STAT5201 Applied Statistics II
Section 1 Spring 2025

Lectures	M/W/F 12:30 – 1:20 p.m., 51 Schaeffer Hall (SH)
Instructor	Dr. Nathan Wikle, `nathan-wikle@uiowa.edu`
Office Hours	Th, 1:30 – 3:00 p.m. / F, 10:00 – 11:30 a.m., 207 SH Students are welcome to stop by my office during these hours to discuss questions about the course material or other concerns. I am also available by appointment.
Assistant/Grader	Sumedha Dhar, `sumedha-dhar@uiowa.edu`
Course Website	**https://icon.uiowa.edu** Announcements, course materials (e.g., homework problems, lecture notes, etc.), and other information will be regularly posted in ICON.

Course Description and Objectives. This course introduces students to the basic principles of experimental design, including: the role of randomization, replication, and control in experiments; block, nested, and split plot designs; factorial designs; response surface methodology; computer experiments; causality; ethical and practical considerations of experimental design.

In addition, students will learn how to perform appropriate statistical analyses on data obtained from a number of experimental designs using R (primarily).

Textbook. The following two books are recommended for this class.

1. Oehlert (2010). *A First Course in Design and Analysis of Experiments*, 1st ed., W. H. Freeman. (free pdf)
2. Dean, Voss, and Draguljić (2017). *Design and Analysis of Experiments*, 2nd ed., Springer. (SpringerLink)

Prerequisites. STAT:5200 (or equivalent) and familiarity with statistical theory at the level of STAT:4100–4101. If you are unsure you satisfy these requirements, please talk with the instructor.

Course Home. The College of Liberal Arts and Sciences (CLAS) is the home of this course, and CLAS governs the add and drop deadlines, the "second-grade only" option (SGO), academic misconduct policies, and other undergraduate policies and procedures. Other UI colleges may have different policies.

- The Course Home Department is Statistics and Actuarial Science, 241 SH.
- DEO: Dr. Kung-Sik Chan, 241 SH, `kung-sik-chan@uiowa.edu`

Grading. Your semester grade will consist of the following components:

Homework	30%	
Project	10%	
Midterm Exam 1	15%	week of March 3–7 (tentative)
Midterm Exam 2	15%	week of April 14–18 (tentative)
Final Exam	30%	week of May 12–16 (to be determined by University)
Total	100%	

A "plus-minus" grading scale will be used for this class. As a rough guide, the scale is as follows:

- A-, A → [90%, 100%]
- B-, B, B+ → [80%, 90%)
- C-, C, C+ → [70%, 80%)
- D-, D, D+ → [60%, 70%)
- F → [0%, 60%)

Exams. There will be two midterms and one final exam; the final exam will be comprehensive. All exams will be closed book unless otherwise notified.

Final Exam. The final exam will take place the week of May 12–16. The exact date, time, and location will be determined by the University's Office of the Registrar. The final exam schedules are published the fifth week of the semester. Attendance is mandatory.

Makeup policy for Quizzes and Exams. In case of illness or emergency, contact the instructor in person or by email prior to the exam. Each case will be reviewed individually. Please see the University's policies for absences from scheduled exams.

Homework. Homework will usually be assigned on Fridays and will be due the following Friday. Homework submission will be online (via ICON) and the students are expected to upload a scanned (or typed) copy of their homework. Your work and its scanned (or typed) copy must be legible and include your name at the top to receive credit. Any exceptions will be announced in class or in Canvas. Due to time constraints, the grader may grade only some of the assigned questions, but you are responsible for understanding all questions.

Unless stated otherwise, to **receive full credit, show your work** when solving homework problems instead of just presenting a numerical result. You are encouraged to discuss and study with others. But **the submitted work must reflect your own effort**. If you do **discuss with others** on homework assignments, please: **(a) write up your own assignment** and make sure you completely understand all solutions that you submit, and **(b) write the names of the others in your study group** on your assignment.

Unless prior arrangements are made with me well in advance (for reasons judged to be acceptable by me), **late homework will receive zero credit**. However, to help cover for any unexpected emergencies, **your lowest homework score will be dropped** at the end of the semester.

Project. This course will require each student to design and perform a small experiment. They will also write a relatively short report summarizing the experiment and the results of its analysis.

More details will be given in early April; the students will have at least three weeks to complete the project.

Attendance. Attendance is required; relevant attendance and absence policies can be found here.

Academic Honesty and Misconduct. All students in CLAS courses are expected to abide by the CLAS Code of Academic Honesty. Undergraduate academic misconduct must be reported by instructors to CLAS according to these procedures. Graduate academic misconduct must be reported to the Graduate College according to Section F of the Graduate College Manual.

Policies On Artificial Intelligence. Students are allowed to use AI platforms to help prepare for assignments and projects (e.g., to help with brainstorming or to create a code template for an analysis). However, since writing, analytical, and critical thinking skills are part of the learning outcomes of this course, all writing assignments should be prepared by the student.

Student Complaints. Students with a complaint about a grade or a related matter should first discuss the situation with the instructor, and finally with the Director or Chair of the school, department, or program offering the course.

Undergraduate students should contact CLAS Undergraduate Programs for support when the matter is not resolved at the previous level. Graduate students should contact the CLAS Associate Dean for Graduate Education and Outreach and Engagement when additional support is needed.

Drop Deadline for this Course. You may drop an individual course before the deadline; after this deadline you will need collegiate approval. You can look up the drop deadline for this course here. When you drop a course, a "W" will appear on your transcript. The mark of "W" is a neutral mark that does not affect your GPA. Directions for adding or dropping a course and other registration changes can be found on the Registrar's website. Undergraduate students can find policies on dropping CLAS courses here. Graduate students should adhere to the academic deadlines and policies set by the Graduate College.

Accommodations for Students with Disabilities. UI is committed to an educational experience that is accessible to all students. A student may request academic accommodations for a disability (such as mental health, attention, learning, vision, and physical or health-related conditions) by registering with Student Disability Services (SDS). The student is then responsible for discussing specific accommodations with the instructor. More information is available here.

Additional University Resources and Policies.

- Basic Needs and Support for Students
- Classroom Expectations
- Exam Make-up Owing to Absence
- Free Speech and Expression
- Mental Health
- Military Service Obligations
- Non-discrimination

- Religious Holy Days
- Sexual Harassment/Misconduct and Supportive Measures
- Sharing of Class Recordings