4Tissue Engineering Lecture (BE 5364-005) Fall 2015



Instructor(s): Liping Tang

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Office Hours: Please request appointment via email

Section Information: BE 5364-005 / BE4364-005

Time and Place of Class Meeting: Tuesday and Thursday 11:00 am – 12:20 pm, Engineering Research Building 131.

Teaching Assistant: Ashley Dacy, ashley.dacy@mavs.uta.edu

Description of Course Content: Provide broad and basic knowledge related to the designs, research and medical applications in tissue engineering.

Student Learning Outcomes: Acquire the necessary knowledge, design logic, and research techniques to work on tissue engineering implants and devices.

Textbooks and Other Course Materials: No textbook is required. All class materials can be found in the BLACKBOARD.

<u>Reference</u>: Principle of Tissue Engineering, 4rd edition, Edited by Robert P Lanza, Robert Langer, and Joseph Vancanti, Academic Press, 2013

Examinations: Three written open book in-class exams.

Grading: The final grade will be calculated based on three in-class written exams at the following percentages.

Option 1 (without exam III grade). Exam I (25%), Exam II (30%), and Exam IV (35%), and Participation score (10%)

Option 11 (with exam III grade). Exam I (15%), Exam II (20%), Exam III (25%) and Exam IV (30%), and Participation score (10%)

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels; see "Student Support Services," below.

Make-up Exams: NO make-up exam will be offered.

Expectations for Out-of-Class Study: Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 10 hours per week of

their own time in course-related activities, including reading required materials, preparing for exams, etc.

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. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

Grade Grievances: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog.[Some instructors opt to cut and paste the relevant policy here. No faculty members, department, school or college may create his/her/its own grade grievance policy. For undergraduate courses, see<u>http://catalog.uta.edu/academicregulations/grades/#undergraduatetext;</u> for graduate courses, seehttp://catalog.uta.edu/academicregulations/grades/#graduatetext.

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX: The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit <u>www.uta.edu/titleIX</u>.

Academic Integrity: Students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents* '

Rule 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Electronic Communication: UT Arlington has adopted MavMailas its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation.Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities (Emergency/Fire Evacuation Procedures (https://www.uta.edu/policy/procedure/7-6).).

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911.

Course Schedule.

Aug 25 (Thu):	Class introduction.	
Aug 30 (Tue):	How to read a scientific paper? (Reading material $-$ #1)	
Sep 1 (Thu):	Introduction of tissue engineering (Reading material -#2).	
Sep 6 (Tue):	Degradable polymers (Reading material $-$ #3).	
Sep 8 (Thu):	Scaffold fabrication (Dr. Ashwin Nair) (Reading material – #4).	
Sep 13 (Tue):	3D scaffold printing (Ashley Dacy) (Reading material – #5).	
Sep 15 (Thu):	Cell type, source, culture and cell seeding for tissue engineering (Reading material –#6).	
Sep 20 (Tue):	Scaffold: Cell interactions (Reading material -#7).	
Sep 22 (Thu):	Scaffold characterization (Reading material -#8).	
Sep 27 (Tue):	Growth factors for tissue engineering (Reading material -#9).	
Sep 29 (Thu):	Exam I.	
Oct 4 (Tue):	Foreign body reactions (Reading material -#10).	
Oct 6 (Thu):	Hydrogel for tissue engineering and drug delivery (Dr. Jun Zhou) (Reading material – #11).	
Oct 11 (Tue):	Cartilage tissue engineering-1 (Ashley Dacy) (Reading material –#12).	
Oct 13 (Thu):	Cartilage tissue engineering-2 (Ashley Dacy) (Reading material –#12).	
Oct 18 (Tue):	Stem cell and tissue engineering-1 (Reading material -#13).	
Oct 20 (Thu):	Stem cell and tissue engineering-2 (Reading material -#13).	
Oct 25 (Tue):	Cell encapsulation (Amir Hakami) (Reading material –#14)	
Oct 27 (Thu):	Bioreactors (Amir Hakami) (Reading material –#15).	
Nov 1 (Tue):	Bone tissue engineering-1 (Reading material -#16).	
Nov 3 (Thu):	Exam II	
Nov 8 (Tue):	Bone tissue engineering-2 (Reading material -#16).	
Nov 10 (Thu):	Tendon/Ligment tissue engineering-1 (Reading material -#17).	
Nov 15 (Tue):	Tendon/Ligment tissue engineering-2 (Reading material -#17).	
Nov 17 (Thu):	Exam III.	
Nov 22 (Tue):	Muscle tissue engineering and literature review (Reading material -#18).	
Nov 24 (Thu):	Thanksgiving holiday (No class).	
Nov 29 (Tue):	Muscle tissue engineering literature review and vascular tissue engineering (Reading material –#18/19)	
Dec 1 (Tur):	Vascular tissue engineering literature review (Reading material -#19)	
Dec 6 (Tue):	Exam IV	

"As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. –Liping Tang"

Library Home Page	http://www.uta.edu/library
Subject Guides	http://libguides.uta.edu
Subject Librarians	http://www.uta.edu/library/help/subject-librarians.php
Database List	http://www.uta.edu/library/databases/index.php
Course Reserves	http://pulse.uta.edu/vwebv/enterCourseReserve.do
Library Catalog	http://discover.uta.edu/
E-Journals	http://liblink.uta.edu/UTAlink/az
Library Tutorials	http://www.uta.edu/library/help/tutorials.php
Connecting from Off- Campus	http://libguides.uta.edu/offcampus
Ask A Librarian	http://ask.uta.edu

The following URL houses a page where we have gathered many commonly used resources needed by students in online courses: <u>http://www.uta.edu/library/services/distance.php</u>.

The subject librarian for your area can work with you to build a customized course page to support your class if you wish. For examples, visit <u>http://libguides.uta.edu/os</u> and <u>http://libguides.uta.edu/pols2311fm</u>. If you have any questions, please feel free to contact Suzanne Beckett, at <u>sbeckett@uta.edu</u> or at 817.272.0923.