Instructor

- **Thomas C. M. Lee**:
  - Office: 4220 Mathematical Sciences Building
  - Phone: (not available yet)
  - Email: tcmlee@ucdavis.edu
  - Office Hours: MW 2:10-3:00 PM
Teaching Assistants (MSB 1117)

- Becker, Gabriel: gmbecker@ucdavis.edu, Office Hours: TBA
- Chou, Elizabeth: eptchou@ucdavis.edu, Office Hours: TBA
- Huang, Chun-Jung: spphuang@ucdavis.edu, Office Hours: TBA
- Jin, Yin: yinjin@ucdavis.edu, Office Hours: TBA
- Wang, Huanli hlwa@ucdavis.edu, Office Hours: TBA
- Xu, Cong: cgxu@ucdavis.edu, Office Hours: TBA
- Yang, Nuen-Tsang: matyang@ucdavis.edu, Office Hours: TBA
- Zhou, Siyuan: ucdzhou@ucdavis.edu, Office Hours: TBA
Meeting Times

- **Lectures**: MWF 1:10-2:00 PM in SCILEC 123
- **Discussion Sessions**:
  - A01 > T 8:00-8:50 AM in OLSON 205
  - A02 > T 8:00-8:50 AM in WELLMN 1
  - A03 > T 9:00-9:50 AM in WELLMN 1
  - A04 > T 12:10-1:00 PM in OLSON 205
  - A05 > T 2:10-3:00 PM in HOAGLD 168
  - A06> T 3:10-4:00 PM in HARING 2016
  - A07> T 5:10-6:00 PM in CHEM 166
  - A08> T 6:10-7:00 PM in CHEM 166
  - A09> T 6:10-7:00 PM in OLSON 147
  - A10> T 7:10-8:00 PM in OLSON 147
Web Resources

- **Course Homepage:**

- **Smartsite:** [smartsite.ucdavis.edu](http://smartsite.ucdavis.edu)
Communication

- For questions related to course material: come to office hours or use the chatroom in smartsite.

- For general administration questions: come to office hours; or send questions to the course email account: sta13a2010spr@wald.ucdavis.edu; this email account is monitored daily. Therefore for quick response, please send emails to this address instead of our person email addresses. Thank you!

- Announcements: will be posted on course website and sent out via course email list.
Grading

- **3 Midterms**: 55%
  - in class 1:10-2:00pm, tentative dates: Weeks of Apr 19-23 (Midterm I), May 3-7 (Midterm II) and May 24-28 (Midterm III); closed book, one cheat sheet with handwritten notes (no larger than 9 1/2 x 11, two sided) is allowed; the midterm with lowest score will be dropped, so each of the other two midterms accounts for 27.5%.

- **Final Exam**: 45%
  - Monday, June 7 at 6:00-8:00 pm; comprehensive; closed book exam, two cheat sheets with handwritten notes (no larger than 9 1/2 x 11, two sided) are allowed

- **Homework**: 0%. Weekly homework will be assigned, but will not be collected and graded. Solutions will be posted online.
Grading Policy

- **Exams:** NO early or make up exams will be provided. Any exam you miss will be counted as 0 point.

- **Regarding disputes on grades:**
  Contact the instructor **within 1 week of posting the grades**.
Prerequisite

- Two years of high school algebra (or equivalent) in college
  - Ability to do simple arithmetic
  - Ability to do simple algebraic manipulations
Course Requirement

- Attend all four weekly class meetings (lectures and discussion sessions): Exams cover all material covered in class (regardless if in the text or not)
- Do the homework: Some of the exam questions will be closely related to the homework problems
- If you miss a lecture: check the course website for lecture notes and announcements
Textbook

- **Title:** Introduction to Probability and Statistics
- **Authors:** Mendenhall, Beaver and Beaver
- **Edition:** 13th Edition available at the campus bookstore

*Old/custom editions are also okay. Homework will be posted online in the form of pdf files*
Material to be Covered

- **Part I: Summarize data**
  - Summarizing data through graphs and charts
  - Numerical summary through various averages (measures of center of the data, spread of the data)
  - Association between two variables (correlation and regression)

- **Part II: Basic probability**
  - Definition, rules, concept of event and conditional probability
  - Binomial and Normal distributions (definition, properties)
Material to be Covered (continued)

- Part III: Estimation and testing
  - Sampling methods and sampling distributions
  - Estimation methods and confidence intervals
  - Hypotheses testing
  - Categorical data analysis
Goals of the Course

- To learn how to interpret statistical summaries appearing in journals, newspaper reports, internet, television ..... 
- To learn how to interpret and analyze data arising in your own work (coursework and research) 
- To learn about the concept of probability and probabilistic reasoning
Example 1

Example 1: Admission data for the six largest graduate programs in UC Berkeley
(Source: The graduate division, UC Berkeley)

<table>
<thead>
<tr>
<th>Major</th>
<th>Number of applicants</th>
<th>Percent admitted</th>
<th>Number of applicants</th>
<th>Percent admitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>825</td>
<td>62</td>
<td>108</td>
<td>82</td>
</tr>
<tr>
<td>B</td>
<td>560</td>
<td>63</td>
<td>25</td>
<td>68</td>
</tr>
<tr>
<td>C</td>
<td>325</td>
<td>37</td>
<td>593</td>
<td>34</td>
</tr>
<tr>
<td>D</td>
<td>417</td>
<td>33</td>
<td>375</td>
<td>35</td>
</tr>
<tr>
<td>E</td>
<td>191</td>
<td>28</td>
<td>393</td>
<td>24</td>
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<tr>
<td>F</td>
<td>373</td>
<td>6</td>
<td>341</td>
<td>7</td>
</tr>
<tr>
<td>total</td>
<td>8442</td>
<td>44</td>
<td>4321</td>
<td>35</td>
</tr>
</tbody>
</table>

Summary: About 44% men and 35% women were admitted

Question: sex-bias?
Example 1 (cont.)

- Bar chart:

- Explanation: men were applying to the “easy” majors (A and B); women were applying to “harder” ones (C,D,E and F)
Example 2

- A preschool program attempts to boost children’s IQ.
- The children are tested when they enter the program, and again when they leave.
- On both occasions, the average score is nearly 100. The program seems to have no effect.
- However, a closer look at the data shows that the children who were below average on the pre-test had an average gain of about 5 points,
- and those children who were above average on the pre-test had an average loss of about 5 points.
- Does the program operate to equalize intelligence?
- Answer: Nothing much is going on. This is due to the so called regression effect

(from “Statistics” by Freedman, Pisani and Purves)
Example 3

Birthday problem: in a discussion session with 50 students, what is the chance that at least two of the students have the same birthday?

Answer: nearly 100%!