

ME 239 – Mechanics of the Cell

Tue/Thu 3:15-4:30pm, 100-101K
Ellen Kuhl, ekuhl@stanford.edu, Durand 217, office hours Wed 2pm

Some information about yourself

- ____th year graduate / PhD student ____th year undergrad
department _____ lab _____

I am taking this class because ...

- I am interested in cells
 I am interested in mechanics
 I want to learn more about how the mechanical environment influences cells
 I want to learn more about how cells can be described mechanically

Cell mechanics is primarily part of my ...

- coursework research both

Please describe your background in Mechanics.

Please describe your background in Cell Biology.

List the three equations that you would consider most important in Mechanics.

[1]

[2]

[3]

List the three things that you consider most exciting in Cell Biology.

[1]

[2]

[3]

Please describe why you are taking this class.

What particular cell types are you interested in and why?

What kind of class materials would you prefer to use?

- single textbook / focus on “relatively basic” knowledge
- multiple textbooks / focus on “relatively broad” knowledge
- recent manuscripts / focus on “current state of the art” knowledge
- a combination of a textbook and some recent manuscripts

Unfortunately, we do not have a lab session along with this class. We will try to cover some cell experiments and cell testing theoretically though.

What kind of class format would you prefer?

- blackboard only
- slides and handouts
- blackboard, slides, and handouts

We aim at describing intercellular and intracellular response, cell-cell interaction, and cell-surface interaction with fundamental laws of physics. Those might be quite complex and nonlinear though.

Which way would like to address the equations of cell mechanics?

- theoretically on the blackboard / restricting ourselves to simple problems
- computationally, e.g., with the help of matlab / more complex problems
- combined theoretical and computational

Which scales are you most interested in?

- cellular scale and smaller
- cellular scale and larger
- all scales

In the past, you were entirely free to pick a final project of your choice. Final projects were summarized in short presentations and a written report. Most of the projects were research related.

What kind of final project would you like?

- single projects
- projects in groups of two
- research related projects with more freedom but less guidance
- selected projects with less freedom but more guidance

Additional comments and suggestions.