ENMA 499 Senior Laboratory Project (Elective) – 3 Credits

**Schedule:** The course will primarily follow the schedule below:

**Research Advisor (specific to individual student)**

- Student and research advisor identify project to be done within advisor’s research program
- Research advisor supervises student during project, typically with support from advisor’s research group

**Meetings with instructor:**
- Students should schedule a ½ hr meeting with Prof. Rubloff during September to describe scope of project before writing initial report. Additional meetings may be held as needed.
- Prof. Rubloff’s schedule can be found at [www.rubloffgroup.umd.edu](http://www.rubloffgroup.umd.edu) under Quicklinks at upper right. To schedule a meeting, pick several open times that work for you and send him an email with the possibilities.

**Initial report:**
- Description of problem
- Discussion of prior work (i.e. background literature),
- Discussion of approach to research
- Length: 5-10 pages; 1.5 line spacing; 12 point type

**Final report:**
- Description of Results
- Discussion of Results
- Comparison with prior work in literature
- Recommendations for future work including changes in problem or approach, difficulties encountered and solutions.
- 10-15 pages 1.5 line spacing; 12 point type

**Oral Presentation:** Students should have an oral presentation towards the end of the semester in their research advisor’s research group meeting.

**Instructor:** Prof. Gary Rubloff

**Textbook:** This course is a research based course and as such no textbook is assigned.

**Catalog and Course Description:** Students work with a faculty member on an individual laboratory project in one or more of the areas of engineering materials. Students will design and carry out experiments, interpret data and prepare a comprehensive laboratory.
Prerequisites: Permission of the Department

Course Goals: This course is designed to provide students with research experience plus critical thinking, writing and verbal communication skills.

Student Outcomes covered by the Course:

ABET A: Ability to apply mathematics, science and engineering principles;
ABET B: Ability to design and conduct experiments, analyze and interpret data.
ABET D: Ability to function on multidisciplinary teams.
ABET E: Ability to identify, formulate and solve engineering problems.
ABET G: Ability to communicate effectively.
ABET K: Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.