ENGR 380
Junior Nanotechnology Seminar I
West Virginia University

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Grade:
30% Presentation Summaries Grade: 90-100 A
50% Lab Exploratory Team Activities 80-89 B
20% Participation 65-79 C
100% TOTAL 50-64 D

Classes: Fridays at 3:00 – 3:50 PM in G83 Engineering Sciences Building

Objectives: The objectives of the junior seminar course series are to familiarize the students with science and engineering that is being carried out in laboratories at WVU, to match students with these laboratories in preparation for their senior research capstone, to help the students appreciate the importance of the fundamentals they are learning in their discipline in the development of Nanoscale Science and Engineering (NSE), and to help the students understand the importance of other disciplinary approaches to NSE.

Outcomes: The learning outcomes of the course are to enable students to (a) describe research problems that are being addressed in WVU host laboratories; (b) describe the interdisciplinary approaches that are needed to solve these problems; (c) select a host laboratory and a research project; and, (d) outline this project and describe how their disciplinary expertise can help to complete it.

Organization: During the first semester of the junior seminar, representatives of host laboratories will make presentations about the device and systems research problems being addressed in their labs and about the varied disciplinary approaches that are needed to advance discovery and innovation in these areas. One emphasis of these presentations is on the disciplinary background needed to understand and address these research problems. The presentations and subsequent discussions tie the research to the disciplinary course work that is being taken or yet to be taken by the students.

Discussion Leads: Each student will serve as a lead for at least one lab presentation discussions. This discussion will result in identification of the disciplinary components of the work in the lab and define the minimum disciplinary makeup of the Lab Exploratory Team.
**Presentation Summaries:** Each student will prepare a one page executive summary for each lab presentation given in the seminar. Each presentation summary must include a description of: (1) what is going on? – the main research problems that are being addressed in the laboratory; (2) why does it matter? – the societal need underlying the work, (3) what are their capabilities? – the unique people and tools in the lab; (4) what is their attack plan? – the disciplinary and interdisciplinary methods that are being used and why; (5) what is your technical opinion of the potential areas of impact of your discipline to this area?

**Lab Exploratory Team Presentation:** Each student will serve as the lead of a team that will visit and report on a lab of their choice. Each student will also serve as a team member on at least one other team. The Team Lead will recruit the team based on the outcome of the discussion of the lab presentation. For full credit, each team must include at least one member from another discipline. The team will visit the lab, interact with students designated by the faculty contact for the lab, and then provide a PowerPoint presentation on the lab with specific focus on a particular research project in the lab for which they have obtained a proposal or paper. The presentation will include an in depth treatment of the five components in the presentation summaries. A bibliography acknowledging all sources of information used is required for the presentation. Verbatim quotations of more than four consecutive words from any source, including the Internet, must be placed within quotation marks, and their source must be acknowledged. Sources must also be acknowledged for images, short video segments, or other materials. These sources must include at least one article from the lab in the original science or engineering literature.

**Participation:** Students will receive credit for active involvement in class discussions and teams. The goal is for each student to participate during each class period. Attendance is expected for all class sessions. One unexcused absence will be allowed per student without loss of credit.

**Tentative Presentation Schedule:**

The speaker schedule is to be determined at the start of each semester.

**Social Justice:** We are committed to fostering a nurturing learning environment based upon open communication, mutual respect, and non-discrimination on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color, or national origin. Please advise us if you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class. Please see us also to discuss special circumstances requiring possible exceptions to policy. Strict academic integrity is expected and is strictly enforced.