



GEORGETOWN UNIVERSITY
Georgetown College

MATH 040-20 – Probability and Statistics

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Main Second Summer Session July 12 – August 13, 2021

On-Line Asynchronous Remote Delivery of Lectures, Materials & Assignments

Office: St. Mary's Hall, 317

ZOOM Office Hours: Monday through Thursday, 9:30-10:30 AM, EDT. I'm available to help you learn. Whenever you have a question that doesn't get answered in a lecture (or by the textbook), please contact me during office hours through CANVAS using "Zoom Conferencing" (or by email or text). Additional ZOOM office hours are available by request.

Course description: This course will introduce students to the basic concepts, logic, and issues involved in statistical reasoning, as well as basic statistical methods used to analyze data and evaluate studies. The major topics to be covered include methods for exploratory data analysis, an introduction to sampling and experimental design, elementary probability theory and random variables, and methods for statistical inference including simple linear regression. The objectives of this course are to help students develop a critical approach to the evaluation of study designs, data and results, and to develop skills in the application of basic statistical methods in empirical research. An important feature of the course will be the use of statistical software to facilitate the understanding of important statistical ideas and for the implementation of data analysis.

Registration Concerns: This course cannot be taken for credit if the student has already taken ECON 121, Gov 201, OPIM 173, IPOL 320 or MATH 140. College Economics and Political Economy majors should enroll in ECON 121, rather than MATH 040. This course does NOT satisfy the Mathematics minor or majors requirement for a Statistics class—these students should enroll in MATH 140. Seniors and Post Baccalaureate Pre-Medical students must get special permission to enroll in this course.

Required text: DeVeaux, R.D., Velleman, P.F., & Bock, D.E. (2018). *STATS: Data and Models*. MyLab Statistics with Pearson eText – 18 Week Instant Access – for Stats: Data and Models. (5th ed.). Pearson Education. ISBN: 978-0-135-96226-8. You *will* need "MyLab Statistics" for this course.

Required technology: A calculator capable of basic statistical functions. (I'll be using and demonstrating the TI-84.)

Student Learning Outcomes:

A student who has successfully completed the course should be able to:

- ✓ Articulate an appreciation for the diverse application of statistics and its relevance their life and field of study.
- ✓ Demonstrate conceptual understanding of fundamental statistical ideas such as variability, distribution, association, causation, sampling, experimentation, confidence, and significance.
- ✓ Show introductory level practical ability to choose, generate and properly interpret appropriate descriptive and inferential methods.
- ✓ Appropriately choose and correctly apply some elementary probability models.
- ✓ Exhibit critical thinking about statistics (e.g., to demonstrate the ability to assess the 'validity' of statistical arguments in the popular press and scholarly publications; to show the ability to assess the relative 'fit' of statistical models to real-world studies).
- ✓ Demonstrate the ability to effectively communicate statistical ideas (and thus be able to knowledgeably participate in modern social debates).
- ✓ Demonstrate introductory level experience with using statistical software to perform data analysis.

Method of Instruction: "Interactive Lecture" ... presentation of theory, application, and sample problems by instructor with student participation.

Attendance: Policies regarding class attendance follow those published in the 2020-2021 Undergraduate Bulletin.

Make-up assignments and tests are at the discretion of the instructor.

<https://bulletin.georgetown.edu/regulation/standards>

Students with Disabilities: The University encourages any student who believes s/he may have a qualifying disability to make an appointment with an Academic Resource Center (ARC) staff person to discuss available services and the process for documenting a disability and receiving accommodation. <http://academicsupport.georgetown.edu/> Disability support web site: <http://academicsupport.georgetown.edu/disability> Phone: (202) 687-8354 Email: arc@georgetown.edu

Class Recording: By registering for or attending Georgetown University courses, individuals consent to the recording of classes. Access to class recordings is restricted to the students in the recorded class who have been given permission by the instructor or for whom recording has been approved as a reasonable accommodation by the Academic Resource Center. The content of any class, including course materials created by the instructor, is the intellectual property of the instructor.

Workload: For every hour in class, you should expect to spend up to two hours outside of class on work for this course (reading the textbook, studying your notes, doing homework problems, viewing related videos). Summer courses are fast-paced; if you get too far behind, it will be difficult to catch-up, so set aside enough time in your schedule to allow you to keep up with your reading, study, and homework.

Homework (Problems assigned on MyLab Statistics via Canvas): The most important part of any Statistics course is the homework. Many of the problems assigned will not be routine drills, but instead they will be problems that push you to think about and work with the underlying concepts. There will be a homework assigned for each section we cover. All homework will be completed and submitted via MyLab Statistics *on-line*. I will drop your two lowest homework scores.

Quizzes: On most days there will be a six (6) question multiple-choice quiz covering material from the lecture. The intention of these quiz questions is to test comprehension, reinforce key concepts, improve knowledge retention, encourage participation and to make the video lectures more engaging. Five correct answers will be considered a perfect score of 10; questions correct, will result in a score of 11/10 (a bonus point). I will drop your two lowest quiz scores.

Tests: Three (3) 75-minute tests will be given during the session. These tests will last cover the material outlined on the course calendar. Unlike homework and quiz grades, I will NOT drop your lowest test grade. There will be no final exam.

Grading Scheme: When I calculate final grades, here's how I'll weight the components: Homework 25%, Quizzes 15%, First Test 12%, Second and Third Tests 24% each. (N.B. Class participation, viewing lectures and punctuality, will be considered in borderline situations when the final grade is calculated.)

	A	93-100%	A-	90-92%	
B+	87-89%	B	83-86%	B-	80-82%
C+	77-79%	C	73-76%	C-	70-72%
D+	67-69%	D	60-66%		
	F	Below 60%			

Course Evaluation: Toward the end of the course, each student will have the opportunity to evaluate the course/instructor (i.e., me). Students are strongly encouraged to participate in the evaluation.

Additional Reminders / Disclaimers

Makeup assignments and tests will be given only under the most extraordinary of circumstances.

By university policy, incomplete grades may be given only for reasons of health or serious personal issues. Academic overload, outside employment, or mismanagement of time are not sufficient reasons for receiving an incomplete.

Academic honesty is expected at all times. Cheating on assignments or tests will result in your receiving a grade of zero on the assignment or test. Repeated cheating or will result in your failing the course.