FLORIDA

ATLANTIC UNIVERSITY

NEW COURSE PROPOSAL Undergraduate Programs

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UUPC Approval _	9/8/25
UFS Approval	
SCNS Submittal	
Confirmed	
Banner Posted _	_
Catalog	

(1)	o obtain a course number, co	macı erudoipn@iau.ed	u)	Saturos	
Prefix BME	(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)	Type of Course	Course Title	ering: Basic Concepts	
Number		Lecture	Tissue Engine	ching. Dasic Concepts	
4332	Lab Code				
Credits (See Definition of a Credit Hour)	Grading (Select One Option)	Course Description (Syllabus must be attached; see <u>Template</u> and <u>Guidelines</u>) Principles and basic concepts of tissue engineering: concise and comprehensive. Learning and studying molecular, cellular, and tissue culture aspects of tissue engineering, and Laboratory work,			
3	Regular •				
Effective Date (TERM & YEAR) Spring 2026	Sat/UnSat	along with highly developed instrumentation for growing tissues.			
Prerequisites, with minimum grade* Permission by an instructor				egistration Controls (Major, ollege, Level)	
			E	BME, COECS, Senior	
*Default minimum passing grade is D Prereqs., Coreqs. & Reg. Controls are enforced for all sections of course					
WAC/Gordon Rule Course Intellectual Foundations Program (G		tions Program (Ge	neral Education) Requirement		
Yes Vo		(Select One Option)			
		None			
WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to proposal. See <u>WAC Guidelines</u> .		General Education criteria must be indicated in the syllabus and approval attached to the proposal. See <u>Intellectual Foundations Guidelines</u> .			
Minimum qualifications to teach course					
PhD in Science, Engine	ering, or Medicine				
Faculty Contact/Email/Phone Javad Hashemi/jhashemi@fau.edu / 561.297.3438		List/Attach comments from departments affected by new course			
Approved by	\sim			Date Colored	
Department Chair	Javaa	l Hashemi		3/31/25	
College Curriculum Chair		/ .		8/28/25	
College Dean				8/28/2025	
UUPC Chair Korey Sory		ge		9/8/25	
Undergraduate Studies Dean Dan T		Meeroff		9/8/25	
UFS President					
Provost				_	

Email this form and syllabus to mjenning@fau.edu seven business days before the UUPC meeting.



TA name Office Office hours Telephone Email N/A EE-96#515 WF 11:00– 12:30 561-297-2348 mpavlovi@fau.edu

Course Description

Principles and basic concepts of tissue engineering: concise and comprehensive. Learning and studying molecular, cellular, and tissue culture aspects of tissue engineering and laboratory work, along with highly developed instrumentation for growing tissues.

Instructional Method

Here is included a brief statement about the Instructional Method and the expectations for student attendance in the class.

In-Person with recording class.

This class is designated as "Lecture"

Class sessions will be recorded live, in MDR and students may attend in person if social distancing protocols can be maintained. Other students (if so) will view class sessions remotely in Canvas. However, attendance is recommended,

The course is organized in Canvas, into modules with due dates. Dates and durations for each module may vary so please pay close attention to start and due dates. Generally, due dates will overlap with other modules so please pace yourself appropriately. You can access a course schedule via Canvas within the Syllabus tab of the course – subject to change. The course begins with the Start Here module, which will familiarize you with the organization and navigation of the course. You will open a new learning module to access the assigned reading materials, videos, presentations, and other relevant materials for each subsequent module

Prerequisites/Corequisites

Permission of instructor.

Course Objectives/Student Learning Outcomes

- Understanding global and distinctive tissue development, architecture, control mechanisms and quantitativization in engineering procedures.
- Studying fundamental processes in signal transduction, related to sensorial tissues and organs, with emphasis on excitable tissues (muscle, heart, and neural tissues).
- Understanding basic principles of Tissue Engineering at molecular, cellular and tissue level.

Course Evaluation Method

Homework	60%
Power point presentations	20%
Final Examination	20%

Course Grading Scale

90 and above: "A", 87-89: "A-", 83-86: "B+", 80-82: "B", 77-79: "B-", 73-76: "C+", 70-72: "C", 67-69: "C-", 63-66: "D+", 60-62: "D", 51-59: "D-", 50 and below: "F.".

Policy on Makeup Tests, Late Work, and Incompletes (if applicable)

Makeup tests are given only if there is solid evidence of a medical or otherwise serious emergency that prevents the student from participating in the exam. The makeup exam should be administered and proctored by department personnel unless there are other pre-approved arrangements *Late work* is not acceptable.

Incomplete grades are against the policy of the department. Unless there is solid evidence of medical or otherwise serious emergency, incomplete grades will not be given.

Special Course Requirements (if applicable)

Students must perform 1 power point presentation per semester as recorded PP.

Classroom Etiquette Policy (if applicable)

University policy requires that to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions.

Policy on the Recording of Lectures (optional)

Because of a new Florida Statute in 2021, the following model language is suggested for inclusion in course syllabi, at the discretion of individual faculty:

Students enrolled in this course may record video or audio of class lectures for their own personal educational use. A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach students about a particular subject. Recording class activities other than class lectures, including but not limited to student presentations (whether individually or as part of a group), class discussion (except when incidental to and incorporated within a class lecture), labs, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, and private conversations between students in the class or between a student and the lecturer, is

prohibited. Recordings may not be used as a substitute for class participation or class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the University's Student Code of Conduct and/or the Code of Academic Integrity.

Attendance Policy

Students are expected to attend all their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in university-approved activities. Examples of University-approved reasons for absences include participating in an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a university-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau.edu/counseling/

Disability Policy

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses — Boca Raton, Davie and Jupiter — however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

(In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton campus, SU 133 (561) 297-3880 and follow all OSD procedures)

Code of Academic Integrity

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high-quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see <u>University Regulation 4.001</u>.

Artificial Intelligence Preamble

FAU recognizes the value of generative AI in facilitating learning. However, output generated by artificial intelligence (AI), such as written words, computations, code, artwork, images, music, etc., for example, is drawn from previously published materials and is not your own original work. FAU students are not permitted to use AI for any course work unless explicitly allowed to do so by the instructor of the class for a specific assignment.

Class policies related to AI use are decided by the individual faculty. Some faculty may permit the use of AI in some assignments but not others, and some faculty may prohibit the use of AI in their course entirely. In the case that an instructor permits the use of AI for some assignments, the assignment instructions will indicate when and how the use of AI is permitted in that specific assignment. It is the student's responsibility to comply with the instructor's expectations for each assignment in each course. When AI is authorized, the student is also responsible and accountable for the content of the work. AI may generate inaccurate, false, or exaggerated information. Users should approach any generated content with skepticism and review any information generated by AI before using generated content as-is.

If you are unclear about whether or not the use of AI is permitted, ask your instructor before starting the assignment.

Failure to comply with the requirements related to the use of AI may constitute a violation of the Florida Atlantic Code of Academic Integrity, <u>Regulation 4.001</u>.

Proper Citation:

If the use of AI is permitted for a specific assignment, then use of the AI tool must be properly documented and cited. For more information on how to properly cite the use of AI tools, visit www.fau.edu/ai/citation.

Required Texts/Readings

N/A

Supplementary/Recommended Readings (if applicable)

Good to have but not obligatory:

- **1. Tissue Engineering** Saltzman W. Mark Oxford, University Press, New York, 2004. [*The book is not followed strictly but is essential. It's okay to order a used book online*].
- **2. Tissue Engineering** Bernard O. Palsson and Sangeeta Bhatia Pearson Education, Inc., 2004 Upper Saddle River, NJ, 07458

Course Topical Outline

1. CELLS AND TISSUES

Microscopy: scaling visual field

Elements of Embryology-Tissue Development Tissue engineering fundamentals with sensorial system:

- Cell differentiation
- Describing cell differentiation mathematically
- Cell Migration
- Describing cell migration mathematically

Tissue engineering practice:

- Approaches to Tissue Engineering
- Case studies in Tissue Engineering
- Scaling up *ex vivo* cultivation
- Computer Aided Tissue Engineering
- 2. SCAFFOLDS
- Tailoring Biomaterials
- Biomaterial scaffolds
- Properties
- Surface properties
- Bulk properties
- Mechanical Properties
- Biological Properties

Further readings

- 3. SIGNAL MOLECULES
- To be chosen and restricted to necessary.
- 4. TISSUE ENGINEERING STUDY PROBLEMS
- Quantitative Cell and Tissue Biology
- Cell and Tissue Characterization
- Engineering methods and Designs in Autoimmune and Cancerous Diseases
- Clinical Implementation.

Approximate # of lectures: 24 (2 lectures per week)

Student PP presentation recorded in PP: On November 2(TBD)

Final Exam: TBD

Final Grades due: December 18th, 9:00am.

Official University Holidays -No Classes:

Labor Day - September 4

Thanksgiving Recess-November 23-27