

Math 452/552 Mathematical Statistics
Fall 2025

Instructor: Yuming Sun

Office: Jones Hall 111

E-mail: ysun30@wm.edu

Office Hours: MW 10:00 AM – 11:00 AM (starting Sep 3)

Zoom Office: <https://cwm.zoom.us/j/7869287456> (by appointment)

Course Dates: Aug 27, 2025 – Dec 16, 2025

Course Times: MW 2:00 PM – 3:20 PM

Classroom: Jones Hall 306

Course Resources

- Course Website: <https://blackboard.wm.edu/>
- Textbook:
 - Leemis, L.M. (2020). *Mathematical Statistics*. Lightning Source. ISBN-13: 978-0-9829174-6-6
- Reference
 - Casella, G., & Berger, R. L. (2002). *Statistical Inference (2nd ed.)*. Cengage Learning. ISBN-13: 978-0-534-24312-8.

Course Policies

- Grades and course materials will be posted regularly on Blackboard.
- Homework will be assigned approximately once every two weeks. Late homework will not be accepted.
- Makeup exams will only be considered for **VERY VALID** reasons like a serious illness or a University excused absence. Official documentation **MUST** be provided in advance.
- Exams are designed to find out what you understand. The problems on the exams will cover all of the material presented.

Participation

If you're feeling unwell, regardless of whether it's related to COVID or not, please refrain from attending the class in person. For students who test positive for COVID, it's essential to meet W&M's stipulated requirements before resuming in-person attendance. Even if your COVID test comes back

negative, if you exhibit symptoms consistent with COVID, please prioritize your health and avoid coming to class.

Consistent attendance and active participation are expected. If, due to a valid reason, you need to miss a class, please contact me in advance. For short absences of less than a week, I will assist you in catching up on missed lectures and homework reviews.

Longer absences, spanning over a week, will be handled on a case-by-case basis. Our aim is to strategize for your continued success. Zoom meetings with me are one option to keep you on track.

In the event that I need to miss a class, I will make a pre-recorded lecture and upload it to Blackboard. If I need to miss multiple classes, aside from the pre-recorded content, we will also meet for a brief homework session and answer questions during the lecture time over Zoom.

Grading Structure

Homework	20%
Mid-terms	50%
Final Exam	30%

- No homework scores will be dropped. Homework should be turned in on 8.5 × 11 paper and stapled.
- There will be two midterms, and each will account for 25% of the final score. The midterms will not be cumulative.
- The final exam will be cumulative.
- Final Grading Schema:

▪ 93 - 100	A	▪ 73 - 76	C
▪ 90 - 92	A-	▪ 70 - 72	C-
▪ 87 - 89	B+	▪ 67 - 69	D+
▪ 83 - 86	B	▪ 63 - 66	D
▪ 80 - 82	B-	▪ 60 - 62	D-
▪ 77 - 79	C+	▪ Under 60	F

Important Dates

- The add/drop deadline is **Sep 8**. The withdraw deadline is **Oct 27**.

- **Tentative dates for the two mid-term exams are Monday, Oct 6 and Monday, Nov 17.**
- **Tentative date for the final exam is Wednesday, December 10, 2:00 PM – 5:00 PM.**

Topics Covered (subject to change)

1. Cumulative Distribution Function Technique
2. Transformation Technique
3. Order Statistics
4. Method of Moments
5. Maximum Likelihood
6. Linear Regression
7. Properties of Point Estimator
8. Exact Confidence Intervals
9. Approximate Confidence Intervals
10. Asymptotically Exact Confidence Intervals
11. Hypothesis testing

Students Accessibility Services

William & Mary accommodates students with disabilities in accordance with federal laws and university policy. Any student who feels they may need an accommodation based on the impact of a learning, psychiatric, physical, or chronic health diagnosis should contact Student Accessibility Services staff at 757-221-2512 or at sas@wm.edu to determine if accommodations are warranted and to obtain an official letter of accommodation. For more information, please see www.wm.edu/sas.

Only students with documentation from SAS are eligible for accommodations.

Honor Code

The university prides itself on creating the nation's first Honor Code. The Code provides an environment in which trust can thrive and a level playing field for students, ensuring students are evaluated based on their own effort and ability and in which students can be taken at their word. The Code reflects the university's value of integrity—in our words and our deeds. As an instructor, I strive to provide an environment that promotes integrity. Reasonable measures taken to protect us from temptation are not antithetical to the Honor Code; thus, I reserve the option to proctor exams, provide multiple copies of exams for distribution, and restrict the technology tools students can possess while taking exams.



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I support the Honor Code and am obligated to report concerns for review and resolution by the Honor Council. As it is your obligation to resolve any perceived lack of understanding of my expectations in advance of submitting any work, I encourage you to contact me with any questions about my course and testing policies. You also are welcome to contact me if you have concerns that any fellow students are not fulfilling their obligation to uphold the Honor Code.

All work submitted in this course, whether in draft or final form, must be your own and must be cited appropriately.

Artificial Intelligence

You may not use GenAI tools for this assignment. This assignment's main goal is to develop your own ability to analyze and interpret survival data. Use of GenAI will not help you develop your skills and knowledge of survival analysis concepts, statistical methods, and modeling techniques.