

BE1225: Introduction to Biomedical Engineering

Instructor(s): Kytai Truong Nguyen

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Office Hours: 12-1pm Friday at ELB-249

Section Information: BE1225-004

Time and Place of Class Meetings: NH-203 from 11:00 to 11:50 am every Friday

Description of Course Content: The course goal is to introduce the interdisciplinary field of biomedical engineering to the students through composed lectures presented by biomedical engineers describing their research projects. The focus areas are medical imaging, tissue engineering, drug delivery, biomechanics, biomaterials and artificial organs.

Student Learning Outcomes: Students should learn basic bioengineering principles and their applications in analyzing solving problems in biology and medicine. Students also gain more knowledge in the development of technology, devices and instrumentation that enhance the quality and precision of health care including disease diagnosis, treatment, and prevention.

Requirements: Students are expected to be involved with class participation. Attendance and asking relevant questions is mandatory.

Required Textbooks and Other Course Materials: Course materials will be given in class when needed.

Descriptions of major assignments and examinations with due dates: The grade will be determined by attendance, in class interaction, a brief summary describing the overview of each lecture, and a final poster presentation as a final.

Grading Policy:

Attendance/Class Interactions	20%
Overview of the lecture (brief summary)	50%
Poster	30%

EVALUATION OF STUDENTS

A	80-100%
B	65-80%
C	50-65%
D	40-50%
F	Below 40%

Attendance Policy: Student should attend the class as much as he/she can as the attendant/participation will be given at 20% of students' grading.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. Contact the Financial Aid Office for more information.

Academic Integrity: It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. According to the UT System Regents' Rule 50101, §2.2, "Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts."

Student Support Services Available: The University of Texas at Arlington has established a variety of programs to help students meet the challenges of college life. Support to students includes advising, counseling, mentoring, tutoring, supplemental instruction, and writing assistance. For a complete list of academic support services, visit the Academic Assistance resource page of the Office of Student Success Programs, "<http://www.uta.edu/uac/studentsuccess/academic-assistance>". To help students address personal, academic and career concerns, individual counseling is also available. For more information, students are encouraged to contact Counseling Services "<http://www.counseling.uta.edu/>" at (817) 272-3671 or visit a counselor in 216 Davis Hall.

Electronic Communication Policy: The University of Texas at Arlington has adopted the University "MavMail" address as the sole official means of communication with students. MavMail is used to remind students of important deadlines, advertise events and activities, and permit the University to conduct official transactions exclusively by electronic means. For example, important information concerning registration, financial aid, payment of bills, and graduation are now sent to students through the MavMail system. All students are assigned a MavMail account. ***Students are responsible for checking their MavMail regularly.*** Information about activating and using MavMail is available at "<http://www.uta.edu/oit/email/>". There is no additional charge to students for using this account, and it remains active even after they graduate from UT Arlington.

Americans with Disabilities Act:

The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 92-112 - The Rehabilitation Act of 1973 as amended. With the passage of federal legislation entitled *Americans with Disabilities Act (ADA)*, pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens. As a faculty member, I am required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at www.uta.edu/disability. Also, you may visit the Office for Students with Disabilities in room 102 of University Hall or call them at (817) 272-3364.

OUTLINE OF TOPICS COVERED

Date	Topics	Instructor
08/27/2010	Bioengineering at UT Arlington	Behbehani
09/03/2010	Library search for papers (poster presentation)	Jeff Downing
09/10/2010	Blood Oxygenator	Chuong
09/17/2010	Nanoparticles for Drug Delivery	Wadajkar (Nguyen)
09/24/2010	Neural Tissue Engineering	Kim
10/01/2010	Biodegradable Materials for Tissue Engineering Applications	Tran (Yang)
10/08/2010	Diagnostic and Therapeutic Applications of Tissue Optics	Alexandrakis
10/15/2010	Temperature-sensitive Nanoparticles for Drug Delivery	Zhou (Tang)
10/22/2010	Acousto-optical imaging	Liu (Yuan)
10/29/2010	Scaffolds in Tissue Engineering: Overview and Significance	Nair (Tang)
11/05/2010	Neural Interfaces: Enabling Technology for Bionics and Superhumans	Romero-Ortega
11/12/2010	Stents	Eberhart
11/19/2010	Introduction to Medical Imaging	Liu
11/26/2010	Thanksgiving Holiday	No Class
12/03/2010	Organ to Single Cell Surgery with Lasers	Dave
12/10/2010	Final: Poster Presentation	Nguyen

Access to the class information: Students can access class information including class syllabus and poster samples on website: <ftp://students.uta.edu>, username: uta/netid, and password: netid password. Students need to sign in, and then click on the class folder to find be1225knguyen folder for this class's documents.

Brief Summary of the lecture: *Remember always writing your name and student ID on the page before turning it in to the TA. Turn in the summary at the end of each lecture for grading.*

1. What is the lecture about? Title of lecture, name of presenter, a brief description of the technology
2. Major points of this lecture
 - a. Major principles used in the technology
 - b. Major applications for this technology
 - c. Advantages of the technology
 - d. Limitations of the technology if any
3. Other comments/Things that you are interested

Poster Presentation: Students should select topics related to those presented in the class, and can work as an individual or a group up to three students (maximum is 3). They then search for an article related to their interested topic using either PubMed website <http://www.ncbi.nlm.nih.gov/sites/entrez?db=PubMed> or UTA library article search. This article should be a research manuscript (no website article or review paper allowed for poster presentation). Students should prepare the poster presentation based on information and results of the selected paper. Samples for poster presentation are included in the class folder. Students can print their posters at either the Central Library; Fine Arts Bldg: Architect Library Floor 3, Room 319, 324; or NH Floor 2, Room 231. The poster size is 36" x 36" or larger. The poster should list title and the authors of the selected paper, and the presenter's name and student ID in the heading. Students will be asked questions related to information presented in their poster, and the final grade will include both poster presentation and students' understanding the presented materials.