Advice for being successful in this (and any) course

1. **Stay on schedule and stay organized.** In my more than two decades of experience as a professor instructing college students and interacting with industry on research, I've found that success correlates strongly with good organizational and time management skills. It's difficult to put in the effort required to learn if you're rushed for time or struggling to find documents.

2. **Seek to become an effective engineer**. A good engineer does not simply "find the right formula" when trying to solve a problem. When building predictive models, engineers must translate a "real world" system into mathematics using physical principles and assumptions. These mathematical expressions are manipulated into a form that can be used to predict aspects of the system's behavior. Finally, the predictions are used to make decisions about the "real world" system. Thus, engineers who develop models must have a strong understanding of physics and mathematics.

3. **Use your references.** The material in this course isn't new. There have been scores of textbooks focused on all standard undergraduate-level engineering topics. In addition, videos and documents that cover engineering principles are widely available on the internet. It helps to have different perspectives on a topic, especially if you're struggling to understand that topic. Also, don't be nervous to ask the teaching assistants and instructors for guidance. They're there to help.

4. **Good practice makes for good performance.** Your final grade in this course will be largely based on your ability to solve problems. We will rarely ask you to review a solution and tell us whether or not it's correct. Your approach to studying should reflect this structure. Thus, when preparing for a quiz or exam, instead of reviewing completed solutions, you should work problems starting with a blank piece of paper. Work the problem from scratch and only refer to a solution if you get stuck. Once you get unstuck, go back to working the problem without the solution. The more *good* practice you get, the more prepared and comfortable you'll be during a quiz or exam.

5. **Practice good communication skills**. Surveys of graduating seniors, alumni, and employers consistently show that communication skills are one of the most important skills students need after graduation, yet most students don't communicate effectively. Writing skills are particularly important since engineers frequently must prepare progress reports, lab reports, manuals, journal papers, proposals, resumes, emails, and letters. In most cases, people will only know you through your writing. It's essential then that you develop good writing skills as a student where you can get feedback and instruction. You can practice your writing in this course while preparing homework solutions, laboratory reports, and email correspondence. Send me an email at *wassgren@purdue.edu* if you'd like additional documents providing tips on writing and presenting effectively.

6. **Practice ethical decision making.** No matter what your career path, you'll be faced with ethical dilemmas. Unethical decisions can not only ruin a person's career, but can also destroy the lives of others. Just like technical and communication skills, it takes practice to develop ethical decision-making skills. Professional societies such as ASME have codified codes of ethics, e.g., https://www.asme.org/wwwasmeorg/media/resourcefiles/aboutasme/get%20involved/advocacy/policy-publications/p-15-7-ethics.pdf, which you should review; however, a good starting point when encountering an ethical dilemma is to consider the Golden Rule: "Treat others the way you would want others to treat you." Be mindful that you should consider the ethics of *all* your decisions, not just when it's convenient. I encourage you to read the following short article for additional insight on ethics: https://ascelibrary.org/doi/full/10.1061/(ASCE)1532-6748(2006)6%3A3(97)#