

STT 874: Introduction to Bayesian Analysis

Michigan State University, Fall 2024

Instructor: Shrijita Bhattacharya

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OFFICE HOUR: Monday and Friday 2:00-3:00 PM at C419 Wells Hall or by appointment.

Teaching Assistant: Aoqi Xie

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Lectures Schedule: Monday and Friday 12:30-1:50 PM at C506 Wells Hall.

In case a student is unable to attend lectures over an extended period, please collect lecture notes uploaded online and reach out to the instructor for additional help.

In case the instructor is unable to attend lectures over an extended period, lecture notes will be made available online. Also, make up classes and/or substitute lectures shall be arranged for.

Help Room: <https://stt.natsci.msu.edu/academics/statistics-learning-center/>

Course Web Page: All course materials and homeworks will be posted on D2L.

Required Course Materials: Selected topics from the books of *A First Course in Bayesian Statistical Methods*, by Peter D. Hoff and *Bayesian Essentials with R*, by Jean-Michael Marin and Christian Robert. Selected topics from the journal articles based on journal article *Variational inference: A review for statisticians* by David M Blei, Alp Kucukelbir, Jon D. McAuliffe and lectures notes based on *Variational inference: Foundations and Innovations* by David M Blei. Additional papers, books or notes may be referred as the course proceeds.

Attendance: You are expected to attend all meetings of the class. If you miss a class for whatever reason, you are responsible for all covering materials, assignments and deadlines.

Examinations: There will be **two** in-person midterm exams.

October 14	Exam 1
December 06	Exam 2

A **comprehensive** final project will be posted online on December 07 and will be due by December 10.

If you are unable to take an exam, please contact the instructor on or before the day of the exam. All excuses must be verifiable. The make-up exams will be given only under exceptional circumstances.

Homework: There will be five homeworks to turn in usually on bi-weekly basis. Unexcused late homework (turned in up to one class date late) is given only 60% credit. Later homework is given no credit. There is no make-up for homework.

Grading: Attendance: 5%, Homework: 20%, Exam 1: 25%, Exam 2: 25%, Final: 25%.

4.0 : $90\% \leq \text{Score} < 100\%$	2.0 : $60\% \leq \text{Score} < 65\%$
3.5 : $80\% \leq \text{Score} < 90\%$	1.5 : $55\% \leq \text{Score} < 60\%$
3.0 : $70\% \leq \text{Score} < 80\%$	1.0 : $50\% \leq \text{Score} < 55\%$
2.5 : $65\% \leq \text{Score} < 70\%$	0.0 : $0\% \leq \text{Score} < 50\%$

DEI Statement: This class aims to be accessible and inclusive to people from different backgrounds and beliefs. Any form of discrimination or prejudice based on age, color, gender, disability, national origin, political belief, race, religion, sexual orientation and veteran status is strongly discouraged. It shall be ensured that all class materials cover examples pertinent to varying ethnic groups and cultures. If someone has a name and/or set of pronouns that they would like to be referred by, please let the instructor know. We (like many people) are still in the process of learning about diverse perspectives and identities. If something said in class (by anyone) makes you feel uncomfortable, kindly reach out to the instructor (anonymous feedback is also welcome).

Academic Honesty: The Department of Statistics and Probability adheres to the policies of academic honesty as specified in the General Student Regulations 1.0, Protection of Scholarships and Grades, and in the All-University of Integrity of Scholarships and Grades which are included in Spartan Life: Student Handbook and Resource Guide. Plagiarism or any other sort of fraudulent behavior in exam and/or homework assignment will result in an automatic zero in that exam and/or homework assignment.

ADA: To arrange for accommodation, a student with special need should contact the Resource Center for People with Disabilities [Phone: 353-9642, Web Site: <http://www.rcpd.msu.edu>].

Mandatory reporting: MSU employees, with limited exceptions, are required to report allegations of sexual assault, sexual harassment, and other prohibited conduct involving members of the University community. Details for reporting can be found at <https://civilrights.msu.edu/policies/relationship-violence-and-sexual-misconduct-and-title-ix-policy.html>.

Grief absences: MSU has a policy on grief absences. It is described at <https://reg.msu.edu/ROInfo/Notices/GriefAbsence.aspx>.

FERPA rules on student privacy rights are available at <http://www.reg.msu.edu/ROInfo/Notices/PrivacyGuidelines.asp>.

Emergency situations: For additional suggestions for handling emergency situations in the classroom, contact the Ombudsperson's office <https://ombud.msu.edu/education-training-assessments/presentations-trainings>.

Disclaimer: The instructor reserves the right to make any changes she considers academically advisable. Changes will be announced in class and on the course web page. It is students' responsibility to keep up with any changed policies and assignments.

Important Dates:

- Aug 26 Classes begin.
- Aug 30 End of add period.
- Sep 02 No classes.
- Sep 19 Last day for 100% refund.
- Oct 14 Exam 1.
- Oct 14 Middle of Semester.
- Oct 21-22 Fall Break.
- Nov 28-29 Thanksgiving break.
- Dec 06 Exam 2.
- Dec 06 Last day of classes.
- Dec 10 Final due.