### Course Change Request

**Graduate Programs**

**Department** Computer and Electrical Eng. and Comp. Sci.

**College** Engineering and Computer Science

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**Current Course Prefix and Number** CAP 6546

**Current Course Title** Data Mining for Bioinformatics

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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.

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**Change title to:**

**Change description to:**

**Change prefix**

From:   

To:   

**Change course number**

From:   

To:   

**Change credits**

From:   

To:   

**Change grading**

From:   

To:   

**Academic Service Learning (ASL)**

Add  

Remove  

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* Review [Provost Memorandum](#).

**Academic Service Learning statement must be indicated in syllabus and approval attached to this form.**

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**Effective Term/Year for Changes:** Fall 2021

**Terminate course? Effective Term/Year for Termination:**

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**Faculty Contact/Email/Phone** Hanqi Zhuang, zhuang@fau.edu, 561-297-3413

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**Approved by**

**Department Chair** Hanqi Zhuang

**College Curriculum Chair** Francisco Presuel-Moreno

**College Dean**

**UGPC Chair**

**UGC Chair**

**Graduate College Dean**

**UFS President**

**Provost**

**Date** 2/4/21

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Email this form and syllabus to **UGPC@fau.edu** 10 days before the UGPC meeting.
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:
   1. Learn fundamental principles of bioinformatics and data mining.
   2. Use the R programming language to wrangle, visualize, and analyze a diversity of large and complex biological datasets.
   3. 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:
   1. Describe key terminology and concepts in bioinformatics and data mining.
   2. Apply data mining techniques to bioinformatics problems in the R programming language.
   3. Analyze findings from applications of data mining techniques to bioinformatics problems.

8. **Course evaluation method**

   - **Homework (three total, 20% each):** 60%
   - **Final paper:** 40%
   - **Hands-on data analysis in R:** Written report of a data analysis project

9. **Course grading scale**

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<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>C-</th>
<th>D+</th>
<th>D</th>
<th>D-</th>
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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 and the student is currently passing the class.

11. **Special course requirements**
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](https://www.fau.edu/studentconduct/).

### 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/](http://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/](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](https://www.fau.edu/policies/regulations/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

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

COURSE NUMBER AND NAME  
Semester & year  
Professor’s Name
Even without the other responses, you can represent that the committee supports the change.

Kevin M. Wagner, J.D., Ph.D  
Professor and Chair, Department of Political Science  
President, FAU Faculty Senate  
Trustee, FAU Board of Trustees  
Director of the Jack Miller Forum  
Dorothy F. Schmidt College of Arts and Letters  
Florida Atlantic University  
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kwagne15@fau.edu  
Twitter: @kevinwagnerphd  
www.fau.edu/politicalscience

Florida has a very broad public records law. As a result, any written communication created or received by Florida Atlantic University employees is subject to disclosure to the public and the media, upon request, unless otherwise exempt. Under Florida law, e-mail addresses are public records.

--------- Forwarded message ---------
From: Tamara Dinev <tdinev@fau.edu>  
Date: Thu, Feb 25, 2021 at 10:39 AM  
Subject: RE: MS in Data Committee - Need Vote Reply  
To: Kevin Wagner <kwagne15@fau.edu>, Mihaela Cardei <mcardei@fau.edu>, William Kalies <WKALIES@fau.edu>, Taghi Khoshgoftaar <khoshgof@fau.edu>, William Trapani <wtrapan1@fau.edu>, Vincent Naudot <vnaudot@fau.edu>, Karen Dye <kchinand@fau.edu>

I approve
Tamara

From: William Trapani <wtrapan1@fau.edu>  
Sent: Thursday, February 25, 2021 10:36 AM  
To: Taghi Khoshgoftaar <khoshgof@fau.edu>; Kevin Wagner <kwagne15@fau.edu>; Mihaela Cardei
I approve

BT

William Trapani
Director, School of Interdisciplinary Studies
Dorothy F. Schmidt College of Arts and Letters
Florida Atlantic University

Visit:
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Peace, Justice and Human Rights Initiative: https://www.fau.edu/artsandletters/pjhr/
Center for the Future Mind: http://www.fau.edu/research-admin/future-mind/
SIS Americas Initiative: https://www.fau.edu/artsandletters/college-initiatives/americas-initiative/
MS in Data Science in Society: http://www.fau.edu/artsandletters/school-interdisciplinary-studies/ms-data-science-society/

Hi Kevin,

I approve this change.

Thanks.

Taghi

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Taghi M. Khoshgoftaar, PhD
Motorola Endowed Chair Professor
Director of Data Mining and Machine Learning Lab
Department of Computer and Electrical Engineering and Computer Science
777 Glades Road
Hi MS in Data Committee,

CEECS department is proposing to revise the prerequisites of the course CAP6546: Data Mining for Bioinformatics to "(COP 2220 or COP 2034) and (STA 2023 or STA 4821), or permission of the instructor".

Here is the course revision proposal: https://www.fau.edu/graduate/faculty-and-staff/programs-committee/docs/02242021/CCR-CAP6546.pdf

In the MS DSA program, this course is listed as a concentration course for the Data Science and Engineering Concentration, and it is also listed in the Electives Table.

Please let me know if you approve the proposed course changes.

Kevin M. Wagner, J.D., PhD
Professor and Chair, Department of Political Science
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