Math 234-001: Mathematical Statistics

semester	Fall 2019
time	Tues, Thurs 2:00-3:15PM
location	Warren Weaver Hall (WWH=Courant) 102
recitation	Fri 3:30-4:45PM (002), 11:00-12:15PM (003) WWH 102
instructor	Dr. Christopher Miles
email	chris.miles@nyu.edu
office	WWH 1105A
office hours	M 11-12, Th 3:15-4:15
TA	Renjie Pan renjie.pan@nyu.edu
TA office hours	Fri 1-3PM, WWH 705
links	join Campuswire 7356, access Campuswire, NYUClasses

Textbook

All of Statistics by Larry Wasserman. It can be accessed online **for free** through Springer from NYU connected computers at this link:

textbook link

I'll also likely draw examples from *Statistical Inference* by Casella and Berger. Buying this book is completely unnecessary and discouraged.

CampusWire

- I will use CampusWire **NOT** NYUClasses to make all announcements for the class. Please check it regularly to stay informed. NYUClasses will be used to post grades only.
- All questions (especially those with answers that would benefit others) should be asked on CampusWire.
- You are **required (10% of your grade)** to **ask one question** and **answer one question** by the end of the semester.

Grading

The final assigned grades for the course will be computed from the following breakdown:
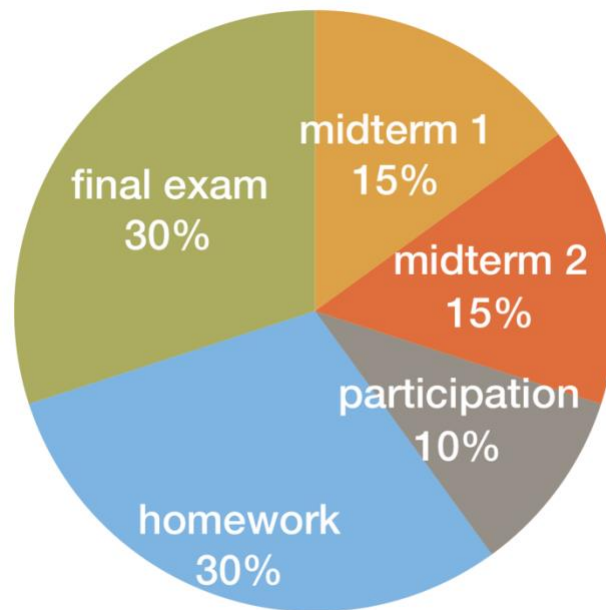
Homework (30%)

- Homework will be due on **Tuesday** every week unless noted otherwise.
- The lowest homework grade will be dropped in the calculation of this grade.
- The problems will primarily be assigned from the Wasserman text but other computational assignments might be added.
- No format requirements, just make sure the assignments are stapled, legible, and clean. Submissions not meeting these requirements will not be accepted.
- No late homeworks will be accepted.

Midterm Exams (15+15=30%)

- Two non-cumulative midterm exams will be given during the usual time/place of class.
- Tentative dates: **October 10th** and **November 21**.
- The lowest midterm exam grade can be replaced with the final exam grade if this benefits the grade of the student.
- If you have a conflict or issue with a scheduled exam, please try to talk to me far in advance of the exam. Emergencies, etc can also be discussed.

Final Exam (30%)

- The final exam will be cumulative, with date/time TBD.
- Attendence to the final is **required**.
- Absolutely no makeup final exams will be given. The day/time is set in stone.

Participation (10%)

- As noted above, you are required to **ask one question** and **answer one question** on CampusWire by the end of the semester.

Flexibility

As the instructor, I reserve the right to modify any of the policies listed in the syllabus with appropriate notice given to the students. Updates to the syllabus will be highlighted.

Schedule

This is meant more as a tentative list of topics rather than a strict schedule.

1. Review of probability (Wasserman ch 1) ~ 1 week
2. Review of random variables, moments (Wasserman ch 2,3) ~ 1 week
3. Review of CLT, delta method (Wasserman ch 5) ~ 1 week
4. Intro to inference (Wasserman ch 6) ~ 0.5 weeks
5. Parametric inference (Wasserman ch 9) ~ 2 weeks
6. Nonparametric inference (Wasserman ch 7, 20) ~ 2 weeks
7. Hypothesis testing, p-values (Wasserman ch 10) ~ 1.5 weeks
8. Bayesian inference (Wasserman ch 11) ~ 1.5 weeks
9. Regression (Wasserman ch 13) ~ 1.5 weeks
10. (maybe earlier?) Bootstrapping (Wasserman ch 8) ~ 0.5 weeks
11. (time permits?) Classification, data science-y stuff ~ 1 week