COURSE INFORMATION

Game Theory in Networks

<table>
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<tr>
<th>Course Title</th>
<th>CS538</th>
<th>Fall 2015</th>
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<tr>
<td>Meeting Time(s)</td>
<td>TR 9:35-10:50</td>
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| Meeting Location(s)   | Online: D2L |

INSTRUCTOR INFORMATION

Henry Hexmoor

<table>
<thead>
<tr>
<th>Instructor Name</th>
<th><a href="mailto:hexmoor@cs.siu.edu">hexmoor@cs.siu.edu</a></th>
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| Office Hours          | W& F 09:00-12:00 |
| Office Location       | Faner 2130 |

| Office Telephone      | (618) 453-6047 |

COURSE GOALS AND TOPICS

Brief Summary of Course Goals and Topics

Computer and information networks interconnect communities and institutions with various levels leading to many desirable empowerments for populations as well as many perilous epidemics. Few phenomena such as the small worlds effects and the law of the few exemplify paradoxes and foundations of networks in the world. We will examine foundational computational models of human and machine proxy networks. Structures of network formation will be discussed. Quantities and qualities of social and economic networks will be our next focus. Reasoning, migration, diffusion, and games over networks will be our second emphasis area. We will then turn to the phenomena over the Internet and search. Dynamic processes such as percolation will be among our last set of topics.

TEXTBOOKS AND MATERIALS

Required Textbook(s)


Required Materials and Equipment

Recommended Textbook(s)

Recommended Materials and Equipment
ASSIGNMENTS AND EVALUATIONS

Type and Number of Planned Assignments

Six assignments, two programming projects, four quizzes

Methods of Evaluation

Presentations and reports

COURSE SCHEDULE OVERVIEW

General Outline of Course Topics

1. Network Fundamentals
2. Social Network Analysis
3. Game Theory on Networks
4. Balance Theory
5. Diffusion and Contagion
6. Power Law Exchange Networks
7. Economic Networks
8. Network Capital
9. Network Organizations