Instructor:

Name: Dr. Sattiraju Prabhakar  
Email: prabhakar@cs.wichita.edu  
Office: Jabara Hall, Room 241  
Telephone: (316)978-3928  
Office Hours: MW: 4:30PM – 5:30PM, Other times by prior appointment

Graduate Teaching Assistant:

Name: Farooq Sheikh  
Email: fasheikh@cs.wichita.edu  
Office: JB 217  
Telephone: 978-5272  
Office Hours: TBA

Course Documents and Submissions:

Teaching Material:  [http://www.cs.wichita.edu/~prabhakar/Teaching/MAS_F05](http://www.cs.wichita.edu/~prabhakar/Teaching/MAS_F05)  
Availability: Usually available a few hours before the class  
Course Related Info:  [http://www.cs.wichita.edu/~prabhakar/Teaching/MAS_F05](http://www.cs.wichita.edu/~prabhakar/Teaching/MAS_F05)  
Assignments:  [http://blackboard.wichita.edu](http://blackboard.wichita.edu)  
Messages:  [http://blackboard.wichita.edu](http://blackboard.wichita.edu)

Course Instruction:

Lecture Timings: MW 12:30PM – 1:45PM  
Lecture Room: JB 128  
Tutorial Timings: MW 1:55PM – 2:20PM

Labs:

Days: On Mondays Only (Pre announced in the class)  
Lab Timings: MW 12:30PM – 1:45PM, and  
            MW 1:55PM – 2:20PM  
Lecture Room: Jabara Hall, Room 207 (Windows Lab)
Course Material Sources:

Main Text:

Introduction to MultiAgent Systems
Michael Wooldridge
John Wiley and Sons, June 2002

Java Programming Text:

Big Java, 2nd Edition
Cay Horstmann
John Wiley and Sons, February 2005

MAS Programming Text:

Joseph P Bigus and Jennifer Bigus
John Wiley and Sons, March 2001

Supporting Text:

Multi-Agent Systems: An Introduction to Distributed Artificial Intelligence
Jacques Ferber
Addison_Wesley Professional, 1999

Other Resources:

Programming Language: Java ( j2sdk1.4.2 from http://java.sun.com)
IDE: Eclipse 3.1 (http://www.eclipse.org)
Agents Web sites: http://www.csc.liv.ac.uk/~mjw/links/
http://www.multiagent.com/

Course Objectives:

1. To understand principles underlying agents
2. To be able to understand the components that make up the agents and organizations of agents
3. To understand various algorithms for collaboration and communication between agents
4. To be able to implement multi-agent systems in a programming environment
5. To understand some applications of multi-agent systems
Prerequisites:

1. Undergraduate level mathematical background is required. This includes Discrete Mathematical Structures, Logic, Probability and Statistics, and Calculus.
2. Knowledge of analysis of algorithms, and exposure to algorithms presented in Data Structures and Algorithms course are required.
3. Working knowledge of Object Oriented programming is required. Knowledge in Java is helpful.
4. Programming skill in a procedural programming language is required.

Course Contents:

1. Introduction to multi-agent systems
2. Interaction and cooperation
3. Multi-agent organizations
4. Making multi-agent systems perform tasks in real world
5. Communication between agents
6. Collaboration and coordination
7. Implementation of multi-agent systems

Evaluation:

Grading: Relative
1. Exams (2): 50%
2. Programming Assignments (2): 20%
3. Problem Solving Assns (2): 20%
3. Quizzes (max 5): 10%

Number Exam Date Weight Topics(Tentative)
1. Mid Term Oct 12, 2005 20% Comprehensive
2. Final Dec 7, 2005 30% Comprehensive

Alternate Exam Policy: Except on medical grounds with proper medical certificate, no alternate exams will be conducted.

Academic Honesty: This course adapts University policies on academic honesty.

Quizzes: These are surprise quizzes and will not be announced in advance.

Lab Quizzes: There will be surprise lab quizzes
## Tentative Schedule of Topics

<table>
<thead>
<tr>
<th>Lec#</th>
<th>Date</th>
<th>Topic</th>
<th>Activity</th>
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<tbody>
<tr>
<td>1</td>
<td>Aug 22, 2005</td>
<td>Introduction to Course and Multi-agent Systems</td>
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<td>2</td>
<td>Aug 24, 2005</td>
<td>Applications of Multi-agent Systems (Quick Survey)</td>
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<td>3</td>
<td>Aug 29, 2005</td>
<td>Intelligent Agents (Chapter 2)</td>
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<td>4</td>
<td>Aug 31, 2005</td>
<td>Intelligent Agents (Chapter 2)</td>
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<td>5</td>
<td>Sep 7, 2005</td>
<td>Deductive Reasoning Agents (Chapter 3)</td>
<td>Assignment1 &gt;&gt;</td>
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<td>6</td>
<td>Sep 12, 2005</td>
<td>Lab: Java Survey</td>
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<td>Deductive Reasoning Agents (Chapter 3)</td>
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<td>Practical Reasoning Agents (Chapter 4)</td>
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<td>Lab: Intelligent Agent Framework</td>
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<td>Sep 28, 2005</td>
<td>Reactive and Hybrid Agents (Chapter 5)</td>
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<td>14</td>
<td>Oct 10, 2005</td>
<td>Multiagent Interactions (Chapter 6)</td>
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<td>Exam</td>
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<td>Oct 16 - 18, 2005</td>
<td>Spring Break</td>
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<td>15</td>
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<td>Multiagent Interactions (Chapter 6)</td>
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<td>16</td>
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<td>17</td>
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<td>Reaching Agreements (Chapter 7)</td>
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1 The schedule of classes can change. The instructor makes the decision based on the class requirements.