

 FLORIDA ATLANTIC UNIVERSITY	COURSE CHANGE REQUEST Graduate Programs		UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner _____ Catalog _____
	Department Computer and Electrical Eng. and Comp. Sci. College Engineering and Computer Science		
Current Course Prefix and Number CAP 6546		Current Course Title Data Mining for Bioinformatics	
<i>Syllabus must be attached for ANY changes to current course details. See Guidelines. Please consult and list departments that may be affected by the changes; attach documentation.</i>			
Change title to: Change prefix From: _____ To: _____ Change course number From: _____ To: _____ Change credits* From: _____ To: _____ Change grading From: _____ To: _____ Academic Service Learning (ASL) ** Add <input type="checkbox"/> Remove <input type="checkbox"/>		Change description to: Change prerequisites/minimum grades to: (COP 2220 or COP 2034) and (STA 2023 or STA 4821), or permission of the instructor Change corequisites to: Change registration controls to: Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade.	
Effective Term/Year for Changes: Fall 2021		Terminate course? Effective Term/Year for Termination:	
Faculty Contact/Email/Phone Hanqi Zhuang, zhuang@fau.edu, 561-297-3413			
Approved by Department Chair _____ Hanqi Zhuang College Curriculum Chair _____ Francisco Presuel-Moreno College Dean _____ M. Cardei UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____		Date _____ 2/4/21 2/4/2021 _____ _____ _____ _____	

Email this form and syllabus to UGPC@fau.edu 10 days before the UGPC meeting.

**Department of Computer & Electrical Engineering
and Computer Science
Florida Atlantic University
Course Syllabus**

1. Course title/number, number of credit hours											
Data Mining for Bioinformatics – CAP 6546	3 credit hours										
2. Course prerequisites, corequisites, and where the course fits in the program of study											
Prerequisites: (COP 2220 or COP 2034) and (STA 2023 or STA 4821), or permission of the instructor											
3. Course logistics											
Term: TBA Class location and time: TBA											
4. Instructor contact information											
Instructor's name	Raquel Assis										
Office address	Engineering East (Building 96), Room 432										
Office Hours	TBA										
Contact telephone number	561-297-3927										
Email address	rassis@fau.edu										
5. TA contact information											
TA's name	n/a										
Office address											
Office Hours											
Contact telephone number											
Email address											
6. Course description											
Course focuses on the principles of data mining as it relates to bioinformatics. Topics covered may include gene selection, class imbalance, classification, biomarker discovery, and prediction models. No prior knowledge of biology is required.											
7. Course objectives/student learning outcomes/program outcomes											
Course objectives	In this course, students will:										
	<ol style="list-style-type: none"> Learn fundamental principles of bioinformatics and data mining. Use the R programming language to wrangle, visualize, and analyze a diversity of large and complex biological datasets. Write a report detailing a data analysis project in R. 										
Student learning outcomes & relationship to ABET 1-7 outcomes	Upon completion of this course, students will be able to:										
	<ol style="list-style-type: none"> Describe key terminology and concepts in bioinformatics and data mining. Apply data mining techniques to bioinformatics problems in the R programming language. Analyze findings from applications of data mining techniques to bioinformatics problems. 										
8. Course evaluation method											
Homework (three total, 20% each)	60%	Hands-on data analysis in R									
Final paper	40%	Written report of a data analysis project									
9. Course grading scale											
A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
[93-100]	[90-93]	[87-89]	[83-86]	[80-82]	[77-79]	[73-76]	[70-72]	[67-69]	[63-66]	[60-62]	[0-59]
10. Policy on makeup tests, late work, and incompletes											
Late work is not acceptable. All assignments will have a due date, and students may submit assignments early. Any homework or final papers submitted after the due date will receive a grade of 0 (zero).											
Incomplete grades will only be given if there is solid evidence of a medical or otherwise serious emergency <u>and</u> the student is currently passing the class.											
11. Special course requirements											

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n/a
12. Classroom etiquette policy
Disruptive behavior is defined in the FAU Student Code of Conduct as "... activities which interfere with the educational mission within classroom." Students who disrupt the educational experiences of other students and/or the instructor's course objectives in a face-to-face or online course are subject to disciplinary action. Such behavior impedes students' ability to learn or an instructor's ability to teach. Disruptive behavior may include, but is not limited to non-approved use of electronic devices (including cellular telephones); cursing or shouting at others in such a way as to be disruptive; or, other violations of an instructor's expectations for classroom conduct. For more information, please see the FAU Office of Student Conduct .
13. Attendance policy statement
Because the course is online, you should access the course at least three times per week to ensure you do not miss pertinent postings, messages, or announcements. It is imperative that you meet course deadlines and stay active in discussion boards, group projects, etc. If you are experiencing major illness, absences due to University duties, or other large-scale issues, contact the instructor immediately to formulate a resolution.
14. Disability policy statement
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/ .
15. 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/
16. Code of Academic Integrity policy statement
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 .
17. Required texts/reading
There are no required textbooks for this course.
18. Supplementary/recommended readings
n/a
19. Course topical outline, including dates for exams/quizzes, papers, completion of reading
<ol style="list-style-type: none"> 1. Fundamentals of bioinformatics 2. Introduction to the R programming language 3. Statistical inference in bioinformatics 4. Exploratory data analysis in bioinformatics 5. Predictive modeling in bioinformatics 6. Pre-processing and aligning high-throughput sequencing reads 7. Assaying genomic variation with DNA-seq data 8. Quantifying gene expression with RNA-seq data 9. Identifying protein-DNA interactions with ChIP-seq data 10. Analyzing DNA methylation with BS-seq data