AME 20216 – Lab I
Spring 2025

Instructors

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379 Fitzpatrick	B14 Fitzpatrick	151 MRB

Office hours: Thursdays 4:30 – 5:30 pm in-person in 379 Fitzpatrick. We invite you to visit us during student hours, which are specifically allocated for you to ask questions and further your understanding of the course material.

Graders
Kristyna Yang, khyblova@nd.edu
Guoyue Xu, gxu3@nd.edu
Megan O'Connor, moconn28@nd.edu

Lab Section TAs
Tues. 11:00 – 1:00 – Alin Stoica, astoica@nd.edu
Tues. 3:30 – 5:30 – Haley Marco, hmarco@nd.edu
Weds. 11:30 – 1:30 – Aubrey Denico, adenico@nd.edu
Weds. 3:00 – 5:00 – Nicholas Adrian, nadrian@nd.edu
Thurs. 11:00 – 1:00 – Will Jordan, wjordan2@nd.edu

Course Website: http://www.nd.edu/~prumbach/AME20216
The course website is the primary resource for content including: the lab calendar, lab exercises, homework, lecture slides, and other resources.

Canvas – The Canvas page will be used for pre-lab quizzes, submission of assignments, announcements, and grades. Be sure to check for announcements and enable email notifications, so you do not miss any important information.

Course Description

This course will focus on measurements, data analysis, and technical writing. In the first half of the course, we will learn the basics of instrumentation and electronics commonly used in aerospace and mechanical engineering applications. The second half of the course will focus on advanced electronic data acquisition systems and the statistical analysis and interpretation of data.

Course Materials (available at the Hammes bookstore)

- *Undergraduate Lectures on Measurements and Data Analysis* by Paul Rumbach available at Hammes Bookstore or online at Amazon dot com.
- Official "AME20216/20217" lab notebook (**REQUIRED**) available at Hammes Bookstore.

Grading

Final course grades will be computed according to your engagement with learning opportunities and deliverables uploaded to Canvas, as detailed below:

Assessment Name	Where to Find?	Where to Submit?	% of grade
Homework Assignments	Course website	Canvas	12%
Technical Memos	Course website	Canvas	36%
A6/A7 Solar Panel Midterm Report	Course website	Canvas	12%
Weekly Pre-lab Quizzes on Canvas	Canvas	Canvas	10%
Lab Notebooks	Bookstore	During Lab	10%
In-lab Final Exam	Course website	During Lab, via email	6%
Written Final Exam	n/a	n/a	14%

Brief Technical Memos – For most of the labs, students are required to turn in a series of plots and other deliverables listed at the end of the lab handout.

- Every plot, schematic, or table should have a concise and descriptive caption.
- Include 1 – 3 paragraphs describing the deliverables.
- Any theoretical curve shown on a plot must have its equation included in the paragraph (not in the caption).

Exams – There are *two* separate exams in this course.

- The **In-Lab Final Exam** final exam will take place the last week of the semester during your regularly scheduled lab.
- The **Lecture Final Exam** will be in-person on **Friday, May. 9, 8:00 – 10:00am** in **102 DeBartolo Hall.**

Late Policy: The due dates for the assignments will be posted on Canvas. Late tech memos and homework assignments are eligible for partial credit with a daily 30% deduction. Late pre-lab quizzes will not be accepted.

Make sure your work gets counted! All lab reports and tech memos must be saved as PDFs and submitted online via the "Assignments" tab on Canvas. To ensure you receive credit for your work, use the "Preview" button to check your submission. It is *your* responsibility to make sure it uploads correctly. Any technical difficulties must be immediately reported to Prof. Rumbach and University OIT.

Inclusive Learning

Your success in this class is important to us. If there are aspects of this course that prevent you from learning or for which you require accommodations, please let us know at the start of the semester. Together, we'll determine how to meet both your needs and the course requirements.

We encourage you to visit the Office of Accessibility Services to determine how you could improve your learning as well. If you need official accommodations, you have a right to have these met.

We consider the class environment to be a place where you will be treated with respect, and we welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability – and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class.

Academic Honesty

During class time, work is done on teams to build your collaboration and technical communication skills. However, your own learning is best reinforced and measured by completing deliverables individually. Use these best practices as a guideline for your work:

- Homework assignments, tech memos, lab reports, plots, schematics, and all other deliverables are to be created individually. Electronic transfer of any work between students is strictly prohibited.
- You may not copy and paste any content from the lab handout or any other student's lab report or tech memo, past or present.
- You may only use data that you measured during lab. Reporting data collected by other students will be considered plagiarism, unless properly cited or specifically approved by the lab instructor.
- The lecture portion of this course is *online*. It is *your responsibility* to check Canvas for announcements and enable email notifications. If you simply did not read an announcement, then it is dishonest to say "I didn't *get* the announcement."
- Lab deliverables and homework assignments must be submitted as PDF files to the correct portal on Canvas. **Any technical difficulties must be reported immediately to University OIT.** Intentionally corrupting files or lying about technical difficulties is considered a severe violation of the academic honor code.
- You may not use generative AI to write significant portions of the text in your assignments.

Make-up Labs

- You must email the professor within 24 hours of the missed lab to schedule a make-up. (Exceptions can be made for extreme circumstances, such as hospitalization.)
- Make-up labs will only be held after an official excused absence letter from the University is presented to the lab instructor.
- If you know you will miss lab due to a university excused absence, you must contact the lab instructor at least 4 days prior to the start of your regular lab to schedule a make-up.
- Failure to schedule and perform a make-up lab within the time frame outlined above will result in a zero for that week's deliverables and lab notebook score.

Re-grades

If you think your assignment was graded unfairly, you may submit a re-grade request within 5 business days of the graded assignment being returned. The procedure is as follows:

1. Print out a copy of the assignment that you originally uploaded to Canvas, and attach a printed score sheet. (Do NOT alter the assignment.)
2. Do NOT annotate the copy with notes about why you think the grader was wrong. (A regrade is not a point-by-point legal rebuttal, rather it is a chance for a fresh perspective from the professor.)
3. Slide it under the door of Prof. Rumbach's office in 379 Fitzpatrick.
4. Prof. Rumbach will re-grade the newly printed assignment and post your new score to Canvas.

NOTE: If the grader simply added up points incorrectly, please email Prof. Rumbach.

Lab Rules

1. Prepare for lab by reading the handout beforehand.
2. Arrive to lab on time.
    a. Arriving late for lab will result in a 50% deduction from the lab notebook score.
    b. Arriving more than 20 minutes late will result in a 0 for the lab notebooks score, and the late student must perform the lab individually.
    c. Lab time will not be extended for tardy students. Students that arrive late will forfeit points for any data left uncollected due to time constraints.
3. No cell phones in lab.

    Cell phones can be distracting, which is both a safety hazard and detrimental to your learning. Phones should be put away during laboratory work.
4. No food or drink in lab.
5. Wear safety glasses, lab coats, and/or closed toed shoes when specified by the lab instructor.
6. Leave the equipment as you found it, so it can be used by the next person.
    a. Disconnect all wires and cables.
    b. Return resistors and capacitors to the proper bin.
    c. Disassemble any experimental apparatus that you may have built.