**STAT 7100: Probability and Data Analysis**

**Spring Semester 2022**

**Instructor – Joe DeMaio**

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**CATALOG COURSE DESCRIPTION**

**3** **Class Hours** **0** **Laboratory Hours** **3** **Credit Hours**
Prerequisite: Admission to the MSAS program.
Stat 7100 is designed to give students the foundation in statistical methods necessary for further study in the Master of Science in Applied Statistics program. The course begins with a study of statistical distributions (binomial, Poisson, uniform, exponential, gamma, chi-square and normal), descriptive statistics, the Central Limit Theorem, t-tests (one-sample, two-sample and paired) and confidence intervals. The course then moves on to more advanced techniques including categorical data analysis (chi-square tests), correlation, simple linear regression analysis and one-way analysis of variance.

**Expected Learning Outcomes**:

Upon successful completion of this course, the student will be able to:

1. Know the underlying mathematical principles of various probability distributions.

2. Apply knowledge of probability distributions.

3. Perform the appropriate statistical analysis for a given situation.

4. Communicate analysis results in a professional manner.

5. Students will be able to apply statistical concepts to real-life scenarios.

**Professor:** Dr. Joe DeMaio
**Office:** Clendenin 3011
**Office Hours:** 3:30 PM - 4:30 PM TR and by appointment
**Phone:** (770) 423-6568
**e-mail:** Do not email me through D2L (reply function does not work). Send email to me directly atjdemaio@kennesaw.edu
**Web Page:** [**http://facultyweb.kennesaw.edu/jdemaio/**](http://facultyweb.kennesaw.edu/jdemaio/)

**Technology:** Your choice of statistical software. However, SAS is recommended (as the required software in STAT 7020). You will probably want a TI-83/84 calculator for small computations that do not require the use of SAS.

**Textbook:** Navidi, W. (2015). Statistics for engineers and scientists, 5th ed. McGraw-Hill

**Grading**

There will be two tests and a final exam. Each test counts 20% towards your final grade. The final is worth 25%. Tests and the final exam will be open book/note (but closed internet and people) and take-home in order to allow proper preparation and communication of results. Word processing is expected for your solutions (Word is fine, LaTex is outstanding). You will be graded on the analytical correctness of your solutions as well as the presentation and clarity of your writing. Presenting solutions to problems at the board counts for 10% of your grade (participation). The analytics day poster presentation project and accompanying short paper represent the final 25% of your grade. You may use, and in fact are strongly encouraged to use, the graduate writing center for assistance on the mechanics of writing your paper. [Writing Center (kennesaw.edu)](https://writingcenter.kennesaw.edu/index.php).

Letter grades will be assessed on a 10-point scale. However, tests will have more than 100 possible points available so extra points are available to be earned. Cheating may result in the grade of an 'F' for the course! I do not report grades to students over the phone or through e-mail. I will not give your test to a friend. You must come to class or my office to pick up a test if you are not in class when I return them.

**I do not drop nor do I replace any grades!
I do not give make-up tests! (Unless there is a good reason and you must contact me prior to 48 hours after the test)
There are no extra credit projects!
I do not make deals at the end of the semester for grades!**

**Homework**

There will be homework problems for each section covered. This homework will not be taken up and graded. It is to give you a point of reference from which to work. Test problems are often slight variations of homework problems if not the exact problem. The only way to succeed in this class is by doing all of the assigned homework! Merely, attending class will not be enough. A student will encounter a large number of techniques and examples in this course. It is vital to know and understand these new concepts. Successive lectures will assume the knowledge of previously stated techniques and examples. One must keep up with this material on a day-to-day basis! Because homework problems are not graded, you are allowed and strongly encouraged to work together on homework problems. I believe that it is very beneficial to regularly work problems in small groups of two to four people. This will decrease your chances of getting stuck on a problem and give you someone, other than your instructor, with whom to discuss homework problems. Obviously however, you must also be able to work problems without guidance for testing situations and when presenting at the board.

**Homework is mandatory (if you want a good grade) despite the fact that there is no homework grade!

Attendance**Every mathematics class is a building process from day one (actually, even from grade one). A student who misses classes has seriously compromised his or her knowledge of the material and will begin to feel an effect on their final grade. Attendance and class participation are important elements to incorporate into your study habits. I will distribute a sign-in sheet to document attendance at the beginning of each class. During the summer term I may, from time to time, distribute a second sign-in sheet after the break. Signing for another student will be treated as an honor code violation.

A student who misses a class is responsible for all material missed. Due to time constraints your instructor cannot re-present the lecture in a one-on-one setting. If circumstances dictate that a student will miss numerous class meetings, perhaps now is not the semester to take this course.

**Attendance is mandatory (if you want a good grade) despite the fact that there is no attendance grade.**

**Important Dates**[Spring Academic Calendar - Office of the Registrar (kennesaw.edu)](https://registrar.kennesaw.edu/academic-calendars/spring-2022-academic-calendar-1.php)
Feb. 2 (W) Test 1 disseminated; due electronically by 5PM the following Monday
March 2 (W) Test 2 disseminated; due electronically by 5PM the following Monday
April 29 (F) Analytics Day; paper due electronically by 5PM the following Wed.
May 4 (W) Final Exam disseminated; due electronically by 5PM the following Monday

**Course Delivery**

KSU may shift the method of course delivery at any time during the semester in compliance with University System of Georgia health and safety guidelines. In this case, alternate teaching modalities that may be adopted include hyflex, hybrid, synchronous online, or asynchronous online instruction.

**COVID-19 illness**

If you are feeling ill, please stay home and contact your health professional. In addition, please email your instructor to say you are missing class due to illness. Signs of COVID-19 illness include, but are not limited to, the following:

· Cough

· Fever of 100.4 or higher

· Runny nose or new sinus congestion

· Shortness of breath or difficulty breathing

· Chills

· Sore Throat

· New loss of taste and/or smell

COVID-19 vaccines are a critical tool in “Protecting the Nest.” If you have not already, you are strongly encouraged to get vaccinated immediately to advance the health and safety of our campus community. As an enrolled KSU student, you are eligible to receive the vaccine on campus. Please call (470) 578-6644 to schedule your vaccination appointment or you may walk into one of our student health clinics.

For more information regarding COVID-19 (including testing, vaccines, extended illness procedures and accommodations), see KSU’s official Covid-19 website.

Face Coverings

Based on guidance from the University System of Georgia (USG), all vaccinated and unvaccinated individuals are encouraged to wear a face covering while inside campus facilities. Unvaccinated individuals are also strongly encouraged to continue to socially distance while inside campus facilities, when possible.

[Department of Student Conduct and Academic Integrity (kennesaw.edu)](https://scai.kennesaw.edu/)

[Withdrawal Dates & Refund Percentages - Office of the Registrar (kennesaw.edu)](https://registrar.kennesaw.edu/academic-calendars/fall-withdrawal-refund.php) (As of 1/5/2022 this website has not been updated to reflect spring 2022).