

BMEG 203 – Biomedical Engineering Seminar

Course Format: 1 hr Seminar

Credit hours: 1 hr Credit

Pre-requisites: BMEG 201

Instructor: Dr. Yuxin Liu
Advanced Engineering Research Building 243
e-mail: yuliu@mix.wvu.edu

Time: Wednesday, 11:00 AM -11:50 AM

Office Hours: Tuesday/Thursday 10:00 am to 10:50 am at AERB 243

Room: MRB-205

Course Goal:

This one semester seminar will consist of presentations on current topics of interest to biomedical engineering students by BMEG faculty, guest speakers, and BMEG students. The seminar will introduce the students to the current aspects related to biomedical engineering including on-going research directions, technical and logistical issues as related to the application or implementation of biomedical engineering, as well as career opportunities for biomedical engineers. The student will learn about the techniques, skills and modern biomedical engineering tools necessary for biomedical engineering practice. Ethical and regulatory aspects as related to biomedical engineering products will also be discussed to increase student comprehension of what a biomedical engineering profession entails.

Student learning outcomes:

Upon successful completion of this course, **Students will be able to:**

1. Explain and discuss what biomedical engineering is;
2. Explain and discuss what biomedical engineers do in their professional activities;
3. Identify the technical problems related to the design and implementation of a biomedical engineering related product or technology;
4. Discuss aspects related to biomedical engineering regulations;
5. Demonstrate proficiency in oral and written communications by communicating on the content of contemporary biomedical-related technical problems, writing reports, and presenting term projects.

<u>Grading:</u>	Summary reports for faculty and guest speakers' talks	60%
	Student project presentation and report	30%
	Attendance	10%

<u>Grade Assignment:</u>	100 – 90 A
	89 – 80 B
	79 – 70 C
	69 – 60 D
	59 – 0 F

Grading Policy:

No make-up assignments except by prior arrangement with instructor. Late assignment = no assignment.

Required texts and materials:

None.

Summary Reports for Faculty and Guest Speakers' talk:

A summary report is due at the next BMEG organized seminar. Summary reports consist of a one-page summary of the seminar previously attended. The report should be **1) a detail summary of the presentation with clearly identifying the importance of the topic being discussed** and **2) why is relevant to the biomedical engineering profession.** The report can be augmented with additional information about the topic you find in the library or on the Internet. The report should be 1 ½ spaced with at most a 12-point font for Times New Roman or 11-point font for Arial; one figure not larger than a quarter of the page can be included. Please make sure to include references to books, papers, and Internet sites that you used. Reports are individual work!

Student Project Presentation and Report:

Presentations on the topics related to the ones included in the seminar shall be 20 minutes long; presentations will have time reserved for questions from peers and the professor. For the presentation, students should discuss a relevant article/industrial report on biomedical engineering from reputable sources (i.e, PubMed, ISI web of science, etc.). Select the most recent references, especially for references (within five years) for research topics. Students will be asked questions related to the information presented to ensure understanding of the material. The purpose of the presentation is to give students an opportunity to evaluate and apply their knowledge of biomedical engineering and become more proficient in oral communication.

The presentation should also be submitted to the instructor together with a report of 2 pages that summarizes it. The presentation report should be 1 ½ spaced with at most a 12-point font for Times New Roman or 11 point font for Arial; one figure (optional) not larger than a quarter of the page can be included. The report should include Title with the students' names and affiliations. Introduction of the topic, clearly identify the importance of the topic being discussed, what is the research problem? Why is the problem important? Discuss the topic with examples. What are the findings? What do these findings tell you? What do you conclude? What is the application and future trend? Please make sure to include references to books, papers, and Internet sites that you used. References are not counted in two pages limit.

Start early for the project presentation and report. Rubric will be given. It can be as guidance used to prepare for the presentation.

Topics for presentation:

Developing professional skills

1. How to craft a winning Résumé/CV
2. Job interviewing

Medical Ethics and Responsible Conduct in Research

3. Scientific recordkeeping
4. Collaborative project/research – responsibilities and challenges
5. Authorship and peer review
6. Use humans and animals in research

Research topics in Biomedical Engineering

7. Point-of-care applications
8. Biomaterials and drug delivery
9. Bionanotechnology
10. Neural systems and engineering
11. Artificial intelligence in rehabilitation
12. Principles and practice of tissue engineering
13. Information technology in the health care system of the future
14. Clinical and translational science

Attendance Policy:

Consistent with WVU guidelines, students absent from regularly scheduled examinations because of authorized University activities will have the opportunity to take them at an alternate time. Make-up exams for absences due to any other reason will be at the discretion of the instructor.

Disability:

If you believe that you have a disability that may affect your performance in this course, it is your responsibility to contact the WVU Office of Disability Services at (304) 293-6700. Written documentation from Disability Services must be provided to me in-person before any accommodations can be granted. If you are authorized for and wish to receive accommodations for an exam, you must notify me at least one week in advance. If you do not arrange accommodations in advance, they will not be given. Any rescheduled exams must be taken during the same calendar week (Monday-Friday) as the original date.

Social justice statement:

“West Virginia University is committed to social justice. I concur with that commitment and expect to maintain a positive learning environment based upon open communication, mutual respect, and nondiscrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class. Please advise me and make appropriate arrangement with Disability Services (293-6700).”

Academic integrity:

Student-teacher relationships are built on trust. For example, students must trust that teachers have made appropriate decisions about the structure and content of the courses they teach, and teachers must trust that the assignments that students turn in are their own. Acts that violate this trust undermine the educational process. The integrity of the classes offered by West Virginia University solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. Therefore, I enforce rigorous standards of academic integrity in all aspects and assignments of this course. For the detailed policy of West Virginia University regarding the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions, please see the Student Conduct Code http://studentlife.wvu.edu/office_of_student_conduct/student_conduct_code.

Should you have any questions about possibly improper research citations or references, or any other activity that may be interpreted as an attempt at academic dishonesty, please see me *before* the assignment is due to discuss the matter. The WVU Handbook of Student Rights and Responsibilities define various forms of Academic Dishonesty and you should make yourself familiar with these. It is possible that you will work with other class members to complete your assignments. All submitted work must be your original work and must be clearly indicate with whom you have collaborated. If you have any question concerning this policy before submitting an assignment, please ask for clarification. All matters of academic integrity are to be brought to my attention immediately. Value for honesty, integrity, self-discipline, respect, responsibility, punctuality, dependability, courtesy, cooperation, consideration, and teamwork would be emphasized as an integral part of this class learning. A grade of zero will be given on the first assignment where a violation is detected. All cases of academic misconduct will be submitted to the Office of Student Conduct; if you are found guilty of academic misconduct you will be on academic integrity probation for the remainder of the years at WVU and may be required to report your violations on future professional school applications.

All course materials, including lectures, class notes, quizzes, exams, handouts, presentations, and other materials provided to students for this course are protected intellectual property. As such, the unauthorized purchase or sale of these materials may result in disciplinary sanctions under the Campus Student Code.