

## STAT 641: Methods of Statistics I

Fall 2021

**Instructor:** Dr. Alan Dabney

**Office:** 449C Blocker Building

**Email:** adabney@stat.tamu.edu

**Office Hours:** M 12-1pm and Th 10-11am.

**Course Description:** STAT 641 is intended for statistics graduate students who are planning a career as an applied statistician. The course will provide an introduction to data analysis and a wide variety of statistical inference techniques. There will be a demonstration of the interplay between probability models and statistical inference. You must have taken at least two semesters of calculus and a mathematical statistics course prior to or currently with taking this course.

**Time and Place:** MWF 10:20-11:10am CDT in BLOC 457; Question and Answer Session M 5:20pm-6:20pm CDT in BLOC 448. Q&A sessions will be accessible live over Zoom. See the Canvas course home page for the Zoom link.

**Teaching Assistant:** Brittany Alexander (brittany@stat.tamu.edu); office hours will be held in Blocker 459F and simultaneously over Zoom (see Canvas course home page for Zoom link). Office hour times: M 11:30am-12:30pm and W 3:00-4:00pm.

**Learning Outcomes:** At the conclusion of this course, successful students will be able to:

- Explain the role of statistics in the scientific process
- Identify and differentiate between different types of statistical studies
- Use and interpret graphs, statistics, and probability models to explore and describe populations and data
- Infer appropriate conclusions about populations based on data using confidence intervals and hypothesis tests

**Prerequisites:** STAT 610 or 630 or concurrent enrollment.

**Course Website:** We will use the Canvas learning management system for homework and exam submission, grade book, discussion boards, etc.

**Course Materials:**

- Supplemental (not required) textbook: *Probability and Statistics for Engineering and the Sciences* by Jay Devore.
- Software: R.
- Notes: Course notes will be posted on Canvas.

**Grading:** Your grade will be computed as follows:

- **Homework:** 20%. All homework is to be submitted in PDF format, along with any computer code used. All students will submit through Canvas.

- **Midterm Exams:** 25% each.
- **Final Exam:** 30%.

Letter grades will be assigned as follows: 90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D, and 0-59 = F.

### **Course Schedule:**

- Week 1 : Syllabus, Handouts 1 and 2
- Week 2 : Handouts 2 and 3, HW 1 Due
- Week 3 : Handouts 3 and 4
- Week 4 : Handouts 4 and 5, HW 2 Due
- Week 5 : Handouts 5 and 6, HW 3 Due
- Week 6 : Handouts 7 and 8, HW 4 Due
- Week 7 : Handouts 8 and 9, Exam 1 Oct. 11
- Week 8 : Handouts 9 and 10
- Week 9 : Handout 11, HW 5 Due
- Week 10 : Handouts 11 and 12
- Week 11 : Handout 12, HW 6 Due
- Week 12 : Handouts 12 and 13, Exam 2 Nov. 15
- Week 13 : Handout 13, HW 7 Due
- Week 14 : Handout 13
- Week 15 : Review, HW 8 Due
- Final Exam: Dec. 14 8:00-10:00am CDT

**Exams:** We will have two midterm exams and a final. Exam 1 is scheduled for Monday, Oct. 11. Exam 2 is scheduled for Monday, Nov. 15. The Final Exam date and time are Tuesday, Dec. 14 8:00-10:00am CDT. Local students will take the midterm exams during class time. Students in the Distance Learning program will take their midterm exams during 6:00-6:50pm CDT; they will be given an additional 30 minutes to scan and upload their submissions to Canvas. Proctors will ensure that all work on the exams is done by the end of the exam period and that only scanning and uploading is done beyond the exam time. All students will take the Final Exam at the same time. Students in the Distance Learning program will join a Zoom call so that I can proctor them. See the Canvas home page for the Zoom link for the Final Exam.

If you miss an exam, email me within 24 hours, and make-up exams will be handled on a case-by-case basis. Unexcused absences will be handled on a case-by-case basis; if we cannot get you a make-up exam within one week, we will weight your other exam and final more heavily.

Exams will be open notes. Local students can either bring a laptop to the classroom to take the exams or take them remotely and log in to Zoom so I can proctor them (see Canvas home page for exam Zoom link). Please do your best to write everything directly on the exam form; if you need extra paper, please make a note on the appropriate page and staple your extra paper to the back of the exam. If you are scanning the exam back to me, I don't need the graphs or tables in the appendix unless you have made notes on them.

**Homework:** You may use your textbook and notes from this class and other related classes you have taken or are taking, textbooks and references available in the TAMU library and Canvas, discussion with the instructor or grader, and voluntary and cooperative discussion with other students currently taking the class. There will be an online discussion board. You may post code snippets, especially as they pertain to discussion. You may not use solutions manuals from textbooks, online resources, previous classes, or other students who have taken our class. You may not copy from other students.

No late homework will be accepted, nor will you be allowed to make up missed homework. Solutions are posted immediately on the due date. To compensate for university excused absences, the lowest homework assignment score will be dropped. If you have extenuating circumstances that require a different plan, please contact me.

**Incomplete Grade:** A temporary grade of I (Incomplete) at the end of a semester indicates that the student has COMPLETED THE COURSE WITH THE EXCEPTION OF A MAJOR QUIZ, FINAL EXAM, OR OTHER WORK. The instructor shall give this grade only when the deficiency is due to an authorized absence or other cause beyond the control of the student.

**Attendance Policy:** The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to Student Rule 7 in its entirety for information about excused absences, including definitions, and related documentation and timelines.

**Makeup Work Policy:** Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to Student Rule 7 in its entirety for information about makeup work, including definitions, and related documentation and timelines.

"Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (Student Rule 7, Section 7.4.1).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (Student Rule 7, Section 7.4.2).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.)

#### **Academic Integrity Statement and Policy:**

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" (Section 20.1.2.3, Student Rule 20).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at [aggiehonor.tamu.edu](http://aggiehonor.tamu.edu).

**Statement on Plagiarism:** The handouts used in this course are copyrighted. As such, you do not have the right to copy them unless I expressly grant permission. As commonly defined, plagiarism consists of passing off as one's own ideas, words, writing, etc., that 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 have the permission of that person. If you have any questions, please consult the latest issue of the Texas A&M University Student Rules, under the section "Scholastic Dishonesty."

**Copyright Statement:** Faculty members own copyright in their educational work at Texas A&M University, as stated in the Texas A&M University System Policy for Intellectual Property Management and Commercialization. Students are not allowed to post or share any materials created by a faculty member unless given permission by that faculty member. This includes but is not limited to homework assignments, homework solutions, exams, exam solutions, lecture notes and any other supplemental materials. Any violation of this copyright policy could result in disciplinary actions as described in Student Rule 20.2: Procedures in Scholastic Dishonesty Cases and Student Rule 20.1.2.3.1

**Cheating:** Intentionally using or attempting to use unauthorized materials, information, notes, study aids or other devices or materials in any academic exercise. Unauthorized materials may include anything or anyone that gives a student assistance and has not been specifically approved in advance by the instructor. Texas A&M complies fully with the Digital Millennium Copyright Act (“DMCA”). Users of the Texas A&M network found to have engaged in repeated infringement of copyright are subject to termination of their network access and may be reported to the appropriate Dean or Human Resources officer for disciplinary action. Please see TAMU’s Copyright Infringement Policies and Sanctions Notification for additional information.

**Americans with Disabilities Act (ADA) Policy:** Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637 or visit [disability.tamu.edu](http://disability.tamu.edu). Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

**Title IX and Statement on Limits to Confidentiality:** Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see University Rule 08.01.01.M1):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, you will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University’s goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with Counseling and Psychological Services (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University’s Title IX webpage.

**Statement on Mental Health and Wellness:** Texas A&M University recognizes that mental health and wellness are critical factors that influence a student’s academic success and overall wellbeing. Students are

encouraged to engage in proper self-care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at [suicidepreventionlifeline.org](https://suicidepreventionlifeline.org).