Cover Sheet: Request 11302

BME4XXX Biomedical Data Science

Info

Process	Course|New|Ugrad/Pro
Status	Pending
Submitter	Theus, Kristin undergrad@bme.ufl.edu
Created	11/16/2016 3:49:01 PM
Updated	12/2/2016 9:48:58 AM
Description of request	This course covers the biomedical applications of data science techniques. These techniques include pre-processing techniques, machine learning data analysis, and data visualization techniques.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Biomedical Engineering 021934001	Rinaldi, Carlos		11/16/2016
Added BME4XXX Biomedical Data Science 11.3.16.docx					11/16/2016
College	Approved	ENG - College of Engineering	Caple, Elizabeth		12/2/2016
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			12/2/2016
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|New for request 11302

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Form version: 1

Responses

Recommended PrefixBME
Course Level 4
Number XXX
Category of Instruction Advanced
Lab Code None
Course Title Biomedical Data Science
Transcript Title Biomedical Data Sci
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing No

Effective Term Spring
Effective Year2018
Rotating Topic?No
Repeatable Credit?No

Amount of Credit3

S/U Only?No
Contact Type Regularly Scheduled
Weekly Contact Hours 3
Course Description This course covers the biomedical applications of data science techniques. These techniques include pre-processing techniques, machine learning data analysis, and data visualization techniques.
Prerequisites BME3053C & COP2271 & COP2271c
Co-requisites None
Rationale and Placement in Curriculum This class is currently being taught as a rotating topics course for BME students as a specialization track course in both the Medical Physics and Imaging and Neural Engineering tracks. This course will be regularly offered each year to students and needs an official course number assigned.
Course Objectives • Understand data science techniques in the biomedical domain,
- Understand the limitations of each technique with respect to biomedical data,
- Learn to use biomedical data science programming libraries.

Course Textbook(s) and/or Other Assigned Reading Title: Doing Data Science: Straight Talk from the Frontline
Author: Rachel Schutt
Publication date and edition: 2014, first edition
ISBN number: 978-1449358655

Weekly Schedule of Topics Week 1: Introduction
Week 2: Basic Python Programming
Week 3: Advanced Python Programming
Week 4: Biomedical Data Preprocessing I
Week 5: Biomedical Data Preprocessing II / Quiz 1
Week 6: Biomedical Data Visualization
Week 7: Machine Learning Theory & Algorithms
Week 8: Biomedical Machine Learning I / Quiz 2
Week 9: Biomedical Machine Learning II / Exam 1
Week 10: Processing Biomedical Images I
Week 11: Processing Biomedical Images II / Quiz 3
Week 12: Processing Vital Time Series I
Week 13: Processing Vital Time Series II
Week 14: Bioinformatics Libraries / Quiz 4
Week 15: Biomedical Natural Language Processing Libraries (Clinical Notes) / Exam 2 / Project Due

Links and Policies
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

https://www.dso.ufl.edu/drc

https://evaluations.ufl.edu/evals

https://evaluations.ufl.edu/results/

https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/

http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html

http://www.counseling.ufl.edu/cwc

http://www.police.ufl.edu/

https://lss.at.ufl.edu/help.shtml

https://www.crc.ufl.edu/

http://cms.uflib.ufl.edu/ask

https://teachingcenter.ufl.edu/

https://writing.ufl.edu/writing-studio/.

https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

http://www.distance.ufl.edu/student-complaint-process

Grading Scheme Homework - 4 total - 20 points each - 15% of grade
Quizzes - 4 total - 1- points each - 5% of grade
Exam 1 - 100 points total - 20% of grade
Exam 2 - 100 points total - 30% of grade
Project - 100 points total - 30% of grade

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

Instructor(s) Parisa Rashidi, PhD

Biomedical Data Science
BME4XXX Section XXXX
Class Periods: TBD
Location: TBD
Academic Term: Spring 20XX

Instructor:
Parisa Rashidi
Email Address:parisa.rashidi@ufl.edu
Office Phone Number: 352-392-9469
Office Hours: Tuesdays/Thursdays 10:00 am-11:00 am

Teaching Assistants:
Please contact through the Canvas website
- TBA

Course Description
This course covers the biomedical applications of data science techniques. These techniques include pre-processing techniques, machine learning data analysis, and data visualization techniques.

Course Pre-Requisites / Co-Requisites
Pre-Requisites: BME 3053C: Computer Applications in BME and COP2271/L: Computer Programming for Engineers
Co-requisites: None

Course Objectives
- Understand data science techniques in the biomedical domain,
- Understand the limitations of each technique with respect to biomedical data,
- Learn to use biomedical data science programming libraries.

Materials and Supply Fees
N/A

Professional Component (ABET):
N/A

Relation to Program Outcomes (ABET):

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	Medium
g. Communicate	Medium
h1. Economic impact	Low
h2. Global, societal, and environmental impact	
i. Lifelong learning	Low
j. Contemporary issues	Low
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
None. 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: 978-1449358655

Course Schedule
Week 1: Introduction
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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

Assignment	**Total Points**	**Percentage of Final Grade**
Homework (4)	20 each	15%
Quizzes (4)	10 each	5%
Exam 1	100	20%
Exam 2	100	30%
Project	100	30%
		100%

Grading Policy

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 suppor*t*, 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.