**Course Syllabus**

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| **CNU International Summer Session** |

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| **Course Title** | | | Game Theory | | | | | | | | | | | | | | | | | | |
| **Course Type** | | | In-class | | | | | | | | **Credits**  **(hours)** | | | 3 | | | | | | | |
| **Department** | | | Economics | | | | | | | | **Professor** | | | Xinghe Wang | | | | | | | |
| **Classification**  **(year in school)** | | | Undergraduate | | | | | | | | **Course Code** | | | ECN2003 | | | | | | | |
| **Class room** | | | TBA | | | | | | | | **E-mail** | | | wangx@missouri.edu | | | | | | | |
| **Prerequisite(s)** | | | Calculus I, Intermediate Microeconomics | | | | | | | | | | | | | | | | | | |
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| **Course objectives** | | | This course introduces the basics of game theory, emphasizing the concepts (Nash equilibrium and subgame perfect Nash equilibrium) and their applications. | | | | | | | | | | | | | | | | | | |
| **Course Summary** | | | Game theory studies the competitive and cooperative behavior that results when several parties with conflicting interests must work together. This course introduces a set of tools used widely in economics and other disciplines to study situations in which decision-makers (consumers, firms, politicians, governments, etc.) interact. A variety of applications will be presented, including international trade, voting, auctions, bargaining, etc. The applications cover both economics and other disciplines. | | | | | | | | | | | | | | | | | | |
| **Teaching Methods** | | | **Teaching Methods** | | | | | | | | | | | | | | | | | | |
| Lecture | Presentation/Discussion | | | | Problem Based Learning | | | | Project Based Learning | Flipped Learning | | | Experiment/ Practices | | | | Others  (Describe) | |
| x | x | | | | x | | | |  |  | | |  | | | |  | |
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| **Grading** | | | Mid-Term | Final | | Individual Tasks | | | Team Projects | | | Class participation | | | Attendance | | Others  (Describe) | | | | **Total** |
| **35** | **35** | | **15** | | |  | | | **5** | | | **10** | |  | | | | **100** |
| ※ Pursuant Section 28 of the Guidelines on Class Management, grading methods can be adjusted for the physically impaired.  ※ Under Section 29 of the University Regulations on Academic Affairs, a student automatically fails a course in case of failure to attend more than 3/4 classes. (More than four(4) times absence) | | | | | | | | | | | | | | | | | | |
| **Accommodations for Handicapped** | | | - Visually impaired: provision of course related materials in audio, note taking helper, permission to record the lecture  - Audibly impaired: provision of course related materials in visual, note taking helper, permission to have e-learning lectures in sign language or shorthand  - Physically or mentally challenged: provision of course related materials, note taking helper, permission to record the lecture   * Any other requests that are considered necessary: provision of assisted   ingress and egress to the classrooms and other supports | | | | | | | | | | | | | | | | | | |
| **Textbooks & References** | | | | | | | | | | | | | | | | | | | | | |
| Category | Title | | | | Author | | | | | | | Publisher | | | | | | | Year of publication | | |
| Main textbook | **An Introduction to Game Theory** | | | | Martin Osborne | | | | | | | Oxford University Press | | | | | | | 2004 | | |
| Others | Game Theory | | | | Giacomo Bonanno | | | | | | | University of California-Davis (Open Access) | | | | | | | 2024 | | |
| Reference |  | | | | | | | | | | | | | | | | | | | | |
| **Daily Course Schedule** | | | | | | | | | | | | | | | |
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| **Day**  **(3hurs)** | **Lecture Topic** | **Hours per day** | **Method of Instruction** | **Class Materials & Assignments** |
| July 1 | Introduction and Nash Equilibrium | 3 | Lecture/Discussion | Chapters 1 & 2  Assignment #1 |
| July 3 | Applications of Nash Equilibrium | 3 | Lecture/Discussion | Chapter 3 |
| July 4 | Mixed Strategy Nash Equilibrium | 3 | Lecture/Discussion | Chapter 4  Assignment #2 |
| July 7 | Extensive Games with Perfect Information | 3 | Lecture/Discussion | Chapter 5 |
| July 8 | Applications of Extensive Games | 3 | Lecture/Discussion | Chapter 6  Assignment #3 |
| July 10 | Extensions of Extensive Games | 3 | Lecture/Discussion | Chapter 7 |
| July 11 | **Review & Midterm Exam** | 3 | Review |  |
| July 14 | Coalitional Games | 3 | Lecture/Discussion | Chapter 8 |
| July 15 | Bayesian Games | 3 | Lecture/Discussion | Chapter 9  Assignment #4 |
| July 17 | Extensive Games with Imperfect Information | 3 | Lecture/Discussion | Chapter 10 |
| July 18 | Competitive Games | 3 | Lecture/Discussion | Chapter 11  Assignment #5 |
| July 21 | Repeated Games I | 3 | Lecture/Discussion | Chapter 14 |
| July 22 | Repeated Games II | 3 | Lecture/Discussion | Chapter 15  Assignment #6 |
| July 24 | Bargaining and Other Applications | 3 | Lecture/Discussion | Chapter 16 |
| July 25 | **Review & Final Exam** | 3 | Review |  |

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| **References** |
| Please describe the daily course contents, teaching methods, assignments, and student evaluation methods.  Lectures will follow the schedule outlined above, with the corresponding chapters from the main textbook (the first six chapters are freely available from the author’s website: <https://www.economics.utoronto.ca/osborne/igt/>, with notes about all 16 printings since 2004). Students are strongly encouraged to also read the relevant chapters from the supplemental book (which is freely available from the author’s website: <https://faculty.econ.ucdavis.edu/faculty/bonanno/PDF/GT_book.pdf>). Course materials will be delivered mainly by lectures, with discussions by students strongly encouraged. There will be six written assignments that will be graded. In addition, there will be two exams. Students will also be evaluated based on attendance and class participation. |