

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE  
MASTER SYLLABUS

**SPECIAL TOPICS IN INFORMATION TECHNOLOGY**  
**Introduction to Artificial Intelligence**  
**CSIT 2490**

**Class Hours: 3.0**

**Credit Hours: 4.0**

**Laboratory Hours: 3.0**

**Revised: Spring 07**

NOTE: This course is not designed for transfer credit.

**Catalog Course Description:**

A broad introduction to the field of Artificial Intelligence (AI) including discussion of knowledge representation and inference, expert systems, natural language processing, vision, intelligent agents and robotics. The past, present and future directions of AI research will also be discussed.

**Entry Level Standards:**

Students must be willing to read assigned material and be ready to discuss their views on the material in class. In addition, students will be expected to do independent research on the topics presented. Students will also write papers about their research and discuss their findings.

**Prerequisite:**

A working knowledge of data structures. CSIT 1560 or departmental approval.

**Textbook(s) and Other Course Materials:**

*The Singularity is Near* by Ray Kurzweil (Viking)  
*Radical Evolution* by Joel Garreau  
*Introducing Artificial Intelligence* by Henry Brighton and Howard Selina

**Suggested Optional Supplementals:**

Website material will be used to supplement the texts.

**I. Week/Unit/Topic Basis:**

<b>Week</b>	<b>Topic</b>
1	The Singularity
2	History of AI
3	Brain and Mind
4	Consciousness and Cognition
5	Language and Semiotics
6	Expert Systems
7	Complexity, Chaos and Fractals

8	Virtual Reality and Simulation
9	Neural Networks
10	Genetics
11	Evolutionary Algorithms and Artificial Life
12	Robotics
13	Nanotechnology
14	The Future of Artificial Intelligence
15	Conclusions

## II. Course Objectives\*:

- A. Discuss the history of Artificial Intelligence, as well as future directions in the field. I, II, III, IV, XI
- B. Demonstrate an understanding of the primary fields of study in Artificial Intelligence. I, II, III, IV, XI
- C. Describe the principle algorithms and data structures used to implement Artificial Intelligence concepts. I, II, III, V, IX, XI, XII
- D. Recognize and know about researchers and their creations that have been influential in the field of Artificial Intelligence. I, III, X, XI
- E. Begin to utilize Artificial Intelligence concepts in their own computer programs. V, VI, VII, IX, XI, XII
- F. Expand their worldview to include man's artificial creations as a natural part of the evolutionary process. I, II, III, X, XI, XII

\*Roman numerals after course objectives reference goals of the CSIT program.

## III. Instructional Processes:

1. Write reports, make posts to class forums and participate in class note wiki pages (*Communications Outcome*)
2. Work to deadlines and schedules, and be encouraged to improve study and learning skills (*Active Learning Strategies*)
3. Learn and apply Artificial Intelligence techniques, apply these skills to novel problem situations, and participate in a team project (*Active Learning Strategies*)
4. Discuss the impact of, and social issues related to, Artificial Intelligence (*Social/Behavioral Sciences Outcome*)
5. Learn about the hardware and software implementation of Artificial Intelligence and the successes and failures in these areas. (*Technological Literacy Outcome*)
6. Effectively utilize the library and other sources of research to create reports (*Technological Literacy*)

*Outcome)*

### **III. Expectations for Student Performance\*:**

Upon successful completion of this course, the student should be able to:

1. Demonstrate knowledge of the history of Artificial Intelligence research. A
2. List and discuss the primary areas of Artificial Intelligence. B
3. Explain the principle algorithms utilized in Artificial Intelligence research. C
4. Discuss the primary successes and failures of Artificial Intelligence research. A, B, D
5. List and discuss the well-known researchers in the area of Artificial Intelligence. A, B, C, D
6. Create computer programs that utilize Artificial Intelligence algorithms. C, E
7. Perform independent research on Artificial Intelligence algorithms. C, E
8. Maintain a detailed course notebook. A, B, C, D, E, F
9. Understand some of the social and political implications of Artificial Intelligence. A, B, C, D, F

\*Letters after performance expectations reference the course objectives listed above.

### **IV. Evaluation:**

#### A. Testing Procedures:

Midterm and final. Questions will be short answer or essay. Tests will count 100 points.

#### B. Laboratory Expectations:

Students will learn, demonstrate effective use of and complete tasks associated with each of the units of study. Completion of all units with desired outcomes will count 400 points.

#### C. Field Work:

Students will have to research and develop materials as part of the lab expectations above. Some of these experiences will be outside the class/lab environment.

#### D. Grading Scale:

520-600	A
460-519	B
400-459	C
350-399	D
Below 350	F

### **V. Policies:**

#### Attendance Policy:

Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course.

B. Accommodations for disabilities:

If you need accommodations because of a disability, if you have emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please inform the instructor immediately. Please see the instructor privately after class or in his/her office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127 or 131 or by phone: 694-6751(Voice/TTY) or 539-7153.