

Course Syllabus

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M511-10518

MICROECONOMIC THEORY 2

SPRING 2022

Description

This course introduces the basic concepts of Social and Economic Networks and Matching Markets.

Prerequisites

The student should be acquainted with basic discrete math.

Readings

- Lectures notes will be posted on Canvas. They will contain all the material that you are responsible for.
- The optional textbook is:

D. Easley and Jon Kleinberg (2010), Networks, Crowds, and Markets: Reasoning About a Highly Connected World, Cambridge University Press (complete preprint online at

<http://www.cs.cornell.edu/home/kleinber/networks-book>

(<http://www.cs.cornell.edu/home/kleinber/networks-book>)._)

I leave it up to you whether you want to buy the book.

- In addition, during the semester, I will assign readings describing applications of game theory. **These readings will be part of the tests.**
- The following books are advanced but contain material useful for the course. Both books are highly recommended

1. R. Pass (2019), A Course in Networks and Markets: Game-theoretic Models

and Reasoning, The MIT Press.

2. F. Menczer, S. Fortunato, and C. A. Davis (2020), A First Course in Network Science, Cambridge University Press.

- In addition, we will encourage the use of R or Python to understand network analysis and market design,

Format and expectations

The course is divided into **Modules** (<https://iu.instructure.com/courses/1911989/modules/>). Each week will include readings, examples, and applications of the concepts discussed in the lectures.

Instructor and office hours

- **Emerson Melo** (<https://emersonmelo.weebly.com>) is the instructor. His email is emelo@iu.edu (<mailto:emelo@iu.edu>).
- The UGI for the course is TBA.
- Office hours will be held on Thursday at noon. However, **lectures should be used to ask any questions about the material being covered.**

Course Description

Topics will be added/subtracted as time and students' tastes allow. A tentative outline for the course is

0. Review of market equilibrium, efficiency, optimality, convex optimization and linear programming.

1. Graph Theory, Social Networks, and Markets.

Readings: Chapters 1-3 and Chapter 5.

2. Strategic Behavior in networks.

Readings: Chapters 6, 8, and 9.

3. Markets Design and Matching Markets

Homework: Chapters 10-12.

4. Networks, cryptocurrencies, and Blockchain.

Grading

Your grade will be based on the following assignments

Component	Weight	Notes	Date
Assignment 1	20%	Based on Lectures and assigned readings.	February 8th.
Assignment 2	20%	Based on Lectures and assigned readings.	March 8th.

Assignment 3	20%	Based on Lectures and assigned readings.	April 12th
Final	40%	Based on Lectures and assigned readings.	April 26th

Class Policy

- Late exams cannot be accepted or graded.
 - Students are responsible for making backups of all of their work! This includes any assignment and other materials you produce.
 - Students are responsible for the safe and ethical use of class accounts on shared servers, according to university policy and copyright law, and for carrying out class assignments.
 - Grades will be given out via Canvas, not email.
 - The instructor may take into account class trends in the assignment of final grades, but only to increase grades.
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Academic Integrity

The principles of academic honesty and professional ethics will be **enforced** in this course, following the **[IU Code of Student Rights, Responsibilities, & Conduct \(https://studentcode.iu.edu/index.html\)](https://studentcode.iu.edu/index.html)**

This includes the usual standards on **acknowledgment** of help, contributions and joint work, . **Any assignment you turn in for grading and credit must be your individual work.** If we have group projects with different rules, they will be clearly announced. Even if you work with a study group (which is encouraged), **the work you turn in must be exclusively your own. If you turn in work done together with, or with the assistance of, anyone else other than the instructors, this is an instance of cheating.**

Several commercial services have approached students regarding selling class notes/study guides to their classmates. Please be advised tmember'sing a faculty member's notes/study guides individually or on behalf of one of these services using IU email or Canvas violates both IU information technology and IU intellectual property policy. Selling notes/study guides to fellow students in this course is not permitted. Violations of this policy will be considered violations of the **[IU Code of Student Rights, Responsibilities, & Conduct \(https://studentcode.iu.edu/index.html\)](https://studentcode.iu.edu/index.html)** and will be reported to the Dean of Students as a violation of course rules (academic misconduct).

Cases of academic misconduct (including cheating, fabrication, **[plagiarism \(https://wts.indiana.edu/writing-guides/plagiarism.html\)](https://wts.indiana.edu/writing-guides/plagiarism.html)**, interference, or facilitating academic dishonesty) **will be reported** to the Dean of Students. **The typical consequence will be an automatic F grade in the course.**

Your submission of work to be graded in this class implies acknowledgement of this policy. Please see the instructor during office hours if you need clarification or have any questions.

Final Remarks

Students in this class are invited to use **Boost** (<https://boost.iu.edu>), a free smartphone app developed at IU that provides notifications and reminders about schoolwork in Canvas. It is designed to help students keep track of assignment deadlines, important announcements, and course events in one easy-to-use app. More information [here](https://kb.iu.edu/d/atud). (<https://kb.iu.edu/d/atud>)

As your instructor, one of my responsibilities is to help create a safe learning environment for all students:

- One thing to remember when taking any course is that the others with whom you interact throughout the semester - including your instructors - are human beings. The first rule of **netiquette** (<http://www.albion.com/netiquette/corerules.html>) is "remember the human" when communicating with instructors or peers. The second rule is to "adhere to the same standards of behavior online that you follow in real life." It's not likely that you would yell at, mock, or belittle another student in a face-to-face class, so don't do it here. The feeling of anonymity that some people have when they are online can lead to those sorts of behaviors, but they are **not acceptable** here or in any other online class. Please take a few minutes and review all the **Core Rules of Netiquette** (<https://www.ius.edu/online-courses/online-etiquette.php>) and **these considerations for when you are attending class remotely** (<https://kb.iu.edu/d/bfgg>).
- We would like to hear from anyone who has a **disability** or other issues that may require some **accommodations** (<https://iu.instructure.com/courses/1739257/pages/disability-accommodations>) to be made. The offices of **Disability Services for Students** (<https://studentaffairs.indiana.edu/disability-services-students/>) and **CAPS** (<http://healthcenter.indiana.edu/counseling/>) are available for assistance to students. Please see the instructor during office hours.
- Title IX and IU's Sexual Misconduct Policy prohibit **sexual misconduct** in any form, including sexual harassment, sexual assault, stalking, dating and domestic violence. If you have experienced sexual misconduct or know someone who has, the University can help. If you are seeking help and would like to speak to someone confidentially, you can make an appointment with: (i) The Sexual Assault Crisis Services (SACS) at (812) 855-8900 (counseling services); (ii) Confidential Victim Advocates (CVA) at (812) 856-2469 (advocacy and advice services); (iii) IU Health Center at (812) 855-4011 (health and medical services). It is also important that you know that Title IX and University policy require me to share any information brought to my attention about potential sexual misconduct with the campus Deputy Title IX Coordinator or IU's Title IX Coordinator. In that event, those individuals will work to ensure that appropriate measures are taken and resources are made available. Protecting student privacy is of utmost concern, and information will only be shared with those that need to know to ensure the University can respond and assist. I encourage you to visit stopsexualviolence.iu.edu (<https://stopsexualviolence.iu.edu/>) to learn more.
- **Bias-based incidents** (events or comments that target an individual or group based on race, ethnicity, religious affiliation, gender, gender identity, sexual orientation, or disability) are not appropriate in our classroom or on campus. They can be reported by email





(biasincident@indiana.edu or incident@indiana.edu), phone (812-855-8188), or the **IU mobile App** (<https://m.iu.edu>). Reports can be made anonymously if desired.

COVID-19

- **COVID-19: We are all in this together, and need to work together to keep each other healthy.** The following notes do not apply to this online course, but apply to any in-person classes you may be taking.
- **Masks and Physical Distancing Requirements.** All students signed the Community Responsibility Acknowledgement (CRA). Your agreement to the public health measures in the CRA is a condition of physical presence on the campus this fall. Included in that commitment were requirements for wearing masks in all IU buildings and maintaining social distancing in all IU buildings. Both are classroom requirements. Both requirements are necessary for us to protect each other. Therefore, if a student is present in a class without a mask, the student will be asked to put on a mask and the instructor will report the student to the Division of Student Affairs: Office of Student Conduct.
- If a student refuses to put a mask on after being instructed to do so, the instructor may end the class immediately, and contact the Office of Student Conduct. Violation of the mask rule is a threat to public safety within the meaning of the **Summary Suspension Policy** (<https://studentcode.iu.edu/procedures/bloomington/discipline/personal-misconduct/action.html>).
- If a student comes to class without a mask twice, the student's final grade will be reduced by one letter (e.g., from an A to a B, for instance).
- If the student comes to class without a mask three times, the student will be withdrawn from the class without a refund of tuition and reported to the Office of Student Conduct.
- If Student Conduct receives three cumulative reports from any combination of instructors or staff members that a student is not complying with the requirements of masking and physical distancing, the student **will be summarily suspended** (<https://studentcode.iu.edu/procedures/bloomington/discipline/personal-misconduct/action.html>) from the university for the semester.
- **Student Rights.** Any student who believes another person in a class is threatening the safety of the class by not wearing a mask or observing physical distancing requirements may leave the class without consequence.
- **Attendance.** The CRA requires that you take your temperature every morning and that you refrain from attending class if you have a temperature of 100.4 or other symptoms of illness. To ensure that you can do this, attendance will not factor in the final grade on in-person courses. Attendance may still be taken to comply with accreditation requirements.
- **Summary Suspension Policy.** "A student may be summarily suspended from the university and summarily excluded from university property and programs by the Provost or designee of a university campus. The Provost or designee may act summarily without following the hearing procedures established by this section if the officer student-sided that the student's continued presence on the

campus constitutes a serious threat of harm to the student or to any other person on the campus or to the property of the university or property of other persons on "he university campus."

Course Summary:

Date	Details	Due
Wed Feb 8, 2023	 Test 1 (https://iu.instructure.com/courses/2118404/assignments/14656771)	due by 11:59pm
Wed Mar 8, 2023	 Test 2 (https://iu.instructure.com/courses/2118404/assignments/14700165)	due by 11:59pm
Wed Apr 12, 2023	 Test 3 (https://iu.instructure.com/courses/2118404/assignments/14756001)	due by 11:59pm
Sun Apr 30, 2023	 Final (https://iu.instructure.com/courses/2118404/assignments/14790525)	due by 11:59pm