Course Number and Title: CAP6615 (Section: 1967) – Neural Networks for Computing – SPRING 2012
Meeting Times and Location: MWF, 8th period, TUR 2334
Prerequisite: CAP 5635 (Artificial Intelligence Concepts)
Credit Hours: 3.0
Instructor: Angelos Barmpoutis
Instructor Office Location and Hours: CSE E428, hours to be announced
Instructor Contact Information: abarmpou@cise.ufl.edu or angelos@digitalworlds.ufl.edu
Course Web-Site: http://www.cise.ufl.edu/class/cap6615sp12/

Course Description: In this course the students will be introduced to various neural network models and algorithms, adaptive behavior, associative learning, competitive dynamics and biological mechanisms. Several applications of artificial neural networks will be studied including computer vision, cognitive information processing, control, and signal analysis.

Course Objectives/Goals: Introduce fundamental concepts of neural networks and study several network models in detail. After taking this course, the student will be ready to understand the structure, design, and training of various types of neural networks and will be ready to apply them to the solution of problems in a variety of domains.

Course Outline

Week	Topic
1	Rosenblatt's Perceptron
2	Model Building through Regression
3	The Least-Mean-Square Algorithm
4	Multilayer Perceptrons
5	Kernel Methods and Radial-Basis Function Networks
6	Support Vector Machines
7	Regularization Theory
8	Principal-Components Analysis
9	Self-Organizing Maps
10	Information-Theoretic Learning Models
11	Stochastic Methods Rooted in Statistical Mechanics
12	Dynamic Programming
13	Neurodynamics
14	Bayseian Filtering for State Estimation of Dynamic Systems
15	Dynamically Driven Recurrent Networks

Grading Scale

Letter Grade	% Equivalency	GPA Equivalency
A	94 – 100%	4.0
A-	90 – 93%	3.67
B+	87 – 89%	3.33
B	84 – 86%	3.00
B-	80 – 83%	2.67
C+	77 – 79%	2.33
C	74 – 76%	2.00
C-	70 – 73%	1.67
D+	67 – 69%	1.33
D	64 – 66%	1.00
D-	60 – 63%	.67
E, I, NG, S-U, WF		0.00

Evaluations and Grades
_20% of the final grade comes from Homework Assignments _30% of the final grade comes from Programming Assignments _10% of the final grade comes from Attendance & Participation _40% of the final grade comes from 2 Exams (20% each)

1) Class Attendance/Demeanor Policy

Policy on Absences

a. At the sole discretion of the instructor, documented Emergencies or medical situations may be the only acceptable reasons for an excused absence. At the very least, students must contact the Instructor 24 hours before class time if they wish to be considered for an excused absence.

b. Unexcused absences will accrue to the detriment of the portion of the final grade given for class participation.

2) OFFICE HOURS and RELATED POLICIES (Making Up Exams or Late Submissions, etc)

Office Hours for Student Consultation

a. The course instructor will post and hold weekly office hours for face-to-face meetings

b. Students are encouraged to begin assignments early enough such that instructors can provide assistance during regularly scheduled office hours if needed

Late policy

a. At the sole discretion of the instructor, late work may be penalized according to the late policy.

b. Any assignment turned in past the due date may lose up to 10% of the total point value of the assignment for each class day it is late.

Policy on Making up Exams

a. At the sole discretion of the instructor, Exams may or may not be taken late. Documented Emergencies or medical situations may be the only accepted reasons for an excused absence on the day of an exam.

b. Any assignment turned in past the due date may lose up to 10% of the total point value of the assignment for each class day it is late.

3) Students with disabilities

Instructor will make every attempt to accommodate students with disabilities. At the same time, anyone requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide you with the necessary documentation, which you must then provide to Instructor when requesting accommodation.

4) Require texts and other materials

Title: Neural Networks and Learning Machines
Author: Simon Haykin
Publisher: Prentice Hall; 3 edition (November 28, 2008)
Language: English
ISBN-10: 0131471392
ISBN-13: 978-0131471399

Additionally, there are several useful on-line tutorials and resources

5) Critical Dates
The two examinations will take place during our class time, in the middle and at the end of the semester.

6) Academic Honesty
The university's policies regarding academic honesty, the honor code, and student conduct related to the honor code will be strictly enforced. Full information regarding these policies is available at the following links:

- Academic Honesty: http://www.registrar.ufl.edu/catalog/policies/students.html#honesty
- Honor Code: http://www.dso.ufl.edu/sccr/honorcodes/honorcode.php
- Student Conduct: http://www.dso.ufl.edu/sccr/honorcodes/conductcode.php

7) University Counseling Services
Contact information:

Counseling Center
Address:
3190 Radio Rd.
P.O. Box 112662, University of Florida
Gainesville, FL 32611-2662
Phone: 352-392-1575
Web: www.counsel.ufl.edu

8) UF Computer Policy

a. In keeping with the University of Florida's student computer policy http://training.helpdesk.ufl.edu/computing.shtml all assignments completed for this class should be typed using a word processing program. Use of spellchecking and grammar-checking programs is strongly encouraged. Excessive spelling/grammar errors detract from quality of scholarship, and will be appropriately assessed.

b. Use of desktop publishing software and computer generated graphics for course deliverables that may eventually be included in student's portfolios is also strongly encouraged.

9. EMAIL and Response times

a. All students must maintain and USE their registered Gatorlink email address for email communications related to the class

b. Students will be contacted via their registered Gatorlink email address with any course updates or other items of pertinence to the course.

c. Students are expected to read their Gatorlink email at least once during every business day.

d. Allow a minimum of 24 business hours for the Instructor to reply to email from students.

10. Student Concerns

a. If you have any concerns or questions about any situation in the course please consult the instructor ASAP.

b. If after consultation with the Instructor, the student has unresolved concerns or questions, they may request an appointment with the program director.

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