

**The University of Iowa  
The College of Liberal Arts and Sciences  
Fall 2022**

**Title of Course:** STAT:4520

**Course meeting time and place:** 10:30-11:20 AM MWF 30 SH

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

**Course ICON site:** To access the course site, log into [Iowa Courses Online \(ICON\)](https://icon.uiowa.edu/index.shtml) <https://icon.uiowa.edu/index.shtml> using your Hawk ID and password.

**Course Home:**

For Undergraduate Courses: 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.

For Graduate Courses: The College of Liberal Arts and Sciences (CLAS) is the home of this course, and CLAS governs the policies and procedures for its courses. Graduate students, however, must adhere to the [academic deadlines set by the Graduate College](#).

**Prerequisites:** STAT:3200 and (STAT:3101 or STAT:4101 or STAT:3120)

***Instructor: Joyee Ghosh***

**Office location:** 372 SH

**Student drop-in hours:**

**Monday and Friday: 2:00-3:00 PM by Zoom**

**Wednesday: 2:15-3:15 PM at 241B SH**

**Students are invited to drop by during these hours to discuss questions about the course material or concerns. I am available by appointment if you are unable to attend my drop-in hours.**

**Phone: 319-335-0816**

**E-mail: [joyee-ghosh@uiowa.edu](mailto:joyee-ghosh@uiowa.edu)**

**DEO: Professor Kung-Sik Chan, Office: 241 SH, Email: [kung-sik-  
chan@uiowa.edu](mailto:kung-sik-chan@uiowa.edu)**

**Description of Course and Learning Objectives:**

Students will learn to do statistical analysis of data from a Bayesian perspective. Different models will be considered, including linear regression models, hierarchical models, and logistic regression models. Issues of model formulation, computation, model checking, and sensitivity analysis will be considered, and illustrated with real statistical analyses.

Students will learn to use software packages and R for carrying out Bayesian data analysis. Tentatively, the plan is to cover chapters 7 through 13 of the textbook, and additional topics if time permits.

**Software:** We will use the statistical language R for this course, which can be downloaded from <https://cran.r-project.org/>.

**Textbook/Materials:** Required: Probability and Bayesian Modeling, Albert and Hu (Bookdown version available at <https://bayesball.github.io/BOOK/probability-a-measurement-of-uncertainty.html>)

Supplementary: Applied Bayesian Statistics, Cowles

Supplementary: A First Course in Bayesian Statistical Methods, Hoff

### **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](#).

### **Student Complaints:**

Students with a complaint about a grade or a related matter should first discuss the situation with the instructor and/or the course supervisor (if applicable), 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 and withdrawing [here](#). Graduate students should adhere to the [academic deadlines](#) and policies set by the Graduate College.

### **Homework assignments:**

I expect to give homework assignments almost every week. I will usually assign the homework on Wednesday and it will be due on ICON the following Wednesday.

HW should show name and HW number written at the top of the first page. Please upload HW as Word or [PDF](#) documents. You may take a picture of your handwritten

HW and embed in Word. If you have an iPhone, you can use the ``Notes'' app to create a new note. Choose the camera icon and then select ``Scan Documents''. This automatically saves all the scanned handwritten pages in a single PDF file. Please be considerate to the grader and double check that your uploaded scanned documents are readable (not too small or large fonts etc.).

You can discuss homework assignments with me or other students, but the final write-up should be from your own understanding. While assignments do not have to be type-written, please provide figures or R code, when applicable. For written problems always show your work, not just the final answer.

### **Exams:**

There will be two closed book 50 minutes midterm exams in class, in the weeks of October 5, 2022 and November 9, 2022 tentatively. You may bring a 8.5'' by 11'' hand-written formula sheet (both sides written).

There will be a closed book two hours final exam (date to be announced later). You may bring three 8.5'' by 11'' hand-written formula sheet (both sides written).

If an exam is missed, a make-up exam will be permitted only if the circumstances of missing the exam satisfy university policy (documentation will be required in such a case).

### **Attendance:**

Regular attendance is expected.

### **Grading System and the Use of +/-:**

A plus-minus grading system will be used. As a rough guide A, A-: 88-100%, B+,B,B-: 75-88%, C+,C,C-: 50-75%, D+,D,D-: 40-50%, F:<40%.

I may lower the cut-offs depending on the difficulty of the exam. The A+ grade is rarely awarded.

### **Course Grades:**

Final course grades will be assessed based on the following:

- Homework assignments (15%)
- Midterm exams (25% each)
- Final exam (35%)

### **Date and Time of the Final Exam:**

The final examination date and time will be announced by the Registrar generally by the fifth week of classes and it will be announced on the course ICON site once it is known. **Do not plan your end of the semester travel plans until the final exam schedule is made public. It is your responsibility to know the date, time, and place of the final exam.** According to Registrar's final exam policy, students have a

**maximum of two weeks after the announced final exam schedule** to request a change if an exam conflict exists or if a student has more than two exams in one day (see the [policy](#) here).

### **College of Liberal Arts and Sciences (CLAS) Course Policies:**

#### **Attendance and Absences**

University regulations require that students be allowed to make up examinations which have been missed due to illness or other unavoidable circumstances. Students with mandatory religious obligations or UI authorized activities must discuss their absences with me as soon as possible. Religious obligations must be communicated within the first three weeks of classes.

Barring illness and family emergencies, credit will not be given for late work. If you have to miss a class, please read the material covered on that day before coming to the next class. This will help you get the most out of lectures.

#### **Exam Policies**

#### **Communication: UI Email**

Students are responsible for all official correspondences sent to their UI email address (uiowa.edu) and must use this address for any communication with instructors or staff in the UI community.

#### **Other Expectations of Student Performance**

Activities which are unacceptable are (1) prolonged conversation with a fellow student, (2) the use of cell phones, and (3) the use of laptops/tablets etc. in class.

**Please remember to switch your phones to silent mode before class starts and put away laptops/tablets/phones etc. when in class.**

#### **Where to Get Help**

Tutor Iowa: <https://tutor.uiowa.edu/>

#### **University Policies**

[Accommodations for Students with Disabilities](#)

[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](#)