly encouraged to use JMP for your final project. You are entitled to get JMP at no additional cost.
JMP PRO is available at <http://www.stat.tamu.edu/jmpinstall/> with Username = jmpuser and Password From here you can download the zipped directory. Extract the files, then find Launch, click on this and press run. This should install JMP on your system. If you have problems, please contact Kim Ritchie (kritchie@stat.tamu.edu) the Statistics department software administrator.

- For some of the practical demos I will use Statcrunch.

GRADING POLICY:

- There will be one midterm, homeworks will be set every two weeks, an assignment will be set towards the end of semester and there will be a final exam at the end of semester (on the last day of teaching):
 - Homework: Set at regular intervals (10%).
 - Midterm: 30th October (25%).
 - Assignment: Set in the second week of November (25%).
 - Final Exam: Wednesday 4th December 10:20-12:20 (in Blocker 150) (40%).

The minimum requirements for each grade is given below.

A: 90%–100%. B: 80%–89%. C: 70%–79%. D: 60%–69%. Fail: Below 60%.

- There will be two exams (the midterm and the final exam). One of the aims of an examination, is to ensure that you learn the concepts introduced in class. Therefore cheats, really cheat themselves. Do not even contemplate cheating! If you have any problems in the course please see me.
- In the second week of November, I will set an assignment. You will have two weeks to complete it. This assignment is worth 25% of your final grade.
- If you are unable to take a test when scheduled because of illness, accident or circumstances beyond your control, notify me by telephone before the exam. A make-up test will be scheduled as soon as possible.
- A grade of incomplete (I) will be given only in the event that circumstances beyond your control were the cause of your missing the exam. This grade will not be given because you felt that you have too much other work or study or because you feel that you will not earn an acceptable grade in the course.
- No electronic devices should be used during the class.

- **STATEMENT ON DISABILITIES:**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information visit <http://disability.tamu.edu>

- **PLAGARISM STATEMENT:**

The handouts used in this course are copyrighted. By "handouts," I mean all materials generated for this class, which include but are not limited to syllabi, quizzes,

exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission. As commonly defined, plagiarism consists of passing off as one's own ideas, words, writing, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section "Scholastic Dishonesty."

- **ACADEMIC INTEGRITY STATEMENT:** <http://aggiehonor.tamu.edu>.
"An Aggie does not lie, cheat, or steal or tolerate those who do."

- **Title IX and Statement on Limits to Confidentiality**

Texas A&M University and the College of Science are committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws provide guidance for achieving such an environment. Although class materials are generally considered confidential pursuant to student record policies and laws, University employees including instructors cannot maintain confidentiality when it conflicts with their responsibility to report certain issues that jeopardize the health and safety of our community. As the instructor, I must report (per Texas A&M System Regulation 08.01.01) the following information to other University offices if you share it with me, even if you do not want the disclosed information to be shared: Allegations of sexual assault, sexual discrimination, or sexual harassment when they involve TAMU students, faculty, or staff, or third parties visiting campus. These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In many cases, it will be your decision whether or not you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with the Student Counseling Service (<https://scs.tamu.edu/>). Students and faculty can report non-emergency behavior that causes them to be concerned at <http://tellsomebody.tamu.edu>.

POLICIES:

- **University Excused Absences** <http://student-rules.tamu.edu/rule07>
- **Classroom:** Please turn off electronic devices (cell phones, ipods, etc.) while in the classroom, except possibly for in-class work.
Questions are encouraged, especially to help clarify points in the lecture. No question is "bad" or "dumb" if it is relevant.
- **Makeup Policy:** If you miss an exam or homework due to illness or other university excused rule notify me or the Statistics Department before the exam, if feasible, otherwise within two working days after you return, to schedule a make-up exam or homework.

If you miss an exam or homework for a non-university approved excused absence you will be given **zero** for that assignment.

- **Attendance Policy** Attending class is not mandatory. However, attending exams is, except for a university approved excuse.
- **Incomplete Rules** An Incomplete will be given only in the event you have completed most of the course but circumstances beyond your control cause prolonged absence from class and the work cannot be made up in time.

SYLLABUS (Use this only a guide)

	Topic	Chapter in Text	Weeks
I	Introduction and Data Description 1. What is Statistics? 2. Graphical Techniques for looking at data 3. Numerical measures for data	1,2,3	Weeks 1-2
II	Probability Distributions 1. Basic concepts for discrete and continuous random variables 2. Sampling distributions 3. Central limit theorem	4	Weeks 3-5
III	Confidence Intervals and Hypothesis Testing 1. Basic concepts of interval estimation 2. Basic concepts of hypothesis testing 3. Inference about a single mean 4. Inference about two means	5,6,7	Weeks 6-10 Week 10: Midterm 1
IV	One-way analysis of Variance 1. Basic notions behind ANOVA 2. F-test for equality of means 3. Model for one-way ANOVA 4. Nonparametric alternative 5. Introduction to multiple comparisons	8,9	Week 11
V	Analysis of Categorical Data 1. Chi-square goodness of fit test 2. Inference about single proportions 3. $r \times c$ contingency tables	10	Weeks 12-13
VI	Linear Regression and Correlation 1. Basic concepts of linear regression model 2. Correlation 3. Inference about regression parameters 4. Inference about mean of y 5. Prediction intervals at a given x	11,12	Week 14
			Week 15 Assignment