George Mason University

MATH 110-001 Introductory Probability Fall 2021

Tuesdays & Thursdays, 10:30 – 11:45
Horizon Hall 3012

Instructor: Stephanie Gaffney
Email: sgaffne@gmu.edu *(Note: Students must use their Mason email to contact me)*
Phone: 772-501-5546 (only use in case of emergency)
Office Hours: Tuesdays & Thursdays, 9:15 – 10:15, Exploratory Hall 4309

Text: Finite Mathematics and Its Applications, 12th ed., Goldstein, Schneider and Seigel
Calculator: A scientific calculator is recommended (personal recommendation: TI-30XIIS)

Course Description: This course will cover elementary set theory, probability, and statistics. This course meets the quantitative reasoning requirement of the Mason Core.

Learning Outcomes:

1. Students are able to interpret quantitative information (i.e., formulas, graphs, tables, models, and schematics) and draw inferences from them.
2. Given a quantitative problem, students are able to formulate the problem quantitatively and use appropriate arithmetical, algebraic, and/or statistical methods to solve the problem.
3. Students are able to evaluate logical arguments using quantitative reasoning.
4. Students are able to communicate and present quantitative results effectively.

Class Procedures

Attendance: I take attendance at each class meeting. Attendance is not part of your grade; however, I take attendance into consideration for borderline grades at the end of the semester. You will also need to be present to participate and receive a grade in the in-class projects and quizzes.

Participation: I encourage your participation in class. The more you are willing to participate, especially by asking and answering questions, the more you will likely learn and take away from the class.

Electronics: Regarding electronic devices (such as laptops, cell phones, etc.), please be respectful of your peers and your instructor and do not engage in activities that are unrelated to class. Such disruptions show a lack of professionalism

Safety: All students are required to follow the university's public health and safety precautions and procedures outlined on the university Safe Return to Campus webpage (https://www2.gmu.edu/safe-return-campus). Similarly, all students must also complete the Mason COVID Health Check daily, seven days a week. The COVID Health Check system uses a color code system and students will receive either a Green, Yellow, or Red email response. Only students who receive a "green" notification are permitted to attend courses with a face-to-face component. If you suspect that you are sick or have been directed to self-isolate, please quarantine or get testing. Faculty are allowed to ask you to show them that you have received a Green email and are thereby permitted to be in class.

Facemasks: Students are required to follow Mason's current policy about facemask-wearing. As of August 11, 2021, all community members are required to wear a facemask in all indoor settings, including classrooms. An appropriate facemask must cover your nose and mouth at all times in our classroom. If this policy changes, you will be informed; however, students who prefer to wear masks either temporarily or consistently will always be welcome in the classroom.

Announcements: If the campus closes, or if a class meeting needs to be canceled or adjusted due to weather or other concern, students should check Blackboard for updates on how to continue learning and for information about any changes to events or assignments.

Academic Integrity: The integrity of the University community is affected by the individual choices made by each of us. Mason has an Honor Code with clear guidelines regarding academic integrity. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct. *Some kinds of participation in online study sites violate the Mason Honor code: these include accessing exam or quiz questions for this class; accessing exam, quiz, or assignment answers for this class; uploading of any of the instructor's materials or exams; and uploading any of your own answers or finished work.*

Disability Services: George Mason University is committed to upholding the letter and spirit of the laws that ensure equal treatment of people with disabilities. Under the administration of University Life, Disability Services implements and coordinates reasonable accommodations and disability-related services that afford equal access to university programs and activities. Students can begin the registration process with Disability Services at any time during their enrollment at George Mason University. If you are seeking accommodations, please visit http://ds.gmu.edu/ for detailed information about the Disability Services registration process. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email:ods@gmu.edu | Phone: (703) 993-2474

Coursework

Homework: Homework will be assigned for every section covered. Most assignments will be from the textbook. All assignments will be due on Fridays by 5pm or the day of the exam by 5pm. Homework can be handwritten or typed. You can submit your assignment on Blackboard or turn them in during class. There is a lot of homework assigned, with the intent to give you an opportunity to practice what we are learning in class. You will have opportunities to ask questions about the homework during class, so it is in your best interest to start the assignments sooner rather than later. Late assignments will receive half credit until the exam date covering that section. Once the exam date has passed, assignments will not be accepted. I will drop your lowest 4 homework scores.

In-Class Quizzes and Projects: You will periodically have in-class quizzes and also will work in class on short projects, some individually and some in groups. I will announce quiz dates ahead of time on Blackboard. If you are absent, you will receive a zero for that particular quiz or project; however, I will be dropping your lowest 2 quiz/project scores.

Exams: You will have 3 mid-term exams. There are no makeups for exams unless you have a documented, excused absence.

Final Exam: The final exam will be comprehensive and given according to the registrar's final exam school. No exceptions will be made to the final exam schedule.

Additional Assistance: You are more than welcome to come see me during office hours if you need additional assistance outside of class time. You may also email me with questions.

The Math Tutoring Center is available to assist you. Check the website for hours of operation. https://science.gmu.edu/academics/departments-units/mathematical-sciences/math-tutoring/tutoring-center-hours-and

Grading

Grades will be calculated as follows:

Homework	10%
Quizzes/Projects	25%
Exams	45%
Final Exam	20%

Grading Scale:

A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

+/- assigned at instructor discretion

Class Schedule *(subject to change)*

Date	Section Covered
August 24	5.1 Sets
August 26 & 31	5.2 Fundamental Principle of Counting
September 2	5.3 Venn Diagrams and Counting
September 7	5.4 Multiplication Principle
September 14	5.5 Permutations & Combinations
September 16	5.6 Counting Techniques
September 16	5.7 Binomial Theorem
September 16	5.8 Partitions
September 21	Questions/Review
September 23	**EXAM 1**
September 28	6.1 Experiments, Outcomes, Sample Spaces, and Events
September 30	Activity
October 5	6.2 Assignment of Probabilities
October 7	6.3 Calculating Probabilities of Events
October 12	**NO CLASS**
October 14	6.4 Conditional Probability and Independence
October 19	6.5 Tree Diagrams
October 21	6.6 Bayes' Theorem
October 26	Review/Catch-up
October 28	**EXAM 2**
November 2	7.1 Visual Representation of Data
November 4	7.2 Frequency and Probability Distributions
November 9	7.3 Binomial Trials
November 11	7.4 Mean
November 16	7.5 Variance and Standard Deviation
November 18	Review/Catch-up
November 23	**EXAM 3**
November 25	**NO CLASS**
November 30	7.6 Normal Distribution
December 2	7.7 Normal Approximation to Binomial Distribution
December 14	**FINAL EXAM**

Assignment List *(subject to change)*

Section	Homework Assignment	Tentative Due Date *(check Blackboard for most up-to-date due dates)*
5.1 Sets	pp.189-191 (2-20 evens, 21-26, 33-40, 48, 50, 56, 58, 60, 62)	September 3, 5pm
5.2 Prin. of Counting	pp. 195-196 (2-16 evens, 20, 24, 28, 30, 38, 40, 42, 46, 48, 50, 52, 56, 58, 60)	September 3, 5pm
5.3 Venn Diagrams	pp. 200-202 (2-14 evens, 20, 22, 24, 28, 32, 39-44, 52, 70	September 10, 5pm
5.4 Mult. Principle	pp. 206-208 (2-12 evens, 18, 20, 28, 30, 32, 34, 46, 56, 62, 64)	September 10, 5pm
5.5 Permutations & Combinations	pp. 213-215 (2, 6, 18, 20, 22, 24, 26, 28, 32, 36, 38, 48, 50, 56, 60)	September 24, 5pm
5.6 Counting Tech.	pp. 220-221 (2, 12, 16, 20, 24-32 evens, 38, 44, 46, 48	September 24, 5pm
5.7 Binomial Theorem	pp. 225-226 (40-52, evens)	September 24, 5pm
5.8 Partitions	pp. 230-231 (2, 4, 10, 12, 14, 16, 20-28 evens)	September 24, 5pm
6.1 Experiments	pp. 244-246 (4, 6, 8, 10, 18, 19, 20, 22, 26, 27)	October 1, 5pm
6.2 Probabilities	pp. 254-256 (1-4, 8-22 evens, 23, 28-36 evens, 40, 42, 44, 48, 50)	October 15, 5pm
6.3 Probabilities of Events	pp. 261-264 (2, 4, 8, 10, 14, 18, 22, 26, 28, 30, 34, 40, 44, 46, 48, 54, 56, 60)	October 22, 5pm
6.4 Cond. Prob. & Independence	pp. 271-274 (2-22 evens, 26, 28, 30, 34, 36, 46, 50)	October 29, 5pm
6.5 Tree Diagrams	pp. 279-282 (2, 4, 6, 12, 14, 16, 32, 38)	October 29, 5pm
6.6 Bayes' Theorem	pp. 286-288 (2, 4, 6, 8, 14, 18, 22)	October 29, 5pm
7.1 Vis. Rep. of Data	pp. 305-307 (2, 6, 8, 12, 14, 16, 18, 20, 23, 24, 26)	November 5, 5pm
7.2 Freq/Prob Dist.	pp. 315-316 (2, 4, 6, 10, 12, 22, 24, 26, 28)	November 12, 5pm
7.3 Binomial Trials	pp. 322-324 (2, 6, 10, 12, 16, 20, 26, 28, 32, 34, 38, 42, 44, 46, 50, 52, 64, 66, 68)	November 12, 5pm
7.4 Mean	pp. 333-336 (1-4, 6-14 evens, 18-30 evens, 34, 36, 38, 42, 44, 46, 48)	November 19, 5pm
7.5 Var. & Std. Dev.	pp. 343-345 (2-16 evens, 20, 26, 28)	November 19, 5pm
7.6 Normal Dist.	pp. 357-358 (2-44 evens)	December 10, 5pm
7.7 Normal Approx. to Binomial Dist.	p. 362 (2-22 evens)	December 10, 5pm