

Biomedical Data Science

BME4760 Section 1422

Class Periods: T | Period 6 (12:50 PM - 1:40 PM) -- R | Period 6 - 7 (12:50 PM - 2:45 PM)

Location: CHE 0237

Academic Term: Fall 2018

Instructor:

Parisa Rashidi

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Office Phone Number: 352-392-9469

Office Hours: By appointment

Teaching Assistants:

Please contact through the Canvas website

- TBA

Course Description

This course covers the biomedical applications of data science techniques.

Course Pre-Requisites / Co-Requisites

Prereq: BME 3053L, COP2271

Coreq: - N/A

Course Objectives

- Understand data science techniques in the biomedical domain, ^[1]_[SEP]
- Understand the limitations of each technique with respect to biomedical data, ^[1]_[SEP]
- Learn to use biomedical data science programming libraries. ^[1]_[SEP]

Materials and Supply Fees

N/A

Professional Component (ABET):

N/A

Relation to Program Outcomes (ABET):

The table below is an example. Actual outcomes will vary by program. Below is applicable only to MSE.

Outcome	Coverage*
a. Apply knowledge	High
b. Implement biomedical data science experiments	High
c. Design biomedical data science experiments	High
d. Function on teams	Low
e. Solve problems	High
f. Professional and ethical responsibility	
g. Communicate	Medium
h1. Economic impact	
h2. Global, societal, and environmental impact	
i. Lifelong learning	
j. Contemporary issues	
k. Techniques, skills, and tools for degree program	

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not part of the course.

Required Textbooks and Software

-Course notes are developed by the instructor.

Recommended Materials

- Title: Doing Data Science: Straight Talk from the Frontline
- Author: Rachel Schutt
- Publication date and edition: 2014, first edition
- ISBN number: 13: 978-1449358655

Course Schedule

Week	Subject
1	Introduction
2	Basic Python Programming
3	Advanced Python Programming
4	Biomedical Data Preprocessing I
5	Biomedical Data Preprocessing II
6	Biomedical Data Visualization
7	Biomedical Machine Learning I
8	Biomedical Machine Learning II
9	Biomedical Machine Learning II/ Exam 1
10	Processing Biomedical Images I
11	Processing Biomedical Images II
12	Processing Vital Time Series I
13	Processing Vital Time Series II
14	Bioinformatics Libraries
15	Biomedical Natural Language Processing Libraries (clinical Notes)

Attendance Policy, Class Expectations, and Make-Up Policy

Attendance is required. Exams or homework can only be made up for extraordinary circumstances with prior approval of the instructor. Excused absences are consistent with university policies in the undergraduate catalog (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>) and require appropriate documentation.

Evaluation of Grades

This syllabus is for a course with co-listed undergraduate and graduate sections. While both sections meet at the same time and are exposed to similar content, the expectations of students enrolled in each section (and their corresponding evaluation) differs to reflect the level of the course at which the student is enrolled.

Assignment	Total Points	Percentage of Final Grade
Homework (4)	20 each	20%
Exam	100	45%
Paper Readings	100	35%
		100%

Grading Policy

The following is given as an example only.

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:
<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
<https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
<https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
<https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.