Mathematical Method of Statistics, STAT:5120

The University of Iowa
The College of Liberal Arts and Sciences
Fall, 2025

Course meeting time and place: MWF **1**:30–**2**:20; 31 Shaeffer Hall

Department of Statistics and Actuarial Science https://stat.uiowa.edu/

Instructor

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Student drop-in hours
11:30 am -1:00 pm MW or by appointment

Departmental Executive Officer (DEO)/Department Chair

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Description of Course

The goal of this course is to provide students with a firm foundation of real analysis and advanced calculus skills and fundamentals that have proven useful in mathematical statistics. I plan to cover most of the material in Chapters 2 through 7 in Rudin's book and some corresponding sections of Kolmogorov and Fomin.

Learning Outcomes

- The mathematical results and methods I plane to cover are used within statistics and probability. Many will come up again in courses you take in the future.
- Developing and presenting careful proofs will help you to convince yourself that your new method is working; to convince others that your new method is working; and to make sure your computer programs are doing the right thing.

Textbooks/Materials

The required textbook(s) for this course are:

- Walter Rudin (1976), Principals of Mathematical Analysis, 3rd Edition, McGraw-Hill Education.
- A. N. Kolmogorov & S. V. Fomin (1970), Introductory Real Analysis. New York: Dover

Course ICON site

To access the course site, log into Iowa Courses Online (ICON) using your Hawk ID and password.

Course Grades

There will be two midterm exams, tentatively scheduled for the class periods on Friday, October 25 and Friday, November 14. The final exam schedule will be announced during the semester. All exams are cumulative, with greater weight on recently introduced topics/materials. Exams are closed book. The final grade will be determined 20% by the homework, 40% by the midterm exams, and 40% by the final exam. Grades may be made available on ICON. A "plus-minus" grading scale will be used for this class. As a rough guide, the scale is as follows: 60% F[0, 40); D−[40, 45); D[45, 50); D+[50, 55); C−[55, 60); C[60, 65); C+[65, 70); B−[70, 75); B[75, 80); B+[80, 85); A−[85, 90); A[90, 95); A+[95, 100]

Homework

Several homework assignments will be given. Homework submission will be online (via ICON) and the students are expected to upload a scanned (or typed) copy of their homework. Discussion with fellow students on the exercises of the homework is allowed, but each student must write their own solutions.

University Polices

https://provost.uiowa.edu/student-course-policies