

 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 5615		Current Course Title Introduction to Neural Networks	
<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: Graduate standing for CEECS students, and instructor's approval for students from other major 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 _____		Digitally signed by Hanqi Zhuang Date: 2020.10.21 15:32:23 -04'00' Digitally signed by Francisco Presuel-Moreno DN: cn=Francisco Presuel-Moreno, ou=Florida Atlantic University, ou=Ocean and Mechanical Engineering, email=fpresuel@fau.edu, c=US Date: 2020.10.21 11:38:01 -04'00' Digitally signed by Mhuela Cardelino DN: cn=Mhuela Cardelino, ou=Florida Atlantic University, ou=email-mcardel@fau.edu, c=US Date: 2020.10.21 15:04:01 -04'00'	Date _____ _____ 10/25/2020 _____ _____ _____ _____

Email this form and syllabus to UGPC@fau.edu 10 days before the UGPC meeting.

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

1. Course title/number, number of credit hours	
Introduction to Neural Networks/ CAP 5615	3 credit hours
2. Course prerequisites, corequisites, and where the course fits in the program of study	
Prerequisite: <i>Graduate standing for CEECS students, and instructor's approval for students from other major.</i>	
3. Course logistics	
Term: Class location and time:	
4. Instructor contact information	
<i>Instructor's name Office address Office Hours Contact telephone number Email address Webex Link:</i>	
5. TA contact information	
<i>TA's name Office address Office Hours Contact telephone number Email address</i>	
6. Course description	
Brief introduction to biological neural systems. Models of neural mechanisms of learning and memory. Neural net applications to image processing, pattern recognition, machine learning, optimization problems, and robotics. Hardware implementation issues.	
7. Course objectives/student learning outcomes/program outcomes	
<i>Course objectives</i>	<ol style="list-style-type: none"> 1. Learn fundamental concepts of artificial neural networks, classification models, Bayes networks, and advanced learning framework, such as deep learning. 2. Develop abilities to analyze artificial neural networks. 3. Develop the basic understanding of Back Propagation for weight updating in neural networks. 4. Develop the ability to design basic learning systems.
<i>Student learning outcomes & relationship to ABET objectives</i>	<ol style="list-style-type: none"> 1. Proficiency in the areas of software design and development, data structures, and operating systems 2. An ability to plan and execute an engineering design to meet an identified need

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8. Course evaluation method

1. Homework
2. Final Exam
3. Participation

9. Course grading scale

Grading Scale:

- | | |
|-----------------------------|-----------------------------|
| v 90% and above | A (including A, A-) |
| v 70-89% | B (including B+, B, and B-) |
| v 60-69% | C (including C+, C, and C-) |
| v 40-59% | D (including D+, C, and D-) |
| v 39% and below or cheating | F |

10. Policy on makeup tests, late work, and incompletes

Makeup tests 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

Late work is subject to late penalty.

Incomplete grades are against the policy of the department. Unless there is solid evidence of medical or otherwise serious emergency situation and the student is currently passing the class, incomplete grades will not be given.

11. Special course requirements

All homework assignments and all lab work in this course must be **INDIVIDUAL** effort. Please take the time to read the documentation. You are responsible for the information outlined in it. Please see the instructor, any teaching assistant, or Engineering Student Services tutoring for assistance. Check the **Where to Find Help** Section on Blackboard.

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.

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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](#).

17. Texts/reading

Textbook:

- [Deep Learning](#), Ian Goodfellow, Yoshua Bengio, and Aaron Courville, The MIT Press, 2016

18. Supplementary/recommended readings

Reference books:

1. [Neural Networks for Pattern Recognition](#), Christopher M. Bishop, Clarendon Press, 1996 (Online version available)
2. [Pattern Recognition and Machine Learning](#) Christopher M. Bishop, Springer, October, 2007, (Online version available)

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

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Topics:

- Introduction to machine learning & Python Programming (week 1)
- Pattern Recognition and Machine Learning
 - Decision Trees (Week 1)
 - Decision Tree learning using Python (Week 2)
- Neural Networks
 - Neural Network Structures (Week 3)
 - Single Layer Perceptron Learning (Week 3)
 - Multilayer Feedforward Neural Networks (Week 4)
 - Radial-Basis Function Networks (Week 5)
- Intro to Deep Learning (Week 6)