

 FLORIDA ATLANTIC UNIVERSITY	NEW COURSE PROPOSAL Undergraduate Programs			UUPC Approval <u>12-2-24</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department College <i>(To obtain a course number, contact erudolph@fau.edu)</i>			
Prefix Number	<i>(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)</i> Lab Code	Type of Course	Course Title	
Credits <small>(See Definition of a Credit Hour)</small>	Grading <i>(Select One Option)</i> Regular	Course Description <small>(Syllabus must be attached; see Template and Guidelines)</small>		
Effective Date <i>(TERM & YEAR)</i>	Sat/UnSat			
Prerequisites, with minimum grade*		Corequisites	Registration Controls <small>(Major, College, Level)</small>	
<i>*Default minimum passing grade is D-. Prereqs., Coreqs. & Reg. Controls are enforced for all sections of course</i>				
WAC/Gordon Rule Course Yes No		Intellectual Foundations Program (General Education) Requirement <i>(Select One Option)</i> General Education criteria must be indicated in the syllabus and approval attached to the proposal. See Intellectual Foundations Guidelines .		
Minimum qualifications to teach course				
Faculty Contact/Email/Phone		List/Attach comments from departments affected by new course		
Approved by Department Chair <u>Javad Hashemi</u> College Curriculum Chair <u>Galan Liu</u> College Dean <u>Korey Sorge</u> UUPC Chair <u>Dan Meeroff</u> Undergraduate Studies Dean _____ UFS President _____ Provost _____		Date <u>11/7/2024</u> <u>11/21/2024</u> <u>11/21/24</u> <u>12-2-24</u> <u>12-2-24</u> _____		

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

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1. Course title/number, number of credit hours	
Methods in Biomedical Engineering Research BME 4904C Website: Canvas.fau.edu	# of credit hour: 3
2. Course prerequisites, corequisites, and where the course fits in the program of study	
Prerequisites: BME 4503C or instructor's permission	
3. Course logistics	
Term: Spring 2025 Class location and time: TBD	
4. Instructor contact information	
Instructor's name Office address Office Hours Email address	Hersh J Chaitin, Ph.D. TBD TBD TBD
5. TA contact information	
TA's name Office address Office Hours Contact telephone number Email address	NA
6. Course description	
This course introduces the principles and practices of biomedical research. Topics covered include research design, data collection and analysis, laboratory techniques, and ethical considerations in research. The lab component offers hands-on experience with research methodologies and techniques.	
7. Course objectives/student learning outcomes/program outcomes	
<ul style="list-style-type: none"> • Understand the principles of biomedical research. • Learn experimental design and methodology. • Develop skills in data collection, analysis, and interpretation. • Gain hands-on experience with laboratory techniques used in biomedical research. • Understand ethical considerations and responsible conduct in research. 	
8. Course evaluation method	

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Assessment: Assessment methods include exams, weekly laboratory reports, research papers, class presentations. Students may also be evaluated based on their participation in discussions and group projects.

4904C - Undergraduate Student Assessment

- In-class quizzes (20%)
- Midterm examination (40%)
- Weekly Lab Reports (20%)
- Final 1-page summary + Presentation (20%)

Course Format: The course is typically structured around lectures, laboratory sessions, and interactive discussions. Students will have the opportunity to engage with cutting-edge research articles, case studies, and planned guest lectures from experts in the field.

Final Project:

Undergraduate students currently enrolled in this course, with a strong interest in neuroscience/biomechanics research will prepare a course relevant 1-page review paper in the student's field of interest. Undergraduate students will also present an end-of-semester 5 minute in-class presentation on their work. This final research paper and presentation will make up 20% of the students final grade.

9. 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."

10. Policy on makeup tests, late work, and incompletes

There are no late assignments. There will be no make-up exams unless specifically approved by the instructor in advance or excused by official documentation (i.e. hospital discharge, police report...).

Regularly scheduled doctors' appointments are not acceptable excuses for missing an exam.

WE WILL ALWAYS MAKE ACCOMMODATION FOR CONFLICTS WITH RELIGIOUS OBSERVANCE, BUT THESE MUST BE COMMUNICATED WITH THE INSTRUCTOR IN ADVANCE OF THE EXAM.

11. Special course requirements

NA

12. Classroom etiquette policy

University policy requires that in order 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.

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13. Attendance policy statement
<p>Students are expected to attend all of 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.</p> <p>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 on 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.</p> <p>Special note: <i>"After two full weeks of face to face instruction with consecutive 'no show' of any students in person in the classroom, the modality of this course section may be changed to remote instruction only at the discretion of the university."</i></p>
14. Disability policy statement
<p>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/.</p>
15. Counseling and Psychological Services (CAPS) Center
<p>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/</p>
16. Code of Academic Integrity policy statement
<p>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 University Regulation 4.001. If your college has particular policies relating to cheating and plagiarism, state so here or provide a link to the full policy—but be sure the college policy does not conflict with the University Regulation.</p>
17. Required texts/reading
<p>To reduce costs for our students, we strongly encourage you to explore the adoption of open educational resources (OER), textbooks and other materials that are freely accessible. We also encourage you to clearly state in the syllabus if course materials are available on reserve in the Library.</p>

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Scientific Writing and Communication 5th Edition
by [Angie Hofmann](#)

18. Supplementary/recommended readings

Lecture notes.

19. Course topical outline, including dates for exams/quizzes, papers, completion of reading

Week-by-Week Class Schedule:

Week 1: Syllabus Overview + Introduction to Lab Safety

- Monday (Lecture) – Syllabus + Introduction to Biomedical Research
- Wednesday (Lab) - Introduction to Lab Environment + Safety

Week 2: Biomaterials & Applications in Biomedical Research

- Monday (Lecture) – Materials, Biocompatibility, Biomimetics, Biosimilars
- Wednesday (Lab) – Lab setup / Lab equipment / Sterile field / Reagent Prep

Weeks 3: Experiment Design & Methods

- Monday (Lecture) – in vivo, ex vivo, in-situ, translational models, clinical trials
- Wednesday (Lab) – Reviving human cells from -80 C freeze + seeding cells.

Weeks 4: Data

- Monday (Lecture) – Quantitative Data, Quasi-Quantitative, and Qualitative Data
- Wednesday (Lab) – Cell Culture maintenance, and characterization of viability

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Weeks 5: Statistics I

- Monday (Lecture) – Introduction to data description and evaluation
- Wednesday (Lab) – Cell detachment + Re-seeding + Cell Scaffolds

Weeks 6: Statistics II

- Monday (Lecture) – Intro to Analysis (ANOVA, 2-way ANOVA, F-dist...)
- Wednesday (Lab) – Cell detachment + Re-seeding + Cell Scaffolds

Weeks 7: MIDTERM REVIEW & EXAM

- Monday (Lecture) – Midterm Review
- Wednesday (Lab) – Cell & Tissue Fixation

Weeks 8: MIDTERM EXAM

- Monday (Lecture) – In-Class Exam
- Wednesday (Lab) – Immunohistochemistry (IHC), Immunofluorescence (IF) Staining

Weeks 9: Presentation Workshop I

- Monday (Lecture) – Introduction to Research Writing
- Wednesday (Lab) – Continued IHC/IF staining

Weeks 10: Presentation Workshop II

- Monday (Lecture) – Research Writing - Abstracts
- Wednesday (Lab) – Introduction to IF Microscopy I

Weeks 13: Presentation Workshop III

- Monday (Lecture) – Research Writing – Materials + Methods Sections
- Wednesday (Lab) – Introduction to IF Microscopy II

Week 14: Presentation Workshop IV

- Monday (Lecture) – Research Writing – Results Sections
- Wednesday (Lab) – SEM, TEM, Stress/Strain Analysis

Week 15: STUDENT PRESENTATIONS

- Monday (Lecture) – STUDENT PRESENTATIONS

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- Wednesday (Lab) – STUDENT PRESENTATIONS

Week 16: STUDENT PRESENTATIONS

- Monday (Lecture) – STUDENT PRESENTATIONS
- Wednesday (Lab) – STUDENT PRESENTATIONS

