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|  FLORIDA ATLANTIC UNIVERSITY | NEW COURSE PROPOSAL Undergraduate Programs | | UUPC Approval <u>10-12-20</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____ |
| | Department Computer and Electrical Eng. and Comp. Science College Engineering and Computer Science <i>(To obtain a course number, contact erudolph@fau.edu)</i> | | |
| Prefix CAP Number 2500 | <i>(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)</i> Lab Code | Type of Course <input type="text" value="Lecture"/> | Course Title Applications of Artificial Intelligence |
| Credits <i>(Review Provost Memorandum)</i> 3 | Grading <i>(Select One Option)</i> Regular <input checked="" type="radio"/> Pass/Fail <input type="radio"/> Sat/UnSat <input type="radio"/> | Course Description <i>(Syllabus must be attached; Syllabus Checklist recommended; see Guidelines)</i> This course provides an overview of the field of Artificial Intelligence (AI) with emphasis on contemporary techniques and applications of AI in many areas, including computer vision, natural language processing, and medical diagnosis. The course will broaden the participants' view of the field of AI, allowing a better understanding of its foundations, risks, applications, and implications. | |
| Effective Date <i>(TERM & YEAR)</i> Spring 2020 | Prerequisites, with minimum grade* None | | |
| | | Corequisites None | Registration Controls <i>(Major, College, Level)</i> Exclude computer science and computer engineering majors |
| <i>*Default minimum passing grade is D-. Prereqs., Coreqs. & Reg. Controls are enforced for all sections of course</i> | | | |
| WAC/Gordon Rule Course <input type="radio"/> Yes <input checked="" type="radio"/> No WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to proposal. See WAC Guidelines . | | Intellectual Foundations Program (General Education) Requirement <i>(Select One Option)</i> None <input type="text"/> General Education criteria must be indicated in the syllabus and approval attached to the proposal. See GE Guidelines . | |
| Minimum qualifications to teach course Masters degree in Computer Science, Engineering, or related field | | | |
| Faculty Contact/Email/Phone Hanqi Zhuang, zhuang@fau.edu, 561-297-3413 | | List/Attach comments from departments affected by new course NA | |
| Approved by Department Chair <u>Hanqi Zhuang</u> <small>Digitally signed by Hanqi Zhuang Date: 2020.08.17 13:36:08 -04'00'</small> College Curriculum Chair <u>Dan Meeroff</u> College Dean <u>[Signature]</u> UUPC Chair <u>Jerry Haky</u> Undergraduate Studies Dean <u>Edward Pratt</u> UFS President _____ Provost _____ | | | Date _____ <u>8-24-20</u> <u>9/4/20</u> <u>10-12-20</u> <u>10-12-20</u> _____ _____ |

Email this form and syllabus to mjenning@fau.edu seven business days before the UUPC meeting.

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

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| 1. Course title/number, number of credit hours | |
| CAP 2500 Applications of Artificial Intelligence | 3 credit hours |
| 2. Course prerequisites, co-requisites, and where the course fits in the program of study | |
| Prerequisites: None | |
| 3. Course logistics | |
| <p><i>Term:</i> Spring 2021</p> <ul style="list-style-type: none"> • This will be a face-to-face and fully online course with live lectures • All materials and video recordings are available via Canvas. • All projects' files must be submitted via Canvas. <p>Other logistics are as follows:</p> <ol style="list-style-type: none"> 1. Canvas registration is required. 2. The instructor will regularly post materials/announcements on Canvas. It is student's responsibility to regularly check Canvas and their FAU email for the most recent information. 3. No hard-copy handouts will be provided. Copies will be posted in files on Canvas. 4. Participation in University-approved activities or religious observances, with prior notice, will <u>not</u> be penalized. 5. Students need a reliable internet condition capable of streaming Webex lectures, taking exams on Canvas, etc. Recommended: Broadband Internet connection with a speed of 4 Mbps or higher. To function properly, Canvas requires a high-speed Internet connection (cable modem, DSL, satellite broadband, T1, etc.). The minimum Internet connection speed to access Canvas is a consistent 1.5 Mbps (megabits per second) or higher. 6. Students should have an operational computer system equipped with Windows 10 or macOS Sierra (or higher), Microsoft Office, web browser, a webcam, speakers, and microphone, which should be compatible with the most recent version of Cisco Webex, etc. 7. All questions must be sent publicly through Canvas, so other students also benefit from the answers. Only personal or confidential matters should be sent via email (or Canvas messages) to the professor, all others will be ignored. 8. Since this course doesn't have <i>conventional</i> exams, it doesn't require Lockdown browser, Respondus, or setting up your cell phone to be used as a webcam. | |
| 4. Instructor contact information | |
| <i>Instructor's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i> | Dr. Oge Marques EE 441 (Engineering East (96) building) Virtual office hours will be announced via Canvas. (561) 297-3857 omarques@fau.edu |
| 5. TA contact information | |
| <i>TA's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i> | TBA |

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| 6. Course description | | |
| This course provides an overview of the field of Artificial Intelligence (AI) with emphasis on contemporary techniques and applications of AI in many areas, including computer vision, natural language processing, and medical diagnosis. The course will broaden the participants' view of the field of AI, allowing a better understanding of its foundations, risks, applications, and implications. | | |
| 7. Course objectives/student learning outcomes/program outcomes | | |
| <i>Course objectives</i> | In this course, students will: <ol style="list-style-type: none"> 1. Have a historical perspective of AI (past, present, and future). 2. Acquire a solid conceptual foundation to understand how AI, ML, algorithms work. 3. Learn the technical terminology associated with this subject. 4. Be exposed to examples of the latest developments in the field. 5. Become resourceful and capable of navigating the web of online data analysis resources. 6. Become more discriminating in their assessment of published results in this field. | |
| <i>Student learning outcomes & relationship to ABET objectives</i> | N/A | |
| 8. Course evaluation method | | |
| Hands-on projects Quizzes | 60% 40% | <ul style="list-style-type: none"> • Hands-on projects will consist of using online tools (such as Teaching Lab or AI LAB) and/or small guided programming assignments to reinforce understanding of the material • The quizzes will cover conceptual aspects of AI, machine learning, and deep learning |
| 9. Course grading scale | | |
| Grading Scale: 93 and above: "A", 90-92: "A-", 87-89: "B+", 83-86: "B", 80-82: "B-", 77-79: "C+", 73-76: "C", 70-72: "C-", 67-69: "D+", 63-66: "D", 60-62: "D-", 59 and below: "F." | | |
| 10. Policy on makeup tests, late work, and incompletes | | |
| <p><i>Makeup tests</i> are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student of 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 assignments</i> will be graded with a penalty of 10% of the maximum possible grade for each day after the assignment's due date, up to a maximum of 3 days late (i.e., 30% penalty), beyond which the assignment will receive a grade o (zero).</p> <p><i>Incomplete grades</i> are given only if there is solid evidence of medical or otherwise serious emergency situation <u>and</u> the student is currently passing the class.</p> | | |
| 11. Special course requirements | | |

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| N/A |
| 12. Classroom etiquette policy |
| Students are required to comply with all requirements specified in the student code of conduct and not in any way disrupt the class or prevent other students from benefiting from the class. Students are to speak and behave respectfully to each other and to all FAU faculty and staff. |
| 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 |
| Textbooks (recommended): |

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1. Artificial Intelligence: A Guide for Thinking Humans – Melanie Mitchell (2019)

18. Supplementary/recommended readings

Additional reading materials will be provided during the semester.

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

1. Introduction: history, techniques, applications of AI
2. Fundamentals of Machine Learning (ML)
3. Latest developments in AI, ML
4. The Machine Learning workflow: from data acquisition to deployment of a solution
5. Example of a ML workflows
6. Introduction to programming
7. Artificial Neural Networks: fundamentals
8. Artificial Neural Network examples
9. AI Ethical, social, and legal considerations