

Welcome to Elementary Probability and Statistics! I hope we all have a great time together, and that we all learn from each other this semester. Below you will find all the relevant information about this class and the assessment. While going through the rest of this document, note that everything written in **maroon** contains a link.

## 1 General Information

- Schedule: Monday, Wednesday and Friday 11:00-11:50 am
- Modality: In person
- Classroom: Jones Hall, Room 301
- Instructor: Daniela Hurtado-Lange
- Office hours:
  - Monday, Wednesday and Thursday 2:00-3:00 pm in person at my office
  - By appointment in my virtual office (Zoom meeting) or in person
  - If you want to meet virtually, please set up an appointment via email

## 2 Description

Introduction to basic concepts and procedures of probability and statistics including descriptive statistics, probability, classical distributions, estimation, hypothesis testing, correlation and regression, in the context of practical applications to data analysis from other disciplines.

**Prerequisites:** None.

## 3 Requirements

- One of the following two:
  - **Graphing/Statistical Calculator:** An important part of this course's activities will require a graphing/statistical calculator. I suggest using a **TI83/84**, but this brand/model is not mandatory. However, I may not be able to help you if you get stuck using another calculator.
  - A computer with access to Excel.

We won't use any of these in the exams, but we may use the on quizzes.

- A scientific calculator. Any calculator that can compute squares, square-roots, add up fractions, etc will do.
- **Textbook (optional):**  
Fundamentals of Statistics, 4th or 5th edition, by Michael Sullivan, Pearson.  
\* The textbook is available in hard and soft copies at this [link](#).

## 4 Learning Objectives

By the end of the semester you will be able to:

1. Analyze data using appropriate statistical methods
2. Understand the importance of choosing an appropriate statistical method in each situation
3. Understand the concept of random variable and probability distribution
4. Compute the probability of obtaining a specific output using the basic probability rules

## 5 Assessment and Grading Structure

This a letter-grade course, under the grading scale presented below:

Letter grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
Total score	≥ 93	≥ 90	≥ 87	≥ 83	≥ 80	≥ 77	≥ 73	≥ 70	≥ 67	≥ 63	≥ 60	< 60

I might curve the grades in your favor at the end of the semester.

There will be multiple opportunities for lower-stake assessment, with the goal of preparing you for the exams and the final. Some of these will be graded, and some will not. I encourage you to use all these opportunities to learn what you know well and what needs practice before the exam.

Below you will find a brief description of each graded assignment:

- **Practice problems (not graded):** I will provide sets of problems with solutions to support your learning, and help you prepare for the quizzes and exams.

I encourage you to solve the problems yourself, and only look at the solution to verify your answer. If you do not know what you did wrong, you are welcome to come to office hours and we'll figure it out together!

- **Quizzes (average 30%):** Short sets of problems to be solved individually in 15 minutes, in class.
  - How frequently are we having quizzes? Nearly every Friday at the beginning of class, except when there is a Midterm. The specific dates are provided in Section 8.
  - What should I study for each quiz? I will post problem sets specific for each quiz.
  - What is allowed during a quiz? You may use your notes and your calculator. Observe that you only have 15 minutes for each quiz, so I encourage you to prepare a brief summary of formulas and contents. Also, these summaries will be useful to prepare your cheat sheets.
  - Grading: Each quiz will be graded from 0 to 100 points, and the lowest 2 scores will be dropped.
  - Solutions: I will provide the solution to each quiz after class.
- **Midterm I and II (20% each):** In-class exam to be solved **individually** in, at most, 50 minutes starting at 11:00 am.
  - When are the Midterms? The dates are provided in Section 8.
  - What should I study for each Midterm? The contents are provided in Section 8 as well.
  - What is allowed during the exam? You may bring **one cheat sheet** to each Midterm, following the rules of Section 6, and you can use your calculator. Collaboration is not allowed during the exam.
  - Grading: Each Midterm will be graded from 0 to 100 points.

After I give you back your papers, you will have 1 week to request a regrade in case I made a mistake. To request a regrade, add one page at the end of your exam, detailing what problem(s) and why you want to regrade it(them), and give them to me in class or office hours within the 1-week time frame.
  - Solutions: I will post the solutions on Blackboard after everybody submits their exam.
  - Opportunity for bonus points: After each Midterm, you will have 1 week to fill a survey with the following questions:
    1. What was easy in the Midterm?
    2. What was hard in the Midterm?
    3. What has the instructor done well so far?
    4. How can the instructor improve?
    5. What have I (as a student) done well so far?
    6. How can I improve for the next assessment?

I deeply care about the feedback you can provide, so I will give you 5 bonus points in the corresponding midterm for answering the survey (yes, you can end the semester with 105 points in each midterm if you answer these questions!). Please be as concrete as possible with your answers.

- **Final exam (30%):** In-class exam at the end of the semester (date available in Section 8) that must be solved **individually** in 3 hours or less. Topics may include every chapter covered in class. You may bring **three cheat sheets** following the rules specified in Section 6, and you can use your calculator.

### How to compute my final grade?

$$\text{Grade} = 0.3 \times \text{Average quizzes (dropping worst 2)} + 0.2 \times \text{Midterm I} + 0.2 \times \text{Midterm II} + 0.3 \times \text{Final Exam}$$

## 6 Some Ground Rules

- **Attendance to class and participation:** I highly encourage you to attend the lectures and participate to create an active learning environment. If you have to miss a class, no worries! I invite you to check Section 7 to see how we will handle it.
- **Collaboration:** Collaboration in solving the practice problems and preparing for the exams is encouraged, under the “empty hands policy” described below. The exams are individual, and no collaboration in solving them is allowed. I understand that you may use similar methods to solve the problems, but you must submit your own answers.
- **Empty hands policy<sup>1</sup>:** Two or more students may enter a room (for example, a room with a whiteboard) and may together solve some or all of the problems on a practice-problem set on the board. Each student must leave the room without any written or electronic materials describing these solutions. Students are to leave such a problem-solving session with only the solutions to the problems in their heads. Each student must perform their own individual write-up of the homework solutions sometime after the problem-solving session and submit their solutions individually.
- **Cheat sheets:** Each cheat sheet should not be larger than a letter-size paper, and you may use both sides. I find the process of preparing a cheat sheet incredibly useful to study and organize ideas, so I will request your cheat sheets to be **handwritten by yourself**. I encourage you to study in groups, but the cheat sheet must follow the “empty hands policy”.
- **Academic integrity:** I expect you to be familiar with the Honor Code and behave accordingly.
- **Student-faculty expectations:** I expect you to participate in class and ask questions during the lectures, via emails or in office hours. My job is to do my best to keep you interested in the class, transmit the content in the lectures and answer your questions. I know we all may work on weekends, but I will not reply to any email and I do not expect you to submit any work during weekends.
- **Accommodations for students with disabilities:** If you need any type of accommodation, please make an appointment with the Office of Disability Services to get an Accommodation Letter (steps in this [link](#)). I am happy to provide any accommodation, but you need to let me know as soon as possible (hopefully by the beginning of the semester).

## 7 Absence to class, workshops or exams

- **To class (students):** If you are ill, please do not come to class. I will post all the lecture notes, so you will know exactly what I did in class. Additionally, I encourage you to ask as many questions as you need to in office hours, or setting up an appointment. Remember that “can you explain this section to me?” is a perfectly valid question.
- **To class (instructor):** If I need to miss an in-person class, I will post videos with the contents. I understand that videos are not interactive, and you cannot ask questions during the class, but we always have office hours. If I am ill, I will let you know and the office hours will be held virtually.
- **To quizzes, midterms and the final exam:** If you need to miss a quiz or exam (including the midterms and the final), please let me know as soon as you know you will miss it. You will have 48 hours after the exam to email me explaining what happened, and we will find another time for a make-up exam. If you fail to contacting me withing 48 hours, you will get a 0 in the corresponding exam.

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<sup>1</sup>Based on policy created by Prof. Steve Park

## 8 Tentative Schedule

Below you will find a schedule based on the chapter numbers of the textbook. These may not match the chapter numbers in the lecture notes.

Date	Topics	Tasks
1. Wed Aug 31st	Syllabus Discussion and Introduction	
2. Fri Sep 2nd	Chapter 1 – Sections 1.1 and 1.2	
<b>Mon Sept 5th: Labor day – No class</b>		
3. Wed Sep 7th	Chapter 2 – Section 2.1	
4. Fri Sep 9th	Chapter 2 – Section 2.2	Quiz 1
5. Mon Sep 12th	Chapter 2 – Section 2.3	
	<b>Last day of add/drop</b>	
6. Wed Sep 14th	Chapter 3 – Section 3.1	
7. Fri Sep 16th	Chapter 3 – Section 3.2 and 3.3	Quiz 2
8. Mon Sep 19th	Chapter 3 – Section 3.4	
9. Wed Sep 21st	Chapter 3 – Section 3.5	
10. Fri Sep 23rd	Chapter 4 – Section 4.1	Quiz 3
11. Mon Sep 26th	Chapter 4 – Section 4.1 and 4.2	
12. Wed Sep 28th	Review session	
13. Fri Sep 30th	<b>Midterm I – Contents: Lectures 1-10 and 12</b>	
14. Mon Oct 3rd	Chapter 4 – Recap and Section 4.2	
15. Wed Oct 5th	Chapter 4 – Section 4.2	
16. Fri Oct 7th	Workshop: Excel and calculator	
17. Mon Oct 10th	Chapter 5 – Section 5.1	
18. Wed Oct 12th	Chapter 5 – Sections 5.2 and 5.3	Quiz 4
<b>Oct 13th-17th: Fall break – No class</b>		
19. Mon Oct 17th	Chapter 5 – Section 5.4	<b>Remote instruction (watch video)</b>
20. Wed Oct 19th	Chapter 6 – Section 6.1	<b>Remote instruction (watch video)</b>
21. Fri Oct 21st	Chapter 6 – Section 6.2	Quiz 5
22. Mon Oct 24th	Chapter 7 – Section 7.1	
23. Wed Oct 26th	Chapter 7 – Sections 7.1 and 7.2	
24. Fri Oct 28th	Chapter 7 – Sections 7.2 and 7.3	Quiz 6
25. Mon Oct 31st	Chapter 7 – Section 7.3	
	<b>Withdraw deadline</b>	
26. Wed Nov 2nd	Chapter 8 – Section 8.1	
27. Fri Nov 4th	Chapter 8 – Section 8.2	Quiz 7
28. Mon Nov 7th	Chapter 9 – Section 9.1	
<b>Nov 8th: Election day – No class</b>		
29. Wed Nov 9th	Review session	
30. Fri Nov 11th	<b>Midterm II – Contents: Lectures 11, 14-27 and 29</b>	
31. Mon Nov 14th	Chapter 9 – Section 9.1 and 9.2	
32. Wed Nov 16th	Chapter 9 – Sections 9.2	
33. Fri Nov 18th	Chapter 10 – Section 10.1	Quiz 8
34. Mon Nov 21st	Chapter 10 – Section 10.2	<b>Remote instruction (watch video)</b>
<b>Nov 23rd-27th: Thanksgiving break – No class</b>		
35. Mon Nov 28th	Chapter 10 – Sections 10.2 and 10.3	
36. Wed Nov 30th	Chapter 10 – Section 10.3	
37. Fri Dec 2nd	Chapter 11 – Section 11.1	Quiz 9
38. Mon Dec 5th	Chapter 11 – Section 11.2	
39. Wed Dec 7th	Chapter 11 – Section 11.3	
40. Fri Dec 9th	Review session	
41. Wed Dec 14th	<b>Final exam, 7 pm-10 pm – Contents: Lectures 1-40</b>	

## 9 Mental and Physical Well-Being

William & Mary recognizes that students juggle different responsibilities and can face challenges that make learning difficult. There are many resources available at W&M to help students navigate emotional/psychological, physical/medical, material/accessibility concerns. **Asking for help is a sign of courage and strength.** If you or someone you know is experiencing any of these challenges, we encourage you to reach out to the following offices:

- For psychological/emotional stress, please consider reaching out to the W&M Counseling Center at <https://www.wm.edu/offices/wellness/counselingcenter/>; or (757) 221-3620, 240 Gooch Dr., 2nd floor. Services are free and confidential.
- For physical/medical concerns, please consider reaching out to the W&M Health Center at <https://www.wm.edu/offices/wellness/healthcenter/>; or (757) 221-4386, 240 Gooch Drive.
- For additional support or resources, please contact the Dean of Students by submitting a Care Report at <https://www.wm.edu/offices/deanofstudents/services/caresupportservices/index.php>; or by calling 757-221-2510, or by emailing [deanofstudents@wm.edu](mailto:deanofstudents@wm.edu).
- For a list of many other resources available to students, see [Health and Wellness Resources for Students](#).

As your instructor this semester, I also ask you to reach out to me if you are facing challenges inside or outside the classroom. I am happy to grab a cup of coffee together and I can guide you to appropriate resources on campus.