Course Syllabus

STAT 542:
Multivariate Analysis
Autumn 2021

Instructor: Yen-Chi Chen
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Office hour: Tuesday 2:30-3:30 pm PT.

Course Website:
On Canvas: https://canvas.uw.edu/courses/1451028

Class Schedule: There will be two sessions a week:

• (Remote Lecture) MWF 2:30-3:20 pm

Course Textbook:
Main textbook: No requirement.

Course Overview: STAT 542 is a course about multivariate analysis and unsupervised learning. We will cover both classical and modern topics related to multivariate analysis and unsupervised learning. Tentative course notes can be found in http://faculty.washington.edu/yenchic/21Sp_stat542.html. Here is an overview of the course contents:

• Likelihood method and exponential family
• Graphs and networks
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• Missing data and parametric models
• Empirical likelihood method
• Item response theory
• Density estimation
• Classification (optional)
• Clustering
• Dimension reduction
• Multiple hypothesis test
• Copula
• Algorithmic fairness
• Median of means estimator (optional)

Grades:

• Biweekly homework assignments (40%)
• Midterm report (20%)
• Final project report (40%)

(Group) project report:

• In this course, you will need to write a short report on topics related to this course.
• This report can be either a summary of research paper or a report on how some topics in this course is related to your own research. For instance, you can pick one of the papers mentioned in the lecture note and write a summary about what that paper is about. Or you may write a report that describes how your own research is related to some topics in this course.
• The midterm report will be a proposal; it should be 1-2 pages long (more details will be announced later). The midterm report will focus on identifying the papers/topics that you want to write for the final report.

• The final report should be 4-8 pages long (more details will be announced later).

Accommodation. Your experience in this class is important to me. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law. If you have already established accommodations with Disability Resources for Students (DRS), please activate your accommodations via myDRS so we can discuss how they will be implemented in this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), contact DRS directly to set up an Access Plan. DRS facilitates the interactive process that establishes reasonable accommodations. Contact DRS at disability.uw.edu.

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW’s policy, including more information about how to request an accommodation, is available at Religious Accommodations Policy. Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form.