

## E 25: Visualization for Design, Spring 2016

**General Info:** Prof. McMains, 852-9359  
Office Hours (5145 Etcheverry): W 4-5, and TBA, or by appointment

Reaching me: I have an RSI (repetitive strain injury) from typing, so please include a phone number if you email me. Ask questions of general interest (such as homework clarifications) in lecture, lab, or the online discussion board. Ask quick questions not of general interest before or after class. For more in-depth discussions, come to my office hours, or if you have a conflict with office hours, see me before or after class to set up an alternate meeting time. You can also call me at the phone number above. **Any email you send needs to include your phone number.**

GSI (a.k.a. TA): Edward Zhu and TBA. Please post questions about homework to the online Discussion board. If you have a private matter to discuss, email to [e25s16.gsi@gmail.com](mailto:e25s16.gsi@gmail.com).

GSI Office Hours: TBA

We will be using bCourses for the course website, <https://bcourses.berkeley.edu/>. Use your CalNet ID and password to login. If you are concurrent enrollment, the GSI can give you access during the first lab if you have a Calnet ID.

Lectures: W 3-4 pm, 3108 Etcheverry  
Laboratory: Fri 3-5 pm, 10 Jacobs

|        |                            |  |
|--------|----------------------------|--|
| Exams: | Midterm :                  | Tuesday, March 1, 6-8 pm               |
|        | Practicum or Presentation: | Your lab section, last week of classes |
|        | Final:                     | Wednesday, May 11, 7-10pm              |

Availability for lectures, laboratories, and all examinations is required for enrollment in the class. Please see the professor for accommodation of religious beliefs, disabilities, and other special circumstances before the end of the second week of classes for any foreseeable issues. No make-up exams will be available.

Course Material Fee: There is a \$27 course material fee for this class for software licensing and lab administration.

### **Required Course Materials:**

- Lieu, D.K., and Sorby, S.A., Visualization. Modeling, and Graphics for Engineering Design, 2009 (first edition).
- An i-clicker or i-clicker+ transmitter. Register it on bcourses (not the iclicker site).
- Graph paper.
- Erasable colored pencils in 8 or more colors including ROYGBV (Crayola brand often not erasable).
- Ruler.
- AutoCAD 2016 student edition software. Available in the CAD labs or may be downloaded with UCB account; details *after* the first lab. **Note that Mac version is not identical to PC version and exams will be on PCs!**

### **Grading:**

25% Homework, laboratory, quizzes, and class & clicker participation  
15% Group Design Project  
20% Midterm Examination  
40% Final Examination

### **Electronic Devices:**

No headphones in lab or lecture. No cellphone, computer, etc. use during lecture or discussion portion of lab. Cell phones may be left on vibrate for emergency notification purposes. If you expect an important phone call, please inform me before class and quietly excuse yourself when you receive it.

### **Homework:**

Homework sets will be assigned each week in lab (they will appear on the website) and will be due at 2 pm on Wednesday of the following week. Computer files for all CAD homework problems must be submitted electronically by the due date. Hardcopies must *also* be submitted by the due date! Late homework will be marked off by 50% and will only be accepted up to one week late (unless we need to discuss the solutions earlier e.g. before an exam, in which case an announcement will be made). You must turn in all problems together (i.e. you can't turn in some on time and others late).

### Late HW Policy:

Evaluating the merit of student excuses for late homework is not an activity I enjoy; therefore, *all* students will automatically be given one "free" late homework (without penalty) and in addition the lowest homework score will be dropped. (You don't need to tell us ahead of time when you are using your free late homework). Similarly all students will receive two "free" days of class participation (participation includes clicker questions and comprehension quizzes). Save these for when you really need them! Because batteries die, students forget their clickers, etc. and that's tough to anticipate.

### Academic Honesty:

The student community at UC Berkeley has adopted the following Honor Code: "As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others." For homework assignments in this class, you are allowed (and encouraged!) to *discuss* the problems and techniques with other students currently in this course, but each student must do his or her own version of the CAD solution *from scratch* on the computer and/or write up their own solution for written problems. **Never give a classmate a copy of your computer files, and never have someone else's computer file in your possession.**

IF YOU DISCUSSED YOUR WORK WITH OTHER STUDENTS, OR CHECKED YOUR ANSWERS AGAINST THEIRS, YOU MUST DESCRIBE THIS IN THE SUBMISSION QUIZ AND AT THE TOP OF YOUR WRITE-UP, ACKNOWLEDGING THE STUDENT(S) WHO ASSISTED YOU OR WHO YOU ASSISTED (all students will receive full credit in this case). Turning in someone else's work or group work as your own (or letting someone else turn in your work as their own), on the other hand, will be treated as cheating, and will result in a grade of zero on the assignment for all students involved. Because responding to in-class questions with the clicker is worth course credit, responding for another student will be treated as cheating, and both students will lose all class participation credit for the course. Cheating on a midterm or final exam may result in a failing grade for the entire course. In all cases of cheating, your actions will also be reported to the Center for Student Conduct for administrative review.

### Laboratory:

Labs begin with the first week of class. At the beginning of each lab, activities will include a short review of the current week's lecture material, useful hints for homework and CAD work, and tutorials and other lab activities. The remainder of the lab you will start working on the remaining homework problems while the GSI circulates to answer individual questions. Students are also encouraged to help each other with questions during this second part of lab. The GSI will also be holding office hours in the lab (times TBA).

Many homework assignments will require the use of the computer. The computers in the CAD labs will be available for use except when a class is in session. The use schedule will be linked to on the website. The lab in 1171 Etcheverry is locked on evenings and on the weekends and the building is locked at 7 pm and on weekends; however, students enrolled in the class can obtain card key activation to access the labs and the building after hours with their student ID. Card key activation may be obtained from <https://www.me.berkeley.edu/accounttool/> for a \$5 activation fee (through CARS); it will probably take one business day to take effect.

Each student can use their CalNet ID and their passphrase to logon to the computers in the CAD labs. Only ME students and students who are enrolled (or waitlisted during the first 3 weeks) will be allowed to login. Please use the networked H: drive for saving the files you are working on in lab, NOT the hard drive of the lab computer. All students are responsible for backing up their own data, so store to a USB memory stick as often as necessary. There is a free print quota (of 100 sheets?) every start-of-semester. When used up, it can be increased in \$5 increments (currently 250 sheets, \$0.02/sheet) at <http://www.me.berkeley.edu/accounttool>, charged to CARS. The software used for this course is AutoCAD, which is installed in the CAD labs. Instructions for downloading to your own PC will be provided soon.

If problems are encountered with a machine, place a note under the keyboard describing the problem, and move to another machine. **Notify the system administrators by emailing [mesupport@me.berkeley.edu](mailto:mesupport@me.berkeley.edu)** (this address is ONLY to report computer problems).

Keep the labs secure. Do not allow anyone without a Cal ID access, and make sure they swipe it before entering after hours. Please notify one of the instructors or campus security of any suspicious persons or events in, or near, the labs. Theft of computer equipment and personal property has been a problem in the labs in the past. **DO NOT BLOCK OPEN THE DOORS. NO FOOD OR DRINKS IN THE LABS. Accounts subject to termination for policy violations.**

| <u>Dates</u>                                    | <u>Material</u>   | <u>Lieu&amp;Sorby (see HW)</u> |
|---|---|--------------------------------|
| 1/20  | Mental visualization and rotation, isometric sketching.                             | Chapter 2, 3                   |
| 1/27  | Shading, orthographic multiview drawings.   | Chapter 3, 10                  |
| 2/3   | Multiview interpretation, headers,<br>line styles and projection angle conventions. | Chapter 10,11                  |
| 2/10  | Dimensioning, pictorials.   | Chapter 12, 15                 |
| 2/17  | Orthogonal projection principles.   | Chapter 11, 12, 15             |
| 2/24  | Auxiliary views.  | Chapter 11, 14                 |
| Tuesday, March 1, 6 – 8 PM, Midterm Examination |   |                                |
| 3/2   | Auxiliary views continued.  | Chapter 4                      |
| 3/9   | Basic geometric relationships and problem solving.                                  | Chapter 5                      |
| 3/16  | Pt/line distance.   | (catch up on your reading)     |
| 3/30  | True shape, line-line relationships, dihedral angles.                               | (catch up on your reading)     |
| 4/6, 4/13                                       | Section views.  | Chapter 13                     |
| 4/20  | Sections, wrap-up.  | Chapter 12, 13, 15             |
| 4/27  | Summary   |                                |
| Practicum:                                      | Your lab section, last week of classes  |                                |
| Final:  | Wednesday, May 11, 2016 7-10pm  |                                |
| * Notes:  | 3/21-3/25 is spring break. No classes.  |                                |