FLORIDA ATLANTIC UNIVERSITY

NEW COURSE PROPOSAL
Graduate Programs

Department Computer and Electrical Eng. and CS (CEECS)

College Engineering and Computer Science

*(To obtain a course number, contact **erudolph@fau.edu**)*

UGPC Approval _____
UFS Approval _____
SCNS Submittal _____
Confirmed _____
Banner Posted _____
Catalog _____

Prefix CAP **Number** 6616	*(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)* **Lab Code**	**Type of Course** Lecture	**Course Title** Applied Machine Learning
Credits *(Review Provost Memorandum)* 3	**Grading** *(Select One Option)* **Regular** ◉ **Sat/UnSat** ○	**Course Description** *(Syllabus must be attached; see Guidelines)* This course covers theoretical foundations and tools for machine learning and data analytics. The class introduces major machine learning topics such as supervised learning, unsupervised learning, and numeric predictive models. Case studies include application of machine learning to different domains.	
Effective Date *(TERM & YEAR)* Spring 2021			

Prerequisites STA 2023 Introductory Statistics or equivalent	**Corequisites**	**Registration Controls** *(Major, College, Level)* Students with major in Information Technology and Management and students with non-CEECS major.

Prerequisites, Corequisites and Registration Controls are enforced for all sections of course

Minimum qualifications needed to teach course: Member of the FAU graduate faculty and has a terminal degree in the subject area (or a closely related field.)	**List textbook information in syllabus or here** Data Mining, Practical Machine Learning Tools and Techniques, Ian Witten Eibe, Frank Mark Hall Christopher Pal, 4th edition, Morgan Kaufmann 2016.
Faculty Contact/Email/Phone Hanqi Zhuang/ Zhuang@fau.edu/561-297-3413	**List/Attach comments from departments affected by new course** NA

Approved by		***Date***
Department Chair	Hanqi Zhuang Digitally signed by Hanqi Zhuang DN: cn=Hanqi Zhuang, o=FAU, ou=CEECS, email=zhuang@fau.edu, c=US Date: 2020.06.11 17:00:59 -04'00'	6/11/2020
College Curriculum Chair	Ramesh Teegavarapu Digitally signed by Ramesh Teegavarapu DN: cn=Ramesh Teegavarapu, o=Florida Atlantic University, ou=Civil, Environmental and Geomatics Engineering, email=teegavar@fau.edu, c=US Date: 2020.06.12 07:24:52 -04'00'	6/12/2020
College Dean	Mihaela Cardei Digitally signed by Mihaela Cardei DN: cn=Mihaela Cardei, o=Florida Atlantic University, ou, email=mcardei@fau.edu, c=US Date: 2020.06.14 14:49:48 -04'00'	6/14/2020
UGPC Chair		
UGC Chair		
Graduate College Dean		
UFS President		
Provost		

Email this form and syllabus to UGPC@fau.edu one week 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	
Applied Machine Learning – CAP 6616	3 credit hours

2. Course prerequisites, corequisites, and where the course fits in the program of study

Prerequisites: STA 2023 or equivalent

Opened to students with major in Information Technology and Management and students with non-CEECS major.

3. Course logistics

Term: Spring 2021
Class location and time: TBA

4. Instructor contact information

Instructor's name	TBA
Office address	TBA
Office Hours	TBA
Contact telephone number	
Email address	TBA

5. TA contact information

TA's name	N/A
Office address	TBA
Office Hours	TBA
Contact telephone number	N/A
Email address	N/A

6. Course description

This course covers theoretical foundations and tools for machine learning and data analytics. The class introduces major machine learning topics such as supervised learning, unsupervised learning, and numeric predictive models. Case studies include application of machine learning to different domains.

7. Course objectives/student learning outcomes/program outcomes

Course objectives	The goal of this class is for students to learn theoretical foundations and experiences on machine learning algorithms, data analytics projects, and applications of machine learning in solving domain problems. At the end of the class, students should be able to understand the whole process of machine learning project design, including key factors of machine learning projects, the life cycle of the data analytics, and the reporting and validations of machine learning projects.

8. Course evaluation method

3 Homework Assignments (each worth 10%)	30%	Students will work on a project where they will use key mechanisms of ML projects,
Midterm Exam -	30%	
Final Project -	40%	

	including the life cycle of data analysis, and the reporting and validation of ML projects.

9. Course grading scale

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."

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. 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 non-attendance.
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.

17. Required texts/reading

Data Mining, Practical Machine Learning Tools and Techniques, Ian Witten Eibe, Frank Mark Hall Christopher Pal, 4th edition, Morgan Kaufmann 2016.

18. Supplementary/recommended readings

Machine Learning, Tom M. Mitchell, Series: McGraw-Hill Series in Computer Science, McGraw-Hill Education; 1 edition (March 1, 1997)

Pattern Recognition and Machine Learning, Christopher M. Bishop, Springer, 2006.

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

Weekly course topics

Weekly schedule	Topic
Week 1	Introduction
Week 2	Learning from examples
Week 3	Decision tree learning
Week 4	Tools for Machine Learning
Week 5	Bayes Learning 1
Week 6	Bayes Learning 2
Week 7	Machine Learning experiments
Week 8	Machine learning project designs
Week 9	Instance based learning
Week 10	Unsupervised learning
Week 11	Numeric Predictive Models
Week 12	Presentation
Week 13	Presentation
Week 14	Machine learning for domain applications
Week 15	Machine learning project management