FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—NEW COURSE PROPOSAL[1]

UGPC APPROVAL _____
UFS APPROVAL _____
SCNS SUBMITTAL _____
CONFIRMED _____
BANNER POSTED _____
CATALOG _____

DEPARTMENT: DEPT. OF COMPUTER & ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

COLLEGE: COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

RECOMMENDED COURSE IDENTIFICATION:

PREFIX ____CAP_____ COURSE NUMBER __6688_____ LAB CODE (L or C) ____

(TO OBTAIN A COURSE NUMBER, CONTACT NMALDONADO@FAU.EDU)

COMPLETE COURSE TITLE: SOCIAL NETWORKS AND BIG DATA ANALYTICS

EFFECTIVE DATE

(first term course will be offered)

__SPRING 2016_____

(The course was offered in 2013 Spring, 2013 Fall, 2014 Fall, as a special topic course)

CREDITS[2]:

3

TEXTBOOK INFORMATION:

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

GRADING (SELECT ONLY ONE GRADING OPTION): REGULAR __X___ SATISFACTORY/UNSATISFACTORY _____

COURSE DESCRIPTION, NO MORE THAN THREE LINES:

This course teaches students basic concepts of big data analytics, with focus on social network analysis and modeling. The class will cover three major topics including graphs and social network models, big data analytics platform and MapReduce (Hadoop) programming, and social network analytics and mining algorithms.

PREREQUISITES *:	COREQUISITES*:	REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL)*:
COP3530 Data Structures and Algorithm Analysis		GRADUATES IN COMPUTER ENGINEERING, COMPUTER SCIENCE, AND ELECTRICAL ENGINEERING.

* PREREQUISITES, COREQUISITES AND REGISTRATION CONTROLS WILL BE ENFORCED FOR ALL COURSE SECTIONS.

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE:

MEMBER OF THE GRADUATE FACULTY OF FAU AND HAS A TERMINAL DEGREE IN THE SUBJECT AREA (OR A CLOSELY RELATED FIELD)

Faculty contact, email and complete phone number:
Xingquan Zhu, xzhu3@fau.edu
561-297-3452

Please consult and list departments that might be affected by the new course and attach comments.[3]
ITOM (College of Business)
Mathematical Sciences (College of Science)

Approved by:	*Date:*
Department Chair: Nurgun Erdol	9/9/15
College Curriculum Chair:	9/21/15
College Dean:	9/21/15
UGPC Chair:	
Graduate College Dean:	
UFS President:	
Provost:	

1. Syllabus must be attached; see guidelines for requirements: www.fau.edu/provost/files/coursesyllabus.2011.pdf
2. Review Provost Memorandum: Definition of a Credit Hour www.fau.edu/provost/files/Definition_Credit_Hour_Memo_2012.pdf
3. Consent from affected departments (attach if necessary)

Email this form and syllabus to UGPC@fau.edu **one week before** the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website prior to the meeting.

Department of Computer and 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 6688	3 credit hours

2. Course prerequisites, corequisites, and where the course fits in the program of study
Prerequisites: COP3530 Data Structures and algorithm analysis

3. Course logistics
Term: Spring 2016 *Class location and time*: TBD

4. Instructor contact information	
Instructor's name	Dr. Xingquan Zhu
Office address	Engineering East (EE-96) Bldg., Room 509
Office Hours	TBD
Contact telephone number	561-297-3452
Email address	xzhu3@fau.edu

5. TA contact information	
TA's name	N/A
Office address	N/A
Office Hours	N/A
Contact telephone number	N/A
Email address	N/A

6. Course description
This course teaches students basic concepts of big data analytics, with an application in social network analysis. The class will cover three major topics including graphs and social network models, big data analytics platform and MapReduce (Hadoop) programming, and social network analytics and mining algorithms (Hadoop is an open source platform for storage and processing large data sets across cluster computers). Detailed topics include general algorithms for data analytics, trend and outbreak detection from social network streams, and MapReduce based computing framework. The lectures will include practical sessions dedicated to the implementation of big data analytics with selected programming language and tools.

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, and real-time social trend detection.
8. Course evaluation method	
Home Work - Test 1 - Test 2 - Project -	35% 15% 15% 35%
9. Course grading scale	
Grading Scale: 90 and above: "A", 85-89: "A-", 76-84: "B+", 70-75: "B", 66-74 : "C+", 60-65: "C", 50-59: "D", 49 and below: "F."	
10. Policy on makeup tests, late work, and incompletes	
Makeup tests 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 *Late work* is not acceptable. *A grade of incomplete* will be assigned only in the case of solid evidence of medical or otherwise serious emergency situation. .	
11. Special course requirements	
N/A	
12. Classroom etiquette policy	
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. Disability policy statement	
In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton campus, SU 133 (561) 297-3880 and follow all OSD procedures.	
14. Honor code policy	
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 unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf	

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

15. Required texts/reading

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

16. 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. UC Berkeley, School of Information: Analyzing Big Data with Twitter
3. Research papers

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

Weekly course topics

Weekly schedule	Topic
Week 1	Introduction, Social network tools and platforms
Week 2	Graph theories and models (*homework 1*)
Week 3	Degree distributions, network communities, PageRank
Week 4	Network node similarity assessment (*homework 2*)
Week 5	Link prediction in social networks
Week 6	Community detection in social networks (*homework 3*)
Week 7	Classification in social networks (*project announce*)
Week 8	Social influence modeling
Week 9	Social sentiment analysis (Test 1)
Week 10	Big data analytics algorithms (*homework 4*)
Week 11	MapReduce (Hadoop) installation and configuration
Week 12	MapReduce (Hadoop) Programming (*homework 5*)
Week 13	Social event and trend modeling using MapReduce
Week 14	Project report
Week 15	Test 2

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 6-8 page double column technical report.

RE: Request from the CEECS Department

Tamara Dinev

To: Mihaela Cardei

Cc: Nurgun Erdol; Chiang-Sheng Huang; Caryn Conley

Tuesday, September 15, 2015 2:20 PM

Dear Dr. Cardei:

Regarding the 4 new course proposals below, I approve of their creation.

Regarding the Certificate in Big Data Analytics, per our conversation today with Dr. Erdol, rather than having two separate certificates in Data/Business Analytics, we agreed to create one certificate – in Big Data Analytics – with two tracks: Computer Science track and Business track. Students in each track with take 3 courses offered by the corresponding college, and one from the other college. Thus, a student in Computer Science track will take 3 CAP courses and 1 ISM course, and a student in College of Business will take 3 ISM courses and one CAP course.

Please contact Dr. Huang to coordinate how to amend our proposals toward this final version and fast track through the colleges so we can present our proposal at the upcoming University Council session.

Best Regards:
Tamara
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Tamara Dinev, Ph.D.
Department Chair and Professor
Department of Information Technology and Operations Management
College of Business
Florida Atlantic University
Boca Raton, Florida 33431
OFFICE: Fleming Hall, 219
TEL: (561) 297-3181
FAX: (561) 297-3043
e-mail: tdinev@fau.edu

From: Mihaela Cardei
Sent: Thursday, September 10, 2015 9:25 AM
To: Tamara Dinev <tdinev@fau.edu>
Cc: Nurgun Erdol <erdol@fau.edu>; Mihaela Cardei <mcardei@fau.edu>
Subject: Request from the CEECS Department

Dear Dr. Dinev

I am the chair of the Graduate Programs Committee in the Department of Computer & Electrical Engineering and Computer Science (CEECS) at FAU, and we are proposing a Certificate Program in Big Data Analytics.

Please find attached to this email the Certificate description and 4 new course proposals (CAP 6771, CAP 6780, CAP6688, and CAP6776) which are listed in the Certificate.

We would need you approval that ITOM Department supports the Certificate in Big Data Analytics and the 4 new courses.

Could you please review the material and email me your approval decision?

Thank you,

Mihaela Cardei, PhD
Professor
Computer & Electrical Engineering and Computer Science Department
College of Engineering and Computer Science
Florida Atlantic University
http://www.cse.fau.edu/~mihaela

Re: Request for approval - Big Data Analytics Certificate & new courses

Rainer Steinwandt [srainer@math.fau.edu]

To: [redacted]

Wednesday, September [redacted]

Dear Mihaela,

Thank you for your email. The proposed certificate program and the associated courses of the CEECS Department and ITOM look very fine to me. For the Department of Mathematical Sciences, I support this certificate program and the associated courses and hope that this program will be a great success.

Kind regards,
Rainer

----- Original Message -----
From: "Mihaela Cardei" <mcardei@fau.edu>
To: "Rainer Steinwandt" <srainer@math.fau.edu>
Cc: "Nurgun Erdol" <erdol@fau.edu>, "Tamara Dinev" <tdinev@fau.edu>, "Chiang-Sheng Huang" <dhuang@fau.edu>, "Mihaela Cardei" <mcardei@fau.edu>
Sent: Wednesday, September 16, 2015 7:26:41 PM
Subject: Request for approval - Big Data Analytics Certificate & new courses

Dear Dr. Steinwandt,

The Department of Computer & Electrical Engineering and Computer Science (CEECS) and the Department of Information Technology and Operations Management (ITOM) at FAU are proposing a joint Certificate Program in Big Data Analytics, with two tracks: Computer Science and Business.

In addition, CEECS Department is proposing 4 new course proposals (CAP 6771, CAP 6780, CAP6688, and CAP6776) and ITOM is proposing 3 new course proposals (ISM6422, ISM6119, ISM6058).

Please find attached to this email the Certificate and new course proposal documents.

We would need your approval that the Department of Mathematical Sciences supports the joint Certificate in Big Data Analytics and the new course proposals.

Could you please review the material and email me your approval decision?

Thank you,

Mihaela Cardei, PhD
Professor
Computer & Electrical Engineering and Computer Science Department
College of Engineering and Computer Science
Florida Atlantic University
http://www.cse.fau.edu/~mihaela