Department of Mathematics and Computer Science
St. Mary's College
St. Mary's City
Maryland 20686-3001

Semester:	Spring 2017
Course Number:	COSC 370.01
Course Title:	Artificial Intelligence
Prerequisites:	COSC 201, MATH 200 or MATH 281.
Meeting Times:	Monday, Wednesday, 2:40 pm to 4:30 pm
Location:	Schaefer Hall, Room 160
Instructor:	Simon Read
Office Location:	Schaefer Hall, Room 173
Office Hours:	Refer to http://faculty.smcm.edu/sread/
Telephone Number:	~~Extension 4369 (240 895 4369)~~
E-Mail Address:	sread@smcm.edu
Class Web-Site:	http://blackboard.smcm.edu

Required Textbook:

"Artificial Intelligence: A Modern Approach", Russell and Norvig, 3rd Edition, Prentice-Hall, 2010.

Catalog Description:

This course surveys artificial intelligence. Topics include symbolic processing, expert systems, machine learning and neural networks, natural language processing, pattern matching, genetic algorithms and fuzzy logic. Not open to students who have received credit for COSC 260. Formerly COSC 260. *Prerequisites: COSC 201; and MATH 200 or MATH 281.*

Objectives:

At the completion of COSC 370, students will be able to explain neural networks as demonstrated by writing an explanation for non-experts.

At the completion of COSC 370, students will be able to explain solution space search as demonstrated by writing an explanation for non-experts.

At the completion of COSC 370, students will be able to explain rule based systems as demonstrated by writing an explanation for non-experts.

At the completion of COSC 370, students will be able to explain genetic algorithms as demonstrated by writing an explanation for non-experts.

At the completion of COSC 370, students will be able to explain machine learning as demonstrated by writing an explanation for non-experts.

At the completion of COSC 370, students will be able to explain natural language processing as demonstrated by writing an explanation for non-experts.

At the completion of COSC 370, students will be able to construct solutions to artificial intelligence problems as demonstrated by developing programs that use at least three artificial intelligence heuristics.

At the completion of COSC 370, students will be able to write reviews of the current state of the art as demonstrated by reviewing a peer-reviewed publication.

At the completion of COSC 370, students will be able to discover problems with technical solutions as demonstrated by critiquing a peer reviewed publication.

At the completion of COSC 370, students will be able to research complex technical concepts as demonstrated by reviewing the concepts presented in a peer-reviewed publication.

At the completion of COSC 370, students will be able to presenting complex technical concepts as demonstrated by presenting a review of a peer-reviewed publication.

Methods of Instruction:

Lecture elements of the class will be used to present the factual element of the course. Class discussion and in-class group and individual activities will be used to develop both critical thinking and problem solving abilities, as well as reinforcing conceptual understanding. Learning in this class is considered to be everyone's shared responsibility. Part of that responsibility is attendance; when you are not here, not only do you miss important work, but also the entire class misses out on your contribution.

The projects will be used to help you develop a deeper understanding of the material and your ability to solve problems through programming.

The mid-term and final examinations will be used to improve your ability to apply concepts to problem solving.

You will be required to review a classic publication in artificial intelligence and present the results to the class in both written and verbal form.

Interactions with the instructor outside scheduled class times will be an important part of your learning in this class. You should use the instructor's office hours as time to discuss concepts, homework projects and the paper review.

Assessment:

There are four elements to the grading of this class: two examinations; three programming projects; a paper review; and class participation.

You will take a mid-term (**weight 10%**) and a final (**weight 35%**) examination. In order to earn a passing grade in the examinations you need only demonstrate that you have mastered the concepts covered by the lectures, but to earn a high grade you must also demonstrate that you can think critically to apply the concepts to solving problems. Both examinations will be in the "take-home" format.

You will write three programs (**weight 10% each**) that will use different methods for

solving artificial intelligence problems. These projects will use the techniques that have just been discussed in class. This will reinforce as well as assess your understanding of that material. You may be required to learn new imperative programming languages and APIs to complete these projects. These assignments should be completed in pairs, but individual submissions will be accepted.

The paper review (**weight 10%**) that you write will help you develop critical thinking skills, as well as basic academic research skills. The presentation (**weight 5%**) that you give will help you develop verbal communication skills. This assignment will be completed in pairs.

You will be expected to attend and participate in classes (**weight 10%**). I will be randomly selecting individuals for certain activities, and this will be used in part to assess class participation. A certain degree of subjectivity is inevitable in assessing participation in class.

Writing Center:

The Writing & Speaking Center, located in the Library Annex, offers free consultations in writing and speaking for students at all levels and in all disciplines. No matter what you're writing and no matter where you are in the process (generating ideas, drafting, revising or proofreading), the peer tutors in the Center can assist you. These tutors are friendly students and also excellent writers with special training as writing consultants. They would not grade or correct your papers; instead, they'd coach you and help you become a better writer. Similarly, the tutors are also trained to help you plan and practice presentations and other speaking assignments. I encourage you to use the Writing and Speaking Center as much as possible. You can make a one-time or repeating appointment with the Center by visiting their website, www.smcm.edu/writingcenter, and clicking 'Schedule an Appointment'. At the same website, you can find helpful resources on many writing- and speaking-related topics.

Policies:

Communications

This course uses the course management software Blackboard. This system will be used to provide: announcements concerning the class; homework/project assignments; and external links to useful World Wide Web resources. You will submit *all* materials for evaluation through Blackboard. Your grades will be displayed on Blackboard. ***You*** are responsible for making sure that this grade sheet accurately reflects the material you have submitted.

Plagiarism

Students must be familiar with the "Student Code of Rights and Responsibilities"", as stated on pages 81-95 in the "To The Point Student Handbook", especially Article III Section 1. Not being familiar with your rights and responsibilities is no excuse. Any direct quotes and someone else's ideas or information ***must*** be referenced.

You should not exchange code with anyone other than your pair programming partner.

You are encouraged to discuss *concepts* with other students and to form "study groups".

Further instructions for the take-home examinations will be included with the examination rubric.

Incompletes

"An I (Incomplete) may be given by the instructor only at the request of the student when extraordinary circumstances, such as extended illness or other serious emergency beyond the control of the student, prevent the student from completing a course within the academic term. To qualify for an Incomplete, the extraordinary circumstances must have occurred near the end of the term and the student must have been attending the course regularly throughout the term up until that point."

– Academic Policies, St. Mary's College of Maryland, Catalog 2002-2003, p. 181

Late Submission

Except for unusual, documented circumstances assignments will not be accepted late.

Grading

To earn a C grade, your work must show a strong understanding of the information presented in the course. To earn a B grade your work must show a strong understanding of the information presented in the course ***and*** an ability to apply this information in problem solving. To earn an A grade your work must show a strong understanding of the information presented ***and*** an exceptional ability to apply this information in problem solving.