

ME 345: Modeling and Simulation: Course Information

Spring 2018

Instructor: Frank Fisher

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Class webpage: <http://personal.stevens.edu/~ffisher/me345>

Office hours: Office hours are available immediately after class, or by appointment.

Lecture: Section A: Friday 1:30-2:45pm in EAS 222
Section B: Friday 3:00-4:15pm in EAS 230

Labs (EAS 304/308, Fielding Lab): **A:** Monday 6 - 7:40pm, **B:** Tuesday 10 - 11:40, **C:** Tuesday 1 – 2:40
D: Tuesday 3 - 4:40pm, **E:** Thursday 1 – 2:40, **F:** Thursday 3 – 4:40

Teaching Assistants: Nan Wu (nwu1), Deng Xiong (dxiong)

Textbook: N/A. Extensive materials will be provided on the course webpage listed above.

References:

1. Finite Element Analysis: Theory and Application with ANSYS (Third Edition), S. Moaveni, Pearson Education, Inc, Upper Saddle River, NJ, 2007, ISBN 0131890808
2. Modeling and Analysis of Dynamic Systems, 3rd. Ed. Close, Frederick, and Newell, Wiley, 2002, ISBN 0-471-39442-4

Evaluation/Grades:

- 3 case studies (17% each), approximately evenly distributed throughout the semester.¹
- Cumulative final quiz, 25% (will be discussed during the first lecture).
- Homework and class participation, 24%.²

Course policy: Attendance *and* participation in class discussions are required. Class policy will be discussed in detail during the first lecture meeting.

Lab policy: As discussed during the first lecture, the computer labs are designed to require students to THINK and EXPLORE as they progress through the tutorials. The lab assistant(s) are there to assist with thoughtful questions and issues; they are not there to hold your hand through the tutorial. Students abusing the assistance of the TAs will have points deducted from their lab grade; students assisting classmates with questions on the lab will be awarded extra credit for the lab. Lab assignments are due one (1) week after the lab period the assignment was given. Late labs (with reduced grade) will be accepted for one additional week after this period. Labs overdue by more than one week will not be accepted.

Course Description: This course uses Solidworks and related packages, ProEngineer, ANSYS, Matlab/Simulink, and other software to model discrete and continuous systems of interest in mechanical engineering. Students taking this class will be able to represent systems, processes, and products using appropriate modeling strategies, analyze and visualize the simulation results, and design systems based on these models and simulations. The focus of the class is on the development of general modeling and simulation techniques that are discipline and software independent.

¹ The Case Studies will be completed in groups of 4-5 students. You cannot sign up to work with the same student for more than one Case Study. Each member of the group is equally responsible for each problem in the Case Study.

² Unacceptable homework and/or class participation performance may result in a net *loss* of points for the course.