

 FLORIDA ATLANTIC UNIVERSITY	COURSE CHANGE REQUEST Graduate Programs		UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner _____ Catalog _____
	Department CEECS College Engineering and Computer Science		
Current Course Prefix and Number CAP 6315		Current Course Title Social Networks and Big Data Analytics	
<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: None. 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: Spring 2021		Terminate course? Effective Term/Year for Termination:	
Faculty Contact/Email/Phone Hanqi Zhuang/zuang@fau.edu/ 297-3413			
Approved by Department Chair _____ Hanqi Zhuang College Curriculum Chair _____ Francisco Presuel-Moreno College Dean _____ <i>M. Cardelino</i> UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____		Date _____ _____ 10/25/2020 _____ _____ _____ _____	

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	
Social Networks and Big Data Analytics – CAP 6315	3 credit hours
2. Course prerequisites, corequisites, and where the course fits in the program of study	
Prerequisites: None	
3. Course logistics	
Term: Class location and time:	
4. Instructor contact information	
Instructor's name Office address Office Hours Contact telephone number Email address	
5. TA contact information	
TA's name Office address Office Hours Contact telephone number Email address	
6. Course description	
This course teaches students basic concepts of Big Data Analytics with focus on social network analysis and modeling. The class covers three major topics: graphs and social network models, Big Data Analytics platform and MapReduce (Hadoop) programming, and social network analytics and mining algorithms.	
7. Course objectives/student learning outcomes/program outcomes	
Course objectives	The goal of this class is for students to gain hands-on experiences on social networks and big data analytics. At the end of the class, students should be able to understand the whole process of building a big data analytics framework. We will use Twitter as the testbed and apply the framework for social media analysis, including social event detection, large scale social anomaly detection etc.

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<i>Student learning outcomes & relationship to ABET 1-7 outcomes</i>	<ol style="list-style-type: none"> 1. An Ability to identify, formulate, and solve complex computing/engineering problems by applying principles of computing, engineering, science, and mathematics. (Problem solving) 2. An ability to apply the computing/engineering design process to produce solutions that meet a given set of computing/engineering requirements with consideration for public health and safety, and global cultural, social, environmental, economic, and other factors as appropriate to the discipline. (Design) 3. An ability to communicate effectively with a range of audiences in a variety of professional contexts. (Communications) 6. An ability to apply engineering/computer science theory and hardware/software development fundamentals to develop and conduct appropriate experimentation, analyze and interpret data, and use computing/engineering judgment produce engineering/computing-based solutions/conclusions. (Experimentation and/or simulation) 													
8. Course evaluation method														
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Home Work -</td> <td style="width: 20%;">40%</td> <td rowspan="6" style="width: 30%; vertical-align: top;">Programming Requirement: The class (homework/project) requires a significant amount of programming efforts. Homework/term project will have one or multiple programming tasks. The class will primarily use Python (and will also support R) as programming tools. Entry level programming skill is required.</td> </tr> <tr> <td>Midterm -</td> <td>15%</td> </tr> <tr> <td>Student Presentation -</td> <td>10%</td> </tr> <tr> <td>Term Project -</td> <td>15%</td> </tr> <tr> <td>Attendance -</td> <td>5%</td> </tr> <tr> <td>Final Exam (or Research Report)</td> <td>15%</td> </tr> </table>	Home Work -	40%	Programming Requirement: The class (homework/project) requires a significant amount of programming efforts. Homework/term project will have one or multiple programming tasks. The class will primarily use Python (and will also support R) as programming tools. Entry level programming skill is required.	Midterm -	15%	Student Presentation -	10%	Term Project -	15%	Attendance -	5%	Final Exam (or Research Report)	15%	
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Midterm -	15%													
Student Presentation -	10%													
Term Project -	15%													
Attendance -	5%													
Final Exam (or Research Report)	15%													
9. Course grading scale														
<p>Grading Scale: [90, 100]: "A"; [85-90): "A-" [80-85): "B+"; [75-80): "B"; [70-75): "B-" [65-70) : "C+"; [60-65): "C"; [55-60) : "C-" [50-55): "D"; [0, 50): "F."</p>														
10. Policy on makeup tests, late work, and incompletes														
<p><i>Makeup tests</i> are possible, and are given only if there is solid evidence of medical or otherwise family/personal emergency issues that prevent the student from participating in the exam. Makeup exam should be administered and proctored by department personnel unless there are other pre-approved arrangements</p> <p><i>Late work</i> is not acceptable.</p> <p>A <i>grade of incomplete</i> will be assigned only in the case of solid evidence of medical or otherwise serious emergency situation.</p>														
11. Special course requirements														
N/A														
12. Classroom etiquette policy														

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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.

13. Attendance policy statement

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 nonattendance.

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.

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](#). 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.

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17. Required texts/reading

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.

1. *Social Media Mining: An Introduction*, R. Zafarani, M. Abbasi, and H. Liu, Cambridge University Press, 2014. ISBN: 9781107018853

18. Supplementary/recommended readings

1. Matthew A. Russell, *Mining the Social Web: Analyzing Data from Facebook, Twitter, LinkedIn, and Other Social Media Sites*, O'Reilly Media, 2011. ISBN-10: 1449388345
2. *Statistical Network Analysis with igraph*, Gábor Csárdi, Tamás Nepusz, Edoardo M. Airoidi, Springer (<https://sites.fas.harvard.edu/~airoidi/pub/books/BookDraft-CsardiNepuszAiroidi2016.pdf>)
3. *Statistical Analysis of Network Data with R*, Eric D. Kolaczyk and Gabor Csardi, Springer, 2014.
4. Python iGraph Library: API Documentation (<https://igraph.org/python/doc/python-igraph.pdf>)
5. Research papers

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

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Weekly course topics

Weekly schedule	Topic
Week 1	Introduction, Social network tools and platforms
Week 2	Graph theories and models
Week 3	Degree distributions, network communities, PageRank (<i>homework 1</i>)
Week 4	Network node similarity assessment
Week 5	Link prediction in social networks (<i>homework 2</i>)
Week 6	Community detection in social networks
Week 7	Classification in social networks (<i>project announce</i>)
Week 8	Social influence modeling (<i>homework 3</i>)
Week 9	Social sentiment analysis (Midterm Test, term project announcement)
Week 10	Big data analytics algorithms
Week 11	MapReduce (Hadoop) installation and configuration [<i>Cloudera</i>]
Week 12	MapReduce (Hadoop) Programming (<i>homework 4</i>)
Week 13	Social network analysis using MapReduce
Week 14	Student Presentation
Week 15	Student Presentation

Programming Requirement: The class (homework/project) requires a significant amount of programming efforts. Each homework, including term project, will have one or multiple programming tasks. The class will primarily use Python (and will also support R) as programming tools. Entry level programming skill is required.

Term Project: The goal of the term project is to practice knowledge learned from the class and have each student to work on a large project during the second part of the class. Each student is required to identify a suitable topic (a set of tentative topics, such as finding communities from a real-world social network, will be distributed in the class), and apply knowledge learned from the class to solve a research problem, implement and validate the design, and collect experimental results for reporting. The final outcomes of the project will be turned into a technical report.

From:Rainer Steinwandt <RSTEINWA@fau.edu>
Sent:Thursday, November 5, 2020 10:54 AM
To:Mihaela Cardei <mcardei@fau.edu>
Cc:Hanqi Zhuang <zhuang@fau.edu>
Subject:RE: CEECS - Course Perquisite Changes

Hello,

Sounds good. The proposed prerequisite of "Graduate Standing" makes the courses accessible to our graduate students, which is very welcome. There are no concerns from math w.r.t. this change. Thanks for checking.

Best,
Rainer

From:Mihaela Cardei <mcardei@fau.edu>
Sent:Thursday, November 5, 2020 10:50 AM
To:Rainer Steinwandt <RSTEINWA@fau.edu>
Cc:Hanqi Zhuang <zhuang@fau.edu>
Subject:CEECS - Course Perquisite Changes

Hello Dr. Steinwandt,

CEECS department is changing prerequisites of the following graduate courses which are listed in the Cyber Security Certificate.

CDA5326 Cryptographic Engineering
CIS5371 Practical Aspects of Modern Cryptography

The prerequisites are changed to Graduate Standing.

Changing of the prerequisites for these courses were discussed in UGPC yesterday November 4th, and the UGPC committee asked us to check with the other colleges where we have joint interdisciplinary programs. The next meeting, UGC, is on November 13 from 10:00 AM.

Please let us know if Mathematical Sciences has any objections to these prerequisite changes.

Best regards,
Mihaela Cardei

From:Kevin Wagner <kwagne15@fau.edu>
Sent:Thursday, November 5, 2020 10:26 AM
To:Mihaela Cardei <mcardei@fau.edu>
Cc:Hanqi Zhuang <zhuang@fau.edu>; Taghi Khoshgoftaar <khoshgof@fau.edu>
Subject:Re: MS DSA Steering Committee

Fine with me.

KW

Kevin M. Wagner, J.D., PhD
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
777 Glades Road
Boca Raton, FL 33431
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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.

On Thu, Nov 5, 2020 at 10:21 AM Mihaela Cardei <mcardei@fau.edu> wrote:
Hello Dr. Wagner,

CEECS department is changing the prerequisites for the following courses which are listed in the MS DSA program:

CORE course in MS DSA:
CAP6673: Data Mining and Machine Learning

ELECTIVE courses in MS DSA:
CAP5615: Introduction to Neural Networks
CAP6315: Social Networks and Big Data Analytics

CAP6619: Deep Learning
CAP6776: Information Retrieval
CAP6777: Web Mining
CEN6405: Computer Performance Modeling

The prerequisites are changed as follows:
6000 level courses - change to no prerequisites
5000 level courses - change to Graduate Standing

These courses were discussed in UGPC yesterday November 4th, and the UGPC committee asked us to check with MS DSA Steering Committee if they have any objections. The next meeting, UGC, is on November 13 from 10:00 AM.

Please let us know if the MS DSA Steering Committee has any objections.

Best regards,
Mihaela Cardei

From:Tamara Dinev <tdinev@fau.edu>
Sent:Thursday, November 5, 2020 10:41 AM
To:Mihaela Cardei <mcardei@fau.edu>
Cc:Hanqi Zhuang <zhuang@fau.edu>
Subject:RE: CEECS - Course Perquisite Changes

Thank you Dr. Cardei. I will come back soon

Best Regards:
Tamara

=====
Tamara Dinev, Ph.D., Department Chair and Professor
Dean's Distinguished Research Fellow
Department of Information Technology and Operations Management, FL 219
College of Business, Florida Atlantic University
Boca Raton, Florida 33431
tel. (561) 297-3181, email: tdinev@fau.edu
Google Scholar:<https://scholar.google.com/citations?user=YH8QZ-YAAAAJ&hl=en>

From:Mihaela Cardei <mcardei@fau.edu>
Sent:Thursday, November 5, 2020 10:35 AM
To:Tamara Dinev <tdinev@fau.edu>
Cc:Hanqi Zhuang <zhuang@fau.edu>
Subject:CEECS - Course Perquisite Changes

Hello Dr. Dinev,

CEECS department is changing prerequisites of the following graduate courses which are listed in the MS ITM and/or Big Data Analytics Certificate.

MS ITM:

CEN 5035 is a core in CEECS concentrations only.

Electives: CAP 5615, CAP 6315, CAP 6619, CAP 6640, CAP 6673, CAP 6776, CAP 6777, CEN 6405, CEN 5086

Big Data Certificate:

CAP 5615, CAP 6315, CAP 6619, CAP 6640, CAP 6673, CAP 6776, CAP 6777, CEN 6405.

The prerequisites are changed as follows:

6000 level courses - change to no prerequisites

5000 level courses - change to Graduate Standing

These courses were discussed in UGPC yesterday November 4th, and the UGPC committee asked us to check with the other colleges where we have joint interdisciplinary programs. The next meeting, UGC, is on November 13 from 10:00 AM.

Please let us know if ITOM has any objections to these prerequisite changes.

Best regards,
Mihaela Cardei