STAT251

(Autumn, 2020)

Statistics 251: Introduction to Mathematical Probability (Section 1)

Lecture: MWF 10:20am-11:10pm, on Zoom link can be found on Canvas Calendar .

Textbook: A First Course in Probability by Sheldon Ross (6th, 7th, 8th, or 9th edition)

Course Information: :download:`printable homepage <CourseHomepage.pdf>` and :download:`schedule <schedule.pdf>`.

Instructor: Zhongjian Wang (zhongjian at uchicago dot edu, urgent contact zhongjianwang25 at gmail dot com).

TAs: Solomon Quinn (solomonquinn at uchicago dot edu).

Office hours:

- Zhongjian, Thu 2-3 PM, 8-9 PM. (Send me an email if you cannot enter the room).
- Solomon, Wed 9-10 AM, 5-6PM.
- Link to drop in can be found on Canvas Calendar .

To avoid logging in Canvas everytime, you can first find the *Feed* of your Canvas Calendar at the right side of Calendar page. Then you copy the link and go to email webpage (I will take Outlook or Office 365 as example). There should be a calendar icon on bottom left to guide you to the *calendar view*. Click on *add calender* on the left panel and select *subsribe from web*. Now enter the address of your Feed and decide a name for this feed. Last, sign in the email (e.g. Internet accounts on OSX, Email & Accounts on Win10) on your device and allow the device to visit your calendar. Allow some time for synchronizing, you will find the zoom link in your calendar.

Overview and prerequisites

This course covers fundamentals and axioms; combinatorial probability; conditional probability and independence; random variables, expectations and variances; binomial, Poisson, and normal distributions; the law of large numbers and the central limit theorem.

One of the following courses is a prequisite for this course:

Math 16300, Math 16310, Math 20500, Math 20510, or Math 20900, with no grade requirement. Math 19520 or Math 20000 with either a minimum grade of B-, statistics major, or current enrollment in prerequisite course. Contact me by email if you have questions about whether this course is appropriate for you.

Course Policies

Gradescope

This course will use Gradescope, an online platform for grading exams and homework. A few notes about Gradescope:

- All evaluation is done by humans (the TA's and me). You are not being graded by a computer.
- You will be able to view your graded papers on the Gradescope website.

> **Note**
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> I have included all current students in Gradescope. If you cannot log in via Canvas, please let me know.

Homework

There will be weekly written homeworks due Monday. Homework should be submitted electronically via Gradescope before the start of class. To submit on Gradescope, see this Youtube video or follow the steps below:

1. **Produce one legible .pdf file containing your complete solutions to each problem. This does not mean you must type up your solutions; instead, you may scan your handwritten solutions. Some guidelines for scanning are:**

   - Gradescope recommends several free mobile/tablet apps which allow you to turn photos into multi-page PDFs. I also suggest using Dropbox mobile scanning.

   - Be sure to preview your scan and make sure it is legible before uploading to Gradescope.

2. Upload the .pdf file to Gradescope by the submission deadline (10:20am Monday).

3. Select the page(s) that contain the solution to each of the assigned problems. **Failure to do this step will mean that some or all of your problems will not be graded**!

Email me or the TAs if you have trouble with the submission procedure.

Grading

Exams: There will be one midterm exam and a cumulative final exam according to the following schedule.

- Midterm: Monday, October 26 during the lecture time. No early submission.

- Final Examination: December 9-11 as scheduled by the registrar.

The use of notes, textbooks, or electronic devices will not be allowed during exams. No make-up exams will be offered without a letter from the dean or a doctor's note. No make-ups are possible for the final exam.

The final course grade will be determined according to the maximum of the two following computations:

- (20% Homework) + (80% Final)

- (20% Homework) + (30% Midterm) + (50% Final)

The lowest homework scores will be dropped to accommodate illness and other unforeseen circumstances. Late homework will not be accepted.

Academic Integrity

I encourage you to work together on homework! For written homework, you must write your solutions alone and understand what you write. **When submitting your homework, you should cite any sources you used (in print, online, or human) other than the textbook and myself.**

Students with disabilities

In order to receive disability-related academic accommodations, students must first be registered with Student Disability Services (SDS). More information on the SDS registration process is available here. Registered students must present an accommodation letter to the instructor before exam or other accommodations can be provided. Students who have, or think they may have, a disability are invited to contact SDS for a confidential discussion.

Materials

Pratice for exams:

It will not be graded so you do not need to upload them to gradescope. :download:`prac.mid <lectures/prac.midterm-wang.pdf>` :download:`prac.final <lectures/final-wang-prac.pdf>`

Lecture slides:

:download:`L1 <lectures/l1-wang.pdf>` :download:`L2 <lectures/l2-wang.pdf>`

:download:`L3 <lectures/l3-wang.pdf>` :download:`L4 <lectures/l4-wang.pdf>` :download:`L5 <lectures/l5-wang.pdf>`

:download:`L6 <lectures/l6-wang.pdf>` :download:`L7 <lectures/l7-wang.pdf>` :download:`L8 <lectures/l8-wang.pdf>`

:download:`L9 <lectures/l9-wang.pdf>` :download:`L10 <lectures/l10-wang.pdf>` :download:`L11 <lectures/l11-wang.pdf>`

:download:`L12 <lectures/l12-wang.pdf>` :download:`L13 <lectures/l13-wang.pdf>` :download:`L13-code <lectures/l13_code.m>`

:download:`L14 <lectures/l14-wang.pdf>` :download:`L15 <lectures/l15-wang.pdf>` :download:`L16 <lectures/l16-wang.pdf>`

:download:`L17 <lectures/l17-wang.pdf>` :download:`L18 <lectures/l18-wang.pdf>` :download:`L19 <lectures/l19-wang.pdf>`

:download:`L20 <lectures/l20-wang.pdf>` :download:`L21 <lectures/l21-wang.pdf>` :download:`L22 <lectures/l22-wang.pdf>`

:download:`L23 <lectures/l23-wang.pdf>` :download:`L24 <lectures/l24-wang.pdf>` :download:`L25 <lectures/l25-wang.pdf>`

Homeworks:

Please refer to course site on gradscope.

Getting Help

Peer Tutoring

UChicago offers peer tutoring via the Core Tutoring Program. See more information here.

Contact me

Please come during office hours, or email me or one of the TAs for help if you are having difficulty with the material.

If you find anything on this website unable to access, feel free to raise an urgent issue to me.