COURSE SYLLABUS: CPSC6185 –INTELLIGENT SYSTEMS – SPRING 2015

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MEETING TIME AND PLACE – Online

COURSE INFORMATION

COURSE CRN NUMBER/TITLE CPSC6185 – Intelligent Systems (**CRN 22282**)
CREDIT HOURS/PREREQUISITES (3 credits). *pre-requisite:* No prerequisites required

COURSE DESCRIPTION**:** This course introduces students to the field of Artificial Intelligence (AI) with emphasis on its use to solve real world problems for which solutions are difficult to express using the traditional algorithmic approach. It explores the essential theory behind methodologies for developing systems that demonstrate intelligent behavior including dealing with uncertainty, learning from experience and following problem solving strategies found in nature.

REQUIRED TEXTBOOK AND MATERIALS

ARTIFICIAL INTELLIGENCE – A GUIDE TO INTELLIGENT SYSTEMS (3RD EDITION)
Author: Michael Negnevitsky
Publisher: Addison Wesley
Publication date: 2011
ISBN-13: 978-1408225745

SUPPLEMENTARY BOOKS AND MATERIALS

- Matlab Tool

LEARNING OUTCOMES

Course Objective: Upon completion of this course, students will

- demonstrate good knowledge of basic theoretical foundations of the following common intelligent systems methodologies:

    - Rule-based systems

    - Fuzzy inferencing

    - Artificial neural networks

    - Evolutionary computation

    - Data Mining

- Case-based reasoning

- Probabilistic reasoning

- Intelligent agents

- determine which type of intelligent system methodology would be suitable for a given type of application problem
- demonstrate, in the form of a major project work, the ability to design and develop an intelligent system for a selected application.

Course Outcomes:

- Students will gain deep understanding of the basic artificial intelligence techniques.
  - o Strategies and Actions used to produce the outcome:
    - ▪ Learn about artificial intelligence techniques and intelligent systems.
    - ▪ ABET Criteria covered: B, C, G and I.
    - ▪ Program Objectives covered: 1 and 2.
    - ▪ Assessment Method: Discussion Forums.
- Students will apply their knowledge to design solutions to different problems.
  - o Strategies and Actions used to produce the outcome:
    - ▪ Apply artificial intelligence techniques to solve different problems
    - ▪ ABET Criteria covered: B, C, D, I, and J.
    - ▪ Program Objectives covered: 2 and 3.
    - ▪ Assessment Method: Assignments.
- Students will have the ability to design and develop an intelligent system for a selected application.
  - o Strategies and Actions used to produce the outcome:
    - ▪ Use artificial intelligence technique(s) to design and develop intelligent systems
    - ▪ ABET Criteria covered: B, E, and F.
    - ▪ Program Objectives covered: 4.
    - ▪ Assessment Method: Term Project.

COURSE ASSESSMENT

LEARNING ACTIVITIES

1. Students must have access to Matlab

2. The ACM recommends the following: "As a general guideline, the amount of out-of-class work is approximately **three times** the in-class time. Thus, a unit that is listed as requiring 3 hours typically entails a total of 12 hours (3 in class and 9 outside)." Students will be expected to spend this time outside class reading the book, online materials and other materials; writing solutions to homework exercises and programming projects.

From A Study Guide: "Study actively. Ask yourself questions, review your notes regularly, create concept maps, and discuss key concepts with peers and your instructor. *FACT: Association is a key to memory and cognitive research has shown that you will remember 10 percent of what you read, 20 percent of what you hear, 30 percent of what you see, 50 percent of what you hear and see together, 70 percent of what you say, and 90 percent of what you do!"*

COURSE EVALUATION

GRADED LEARNING ACTIVITIES	**Percentage**	**Points**
• Participation (classroom or online discussion)	25%	
• 5 assignments	50%	
• Project (including 5% for the proposal)	25%	
TOTAL	100%	**1000**

Grades for the course will be assigned according to the following criteria.

Percentage Range	**Final Grade**	
90-100%	A	• fulfills or exceeds all of the assigned content requirements. • knowledge of the subject is accurate throughout • exhibits convincing range and quality of knowledge, having done appropriate research, if applicable.
80-89%	B	• fulfills all of the important assigned content requirements • knowledge of the subject is accurate throughout except in minor details. • seems informed on the subject, having done appropriate research, if applicable
70-79%	C	• fulfills most of the important assigned content requirements. • knowledge of the subject is generally accurate, though flawed • exhibits limited range or quality of knowledge, having done limited appropriate research, if applicable.
60-69%	D	• fulfills some of the important assigned content requirements • knowledge of the subject is generally accurate, though flawed • exhibits limited range or quality of knowledge, having done minimal appropriate research, if applicable.

59% and below	F	- fails to address the important requirements of the course. - knowledge of the subject is generally inaccurate and/or lacks range or quality

ADMINISTRATIVE POLICIES AND ACADEMIC RESOURCES

CSU DISABILITY POLICY

If you have a documented disability as described by the Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1973, Section 504, you may be eligible to receive accommodations to assist in programmatic and/or physical accessibility. We recommend that you contact the Office of Disability Services located in Schuster Student Success Center, Room 221, 706-507-8755 as soon as possible. Students taking online courses can contact the Office of Disability services at http://disability.columbusstate.edu/. The Office of Disability Services can assist you in formulating a reasonable accommodation plan and in providing support. Course requirements will not be waived but accommodations may be able to assist you to meet the requirements. Technical support may also be available to meet your specific need.

ACADEMIC INTEGRITY

All students are expected to recognize and uphold standards of intellectual and academic integrity. As a basic and minimum standard of conduct in academic matters that students be honest and that they submit for credit only the products of their own efforts. Both the ideals of scholarship and the need for fairness require that all dishonest work be rejected as a basis for academic credit. They also require that students refrain from any and all forms of dishonorable or unethical conduct related to their academic work.

Students are expected to comply with the provisions of Section III, "Student Responsibilities," of the Columbus State University Student Handbook. This specifically includes the sections on "Academic Irregularity," and "Conduct Irregularity." In particular, the Columbus State University Student Handbook states:

"No student shall give or receive assistance in the preparation of any assignment, essay, laboratory report, or examination to be submitted as a requirement for any academic course in such a way that the submitted work can no longer be considered the personal effort of the student submitting the work."

Examples of Academic Dishonesty include but are not limited to: Plagiarism (see definition below), giving or receiving unauthorized assistance on exams, quizzes, class assignments or projects, unauthorized collaboration, multiple submissions (in whole or part) of work that has been previously submitted for credit.

Plagiarism is any attempt to represent the work or ideas of someone else as your own. This includes purchasing or obtaining papers from any person and turning them in as your own. It also includes the use of paraphrases or quotes from a published source without properly citing the source. All written assignments may be submitted for textual similarity review to Turnitin.com for the detection of plagiarism.

Any work turned in for individual credit must be entirely the work of the student submitting the work. **All work must be your own.** You may share ideas but submitting identical assignments (for example) will be considered cheating. **You may discuss the material in the course and help one another with debugging, however, I expect any work you hand in for a grade to be your own.** A simple way to avoid inadvertent plagiarism is to talk about the assignments, but don't read each other's work or write solutions together. Keep scratch paper and old versions of assignments until after the assignment has been graded and returned to you. **If you have any questions about this, please see me immediately.**

For assignments, access to notes, textbook, books and other publications is allowed. Stealing, **giving or receiving** any code, diagrams, drawings, text or designs from another person (CSU or non-CSU) is not allowed.

Having access to another person's work on the system or giving access to your work to another person is not allowed. It is your responsibility to keep your work confidential.

No cheating in any form will be tolerated. Please be aware that anyone caught cheating or plagiarizing in this class will receive a "0" for the assignment/exam and may receive a "0" for the course.

STUDENT COMPLAINT PROCESS

Information and resources for student complaints and academic appeals are located at the following link on the Columbus State University website http://aa.columbusstate.edu/appeals/.

COURSE ATTENDANCE POLICY

Class attendance is the responsibility of the student, and it is the student's responsibility to independently cover any materials missed. Class attendance and participation may also be used in determining grades. It is your responsibility to sign a roll sheet for every class meeting. At my discretion, I may drop you from the course for more than *six (6)* absences. Missing an exam or quiz is considered an absence. Missed classes caused by participation in documented, formal, University-sponsored events will not count as absences provided you notify me of such anticipated absences in advance and as soon as possible.

You are responsible for all class work missed, regardless of the reason for the absence(s). Late assignments will **not** be accepted, so if you are absent on the day an assignment is due, it is your responsibility to make alternate arrangements. No makeup exams or quizzes will be given, so please make sure you are present for all exams/quizzes. Refer to the CSU Catalog (**http://ace.columbusstate.edu/advising/a.php#AttendancePolicy**) for more information on class attendance and withdrawal.

Electronic Devices and Academic Integrity: All cell phones and pagers must be turned off prior to entering the classroom or lab. The use of any electronic device during a test or quiz is prohibited. This includes cell phones, handheld calculators, iPhones, Android phones, PalmPilots, Blackberrys, PocketPCs, and laptops. Any use of such a device during a test or quiz will be considered a breach of academic integrity.

TECHNICAL RESOURCES

HARDWARE REQUIREMENTS
How do I know if my computer will work with D2L?

SOFTWARE REQUIREMENTS
An- office suite such as Microsoft Office or Open Office
- To open PDF files you might need Acrobat Reader
- Browser Plugins (Pdf files, QuickTime files, Mp4 files) can be usually be obtained at the browsers website.
  Google Chrome
  Firefox
  Safari
  Internet Explorer (Caution: IE is often problematic for D2L-CougarVIEW)

If you need technical support or need assistance configuring your computer, you can refer to the link located in the "Support Resources" widget located on your "My Home" and your "Course Home" pages. If you cannot solve your problem after reviewing the knowledge base help pages, you can call help center 24-7 and talk to a Help Center agent. The number is 1-855-772-0423.

Matlab Tool

How to Access the Course

You can access the course through CougarView at: http://colstate.view.usg.edu/

At this page, select the "Log on to" CougarView link to activate the CougarView logon dialog box, which will ask for your CougarView username and password. Your CougarView username and password are the same as your Cougarnet username and password:

Username: lastname_firstname

Password: XXXX

Default password is your birthday in the format of DDMMYY.

If you try the above and CougarView will not let you in, please use the "Comments/Problems" link on the CougarView home page to request help. If you are still having problems gaining access a day or so after the class begins, please e-mail me immediately.

Once you've entered CougarView, you will see a list of courses you have access to. The CPSC 1301 course is listed as "Computer Science 1". Next to this, you should see my name as the instructor. You may also see new discussion postings, new calendar postings, and new mail messages. Clicking on the name of the course will take you to the course's home page. If you do not see the "**Computer Science 1**" course in the list, please e-mail me **immediately**.

Once you have clicked on the course's name and accessed the particular course itself, you will find a home page with links to other sections and tools, and a menu on the left-hand side. Feel free to explore the areas in the course.

Course Website

It is your responsibility to frequently look at the course website to keep your knowledge of class activities current. For this course, the website is at http://csc.ColumbusState.edu/summers. I may occasionally forget to announce details in class, but they may have been already posted on the site and/or in CougarView. If so, you will still be held responsible for them. For example, assignment due dates, corrections of errors, announcements, exam dates, changes to policies, and so on.

Getting help

Student assistants in the public Computer Center labs / Library can help you with basic computer-related problems such as logging on to the network, saving your work, etc., but they are not obligated to help you with your assignments. There are several tutors in the School of Computer Science lab (CCT450) who can help you with the assignments. Their schedule is posted in the Computer Science School. You can always contact me during my posted office hours, by e-mail, or by appointment.

Discussion Etiquette

CSU is committed to open, frank, and insightful dialogue in all of its courses. Diversity has many manifestations, including diversity of thought, opinion, and values. Students are encouraged to be respectful of that diversity and to refrain from inappropriate commentary. Should such inappropriate comments occur, I will intervene as I monitor the dialogue in the discussions. I will request that inappropriate content be removed from the discussion and will recommend university disciplinary action if deemed appropriate. Students as well as faculty should be guided by common sense and basic etiquette. The following are good guidelines to follow:

- Never post, transmit, promote, or distribute content that is known to be illegal.
- Never post harassing, threatening, or embarrassing comments.
- If you disagree with someone, respond to the subject, not the person.

Never post content that is harmful, abusive; racially, ethnically, or religiously offensive; vulgar; sexually explicit; or otherwise potentially offensive.

Student Responsibilities

As a student in this course, you are responsible to:
- manage your time and maintain the discipline required to meet the course requirements,
- meet regularly with your supervisor,
- complete all assignments,
- read any e-mail sent by the instructor and respond accordingly.

"I didn't know" is **NOT** an acceptable excuse for failing to meet the course requirements. If you fail to meet your responsibilities, you do so at your own risk.

Instructor Responsibilities

As your instructor in this course, I am responsible to:
- guide the student and provide useful resources,
- respond to students questions and concerns,
- provide feedback on graded assignments,
- read any e-mail sent by you and respond accordingly within 48 hours.

Student Portfolio

Students are encouraged to keep and maintain a portfolio of all of their work (assignments, projects, etc.) throughout their academic program. It is recommended that you keep a copy on your personal H: drive at CSU and back it up regularly on your own portable media or in the cloud.

ABET Criteria:

Students in CS/IT will have a(n)

A. ability to apply knowledge of computing and mathematics appropriate to the discipline;

B. ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;

C. ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;

D. ability to function effectively on teams to accomplish a common goal;

E. understanding of professional, ethical, legal, security, and social issues and responsibilities;

F. ability to communicate effectively with a range of audiences;

G. ability to analyze the local and global impact of computing on individuals, organizations and society;

H. recognition of the need for, and an ability to engage in, continuing professional development;

I. ability to use current techniques, skills, and tools necessary for computing practice.

J. ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices;

K. ability to apply design and development principles in the construction of software systems of varying complexity.

CS Program Objectives:

Our graduates will have achieved:

1) A broad general education assuring an adequate foundation in science and mathematics relevant to computing.
2) A solid understanding of concepts fundamental to the discipline of computer science.
3) Good analytic, design, and implementation skills required to formulate and solve computing problems.
4) The ability to function and communicate effectively as ethically and social responsible computer science professionals.