

Course #:	CSCI-C 463																	
Course Title:	Introduction to Artificial Intelligence																	
Course Type:	Upper level elective																	
Prerequisites:	C251 Foundations of Digital Computing. C311 Structure of Programming Languages is also recommended.																	
Credits:	3																	
Text Book:	<i>Artificial Intelligence – A Modern Approach</i> . Second edition, Prentice Hall. S. Russell, P. Norvig (2003):																	
References:	Class notes																	
Current Catalog Description:	Techniques and principles of artificial intelligence and implementations of some of these techniques. Various formalisms for representing knowledge, and relationships of this to such tasks as inference, game playing, and planning. Machine learning.																	
Course Goals	<p>The student who completes this course:</p> <ol style="list-style-type: none"> 1. Will be introduced to major concepts, directions, and algorithms related to the field of Artificial Intelligence. 2. Will be able to implement some of these algorithms in programming assignments. 3. Will be given an opportunity to understand the current state of the field. 																	
Major Topics Covered in the Course	<ol style="list-style-type: none"> 1. Introduction, definition, philosophy 2. Intelligent agents 3. Heuristic Search / Problem solving 4. Logic, knowledge representation, reasoning 5. Fuzzy logic, probabilistic reasoning 6. Planning, game playing, decision-making 7. Expert systems 8. Machine learning 9. Genetic algorithms, neural networks, SOM 10. Elements of natural language processing. 																	
Laboratory projects (specify number of weeks on each)																		
Estimate Curriculum Category Content (Semester hours)	<table border="1"> <thead> <tr> <th>Area</th> <th>Core</th> <th>Advanced</th> </tr> </thead> <tbody> <tr> <td>Algorithms</td> <td></td> <td>25</td> </tr> <tr> <td>Software Design</td> <td></td> <td>5</td> </tr> <tr> <td>Comp. Arch.</td> <td></td> <td></td> </tr> <tr> <td>Data Structures</td> <td></td> <td>20</td> </tr> </tbody> </table>			Area	Core	Advanced	Algorithms		25	Software Design		5	Comp. Arch.			Data Structures		20
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	<table border="1"> <tr> <td>Prog. Languages</td> <td></td> <td>3</td> </tr> </table> <p>Additional hours may be dedicated to curriculum categories not listed above. For example explanation of concepts and theories. Discussion of social and ethical issues, discussion of interpersonal relationships and working within groups.</p>	Prog. Languages		3
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Oral and Written Communications	Every student is required to submit at least __1__ written reports (not including exams, tests, quizzes, or commented programs) of typically __2__ pages and to make __1__ oral presentations of typically __15__ minute's duration.			
Social and Ethical Issues	The students participated in a discussion on the topic of the definition of life and of artificial life, and on the goals of artificial intelligence.			
Theoretical Content	<ul style="list-style-type: none"> • Fundamental concepts in AI, history, philosophy, 3h • Intelligent agents 1h • Logic, knowledge representation, reasoning 3h • Fuzzy logic, probabilistic reasoning 2h • Genetic algorithms, neural networks, Self Organizing Maps 3h • Elements of natural language processing. 1h 			
Problem Analysis	Each of the programming assignments (about 10) consisted of implementing a specific problem related to artificial intelligence algorithms. The general outline of the program and the implementation issues were discussed in class for each of the problems.			
Solution Design	Each of the programming assignments (about 10) consisted of implementing a specific problem related to artificial intelligence algorithms. The general outline of the program and the implementation issues were discussed in class for each of the problems.			
Prepared By	Scheessle, Vrajitoru			