Syllabus of STAT154  
(Modern Statistical Prediction and Machine Learning)

**Instructor:** Song Mei (songmei@berkeley.edu)  
**Lectures:** T/Th 17:00 - 18:29. Location: Moffitt Library 101.  
**Instructor office hours:** Will announce on course homepage.  
**GSI:** Ryan Theisen (theisen@berkeley.edu)  
**Lab 101:** M 10:00 - 11:59. Location: Moffitt Library 103.  
**Lab 102:** M 14:00 - 15:59. Location: Wheeler 220.  
**GSI office hours:** Will announce on course homepage.  
**Zoom link (Lectures, Labs, Office hours):** [https://berkeley.zoom.us/j/93149999627](https://berkeley.zoom.us/j/93149999627)

**Important websites**
- Course website (for general logistics): [https://www.stat.berkeley.edu/~songmei/Teaching/STAT154_Fall2021/index.html](https://www.stat.berkeley.edu/~songmei/Teaching/STAT154_Fall2021/index.html)  
- bCourses (for potentially recordings): [https://bcourses.berkeley.edu/courses/1507964/](https://bcourses.berkeley.edu/courses/1507964/)  
- Piazza (for questions): [https://piazza.com/class/kst8dnv06k33vo](https://piazza.com/class/kst8dnv06k33vo)  

**Course introduction**
This course will focus on statistical learning methods and data analysis skills. Upon completing this course, the students are expected to be able to 1) build baseline models for real world data analysis problems; 2) implement models using programming languages; 3) draw conclusions from models.

**Topics**
**Basic topics:**

**Advanced topics:**
Statistical learning theory and optimization theory.
Online learning. Bandit problems.
Textbooks
An Introduction to Statistical Learning. Elements of Statistical Learning. (free pdf online)

Other references
Berkeley CS189/289 lecture notes: https://people.eecs.berkeley.edu/~jrs/189/

Prerequisite
MATH 53 and 54 or equivalents; MATH 110 is highly recommended. STAT 135 or equivalent (DATA/STAT C100 *and* (STAT 134 *or* DATA/STAT C140) will be accepted). STAT 133 preferred. STAT 151A is recommended. Scripting language required and R experience recommended.

Homework/Grading
• Class attendance is required.
• There will be 6-7 homeworks.
• In class mid-term. Date TBA.
• Final exam date: Dec 16, 11:30 am - 2:30 pm.
• Final grade will be Homework × 50 % + mid-term × 20 % + final × 30 %.

Code of conduct; attribution of work
The high academic standard at the University of California, Berkeley, is reflected in each degree awarded. Every student is expected to maintain this high standard by ensuring that all academic work reflects unique ideas or properly attributes the ideas to the original sources.

These are some basic expectations of students with regards to academic integrity: Any work submitted should be your own individual thoughts, and should not have been submitted for credit in another course unless you have prior written permission to re-use it in this course from this instructor.

All assignments must use “proper attribution,” meaning that you have identified the original source and extent or words or ideas that you reproduce or use in your assignment. This includes drafts and homework assignments! If you are unclear about expectations, ask your instructor.

Do not collaborate or work with other students on assignments or projects unless the instructor gives you permission or instruction to do so.

Disability accommodations
If you need an accommodation for a disability, if you have information your wish to share with the instructor about a medical emergency, or if you need special arrangements if the building needs to be evacuated, please inform the instructor as soon as possible.

If you are not currently listed with DSP (the Disabled Students’ Program) and believe you might benefit from their support, please apply online at https://dsp.berkeley.edu/.