Rensselaer

MANE 6962 Experimental Mechanics

Final Report and Presentation Guidelines

Report Due: 3 December 2018

Presentations: 3, 6, & 10 December 2018, 10:00—11:20

1) Choosing a topic.

You have two options for the topic of your final report and presentation.

- Present the application of one of the experimental methods we discussed in class to your research or a research field you are interested in. You may choose a topic that was either in lecture or presented by one of your colleagues at the mid-term. See the end of this document for list of your colleagues' midterm topics.
- Present the application of an experimental method that is new to this course that would be useful to apply to your research or an open question in your research field. (Just as a note: If you haven't noticed, I'm trying to make this as useful to you as possible. So when in doubt, think about your research and/or your research field and what you think is an interesting experimental avenue to pursue. And feel free to chat with me!)

2) Report Guidelines

- Report should be short, not more than 5 pages with images. Please address the questions posed below in the Structure section as you write your report.
- Structure of the report
  - Title
  - Introduction
    - What is the objective of the research?
    - What specific question(s) would you like to answer with the particular experiment you are presenting?
  - Experimental Description
    - What methods and materials will you use?
    - What will be the method of data collection? What data will result from these experiments?
    - How will you analyze the data?
  - Results & Conclusions
    - What do you expect the major results will be from this/these experiment/s?

- What conclusions would you hope could be drawn from the results?

o Evaluation

- Why did you choose this method?
- If this method was in no way part of this course, should it be? Why?

o References

3) Presentation Guidelines

- 20 minutes for presentation and questions. Please keep to the time limit so everyone has a chance to present. We will present as you signed up, unless you agree to swap timeslots with a colleague.
- Give a brief overview of your report. Remember, we would all like to learn about different types of experiments and how you envision different methods can be applied. Keep in mind, there is a bit of creativity associated with experimental work! ;)
- You are free to choose to use PowerPoint slides, the chalkboard, or the Document Camera.
- Please pay attention to your colleagues' presentations and ask them questions about their presentations.

Colleague's name	**Mid-term Report Topic**
Shabbir Ahmed	Biofibers as reinforcement of composite materials (tensile testing of fibers, scanning electron microscopy, atomic force microscopy)
Rachel Dass	Milli-indentation hydrogel mechanical properties (contact model, soft tissue mechanical properties)
Andrew Dumont	Burned tissue identification (ultrasound compression deformation measurements)
Macaire Grobe	Osteoarthritis model (tibial compression apparatus, microCT, RT-qPCR)
Anegi James	Implementation of a data driven fly-by-feel approach (composite test wing, embedded sensors, wind tunnel)
Tyler Kaufman	Microgravity manufacturing of 3D printed metal parts (metal powder manufacturing, tensile testing)
Aditya Meduri	Energy expenditure in metal forming/recycling (Vickers Hardness, metallographic preparation, scanning electron microscopy, x-ray spectroscopy)
Chris Nkinthorn	Evaporative mass transport of hydrocarbons (pressure vessel, infrared spectroscopy)
Erim Yanik	Magnetic refrigeration feasibility (Halbach arrangement of magnetic segments, measurement of magnetic field strength with probe)