

ENMA 499 Senior Laboratory Project

Spring 20XX

Syllabus

Instructor: Prof. X
Office:
Phone: (301) 405-
E-mail: @umd.edu
Office Hours: ...
Or by appointment

GENERAL SYLLABUS

This is a general syllabus that may be modified only with approval of the MSE Undergraduate committee.

PREREQUISITES

Student must have senior standing. Student should be appropriately trained and prepared to do begin independent research early in the semester. Research mentors must have needed materials on hand or available early in the semester, as described below for the proposal.

COURSE OBJECTIVES

This course will give an opportunity for independent self-guided materials research. Through working with your faculty research mentor (mandatory), you will answer a materials science question that you propose, establishing a previously unknown connection between at least two of the following four aspects of materials: processing, structure, properties, and performance. Projects may alternatively propose novel innovations in one of these aspects, such as a rigorous search for a new structure or a never-before-seen property, such as a material harder than diamond.

GRADING POLICY

The following is a guideline that the instructor may modify by email or electronic announcement no later than the 5th business day (1st week) of the semester.

Proposal	10%
Oral Presentations & Consultations	40%
Written Reports	50%
Total	100%

PROPOSAL

This must be a 1-2 page document, at least 300 words, containing the following sections.

1. **Science Question:** Problem(s) addressed by the project AND experimental or computational goals to be achieved relative to the problem, stated concisely.
2. **Materials & Facilities:** Description of any materials or equipment needed for the project, and a plan to acquire these no later than the 10th business day (2nd week) of the semester.

If the materials or facilities are not in place by the 10th business day, it will negatively impact the grade.

3. **Expertise:** Description of any training needed to complete the project and a plan to complete all training no later than the 10th business day (2nd week) of the semester.
4. **Work Plan:** A description of the experiments to be conducted and data to be collected during the semester. It is acceptable (recommended) to include contingency plans as appropriate.
5. **Interpretation Framework:** A description of the theoretical framework (including references) that will be used to interpret the results and/or a description of how the interpretation of the results will be used to answer the science question(s).

The proposal deadline will be provided by email or electronic announcement no later than the 5th business day (1st week) of the semester, and will be no later than the end of the drop/add period for the semester. Your research mentor must approve the proposal with a signature on the document or an email to the instructor wherein the proposal is attached.

CONSULTATIONS

You must attend at least two periodic consultations of at least 15 minutes with the instructor to update on the research progress during the semester. It is your responsibility to provide the instructor your sufficient availability schedule and to come prepared for the consultations. Research mentor input is required for these consultations. This input may include attendance of the mentor at the consultation, email from the mentor to the instructor, or other modes agreed upon mutually by the mentor and instructor. Additional instructions will be provided by email or electronic announcement no later than the 5th business day (1st week) of the semester.

INTERIM WRITTEN REPORT

The instructor may also require an interim written report at approximately the middle of the semester. If required, additional instructions will be provided by email or electronic announcement no later than the 5th business day (1st week) of the semester.

FINAL WRITTEN REPORT

You must submit a written final report on your project. The report must contain the following clearly labeled sections.

1. **Introduction:** Background of the science and/or technology landscape, including references.
2. **Science Question:** Problem and goals addressed by the project, stated concisely.
3. **Preparations:** Description of the preparatory training, apparatus construction, and acquisition of materials.
4. **Observations:** A report of the experiments conducted and a summary of the data collected.
5. **Analysis:** An explanation of the theoretical framework (including references) and analysis of the data.
6. **Conclusion:** A descriptive interpretation of the results, addressing the science questions.
7. **Outlook:** An inference of possible technology implications and future research that the project illuminates.

The length of the final report must be at least:

10 pages (double-spaced, 12 point, figures placed onto additional pages)

-or-

3000 words (for example: single-spaced, figures included within the text)

The report must be delivered electronically to the instructor and the mentor no later than 5:00PM Eastern Time on the last day of class for the semester.

The length requirements may be adjusted by the instructor by email or electronic announcement no later than the 5th business day (1st week) of the semester.

PRESENTATIONS

You must deliver a final presentation on your project no earlier than the last five business days (last week) of the semester and no later than the last day of finals. The presentation should address the same content as the final report, including the observations, analysis, and conclusions. The duration should be at least 15 minutes, and the instructor must be invited to attend with at least one-week's notice. The research mentor must also submit a report to the instructor within 24 hours afterward, addressing the quality of performance on these items by email or by direct verbal report, with no length requirement. The slides presented must be submitted to the instructor electronically within 24 hours after the presentation. Course instructor attendance at the final presentation is not mandatory, but the invitation of the instructor with one-week's notice is mandatory.

The instructor may also require an interim presentation at approximately the middle of the semester. If required, additional instructions will be provided by email or electronic announcement no later than the 5th business day (1st week) of the semester.

COMPENSATION

Students may not receive compensation from the university or research mentor for the work they conduct for the course.

ACADEMIC INTEGRITY

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student, you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.shc.umd.edu>.

To further exhibit your commitment to academic integrity, remember to sign the Honor Pledge on all examinations and assignments: "I pledge on my honor that I have not given or received any unauthorized assistance on this examination (assignment)."