



# ECON 510. ADVANCED MICROECONOMIC THEORY

[Course number: 13722] [Section: 002] [Term: Fall 2023]  
The University of North Carolina at Chapel Hill

## COURSE INFORMATION

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**Credit Hours:** 3 Credits

**Pre or Co-Requisites:** ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.

**Meeting Pattern:** TTH: 09:30 AM-10:45 AM

**Classroom or Location:** Gardner - Rm 0007

## INSTRUCTOR INFORMATION

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**Name:** Prof. Jaden Chen

**Email Address:** yangch@unc.edu

**Office Location:** 301 Gardner Hall

**Office Hours:** Thursday 3:30 PM-4:30PM or by appointment

## COURSE CONTENT

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### Course Description

This course discusses topics in microeconomic theory not normally covered in ECON 410. This course introduces social networks and their applications in economics. The goal is to sustain and mentor research experience of students who are majoring in economics. Tools of graph theory and game theory will be taught and then used to analyze networks. In this course, we will cover the following topics, e.g., group behavior, contagion, information aggregation, voting and social choice theory.

### Textbook

*Networks, Crowds and Markets* by David Easley and Jon Kleinberg, Cambridge University Press, 2010

There is an online version of the textbook at <https://www.cs.cornell.edu/home/kleinber/networks-book/>.

### Course Goals & Student Learning Outcomes (SLOs)

By the conclusion of this course, students will have acquired a fundamental understanding of advanced microeconomic concepts and their applications within the realm of social networks. They will master the tools of graph theory and game theory to analyze economic behavior in real-life scenarios involving social interactions. The course also entails the completion of a term paper, fostering students' ability to independently conduct research and enhancing their overall research aptitude.

## COURSE ASSIGNMENTS & ASSESSMENTS

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Students are expected to finish the following assignments.



- **Problem set.** There will be 5 homework assignments, which will be posted on Canvas. If you get stuck, you can discuss it with me during my office hours. Late submission will *not* be accepted. Please be aware that it is your responsibility to point out any grading or clerical errors within one week of receiving the assignment back.
- **Midterms.** There will be 2 in-class midterms. If a student misses a midterm, the weight of that midterm in the course grade will be added to the weight on the next midterm or the final project. An exception will be made for the University approved absences (<https://uaao.unc.edu/university-approved-absences-request/>); students with this type of absence may request a make-up examination at a time convenient to both student and instructor.
- **Term papers.** Every student needs to submit a term paper of 10-15 pages length. You may work in a group up to 3 students. I will suggest a range of topics, which will be discussed after the first midterm. You can also work on your own topic after getting my approval. Once topics are assigned, you are strongly encouraged to discuss them with me as early as possible before my office hours get too crowded. Every group (or individual) will need to give a 20-min presentation of your paper.

The final numeric grades are determined by the following formula:

- Problem Sets: 20%
- First Midterm: 20%
- Second Midterm: 20%
- Term Paper: 30%
- Participation: 10%

The final letter grades are determined according to the following table at a minimum.

Numeric Grade (%)	Letter Grade
93.5 and above	A
89.5 – 93.4	A-
86.5 – 89.4	B+
82.5 – 86.4	B
79.5 – 82.4	B-
76.5 – 79.4	C+
72.5 – 76.4	C
69.5 – 72.4	C-
66.5 – 69.4	D+
59.5 – 66.4	D
59.4 and below	F



## COURSE SCHEDULE

Class (Date/Week)	Topic(s)	Readings
Aug 22	Introduction to networks and graphs	Chp 1, 2
Aug 24, 29, 31	Game Theory	Chp 6, 7
Sep 7, 12, 14	Contagion on social networks	Chp 19
Sep 19, 21, 26	Social learning and information cascades	Chp 16
Sep 28	<b>First Midterm</b>	
Oct 3, 5	Voting and Information aggregation	Chp 23.7, 23.8
Oct 10, 12, 17, 24	Social choice theory	the rest of Chp 23
Oct 26, 31, Nov 2	Matching Market	Chp 10
Nov 7, 9, 14	Information asymmetry	Chp 22
Nov 16	<b>Second Midterm</b>	
Nov 21	Auction or other topics (if we have time)	
Nov 28, 30, Dec 5	<b>Final Presentation</b>	

## POLICY STATEMENTS

### Academic Policies

#### *University Class Attendance Policy*

University Policy: As stated in the University's [Class Attendance Policy](#), no right or privilege exists that permits a student to be absent from any class meetings, except for these University Approved Absences:

1. Authorized University activities: [University Approved Absence Office \(UAAO\) website](#) provides information and [FAQs for students](#) and [FAQs for faculty](#) related to University Approved Absences
2. Disability/religious observance/pregnancy, as required by law and approved by [Accessibility Resources and Service](#) and/or the [Equal Opportunity and Compliance Office](#) (EOC)
3. Significant health condition and/or personal/family emergency as approved by the [Office of the Dean of Students](#), [Gender Violence Service Coordinators](#), and/or the [Equal Opportunity and Compliance Office](#) (EOC).

Instructors may work with students to meet attendance needs that do not fall within University approved absences. For situations when an absence is not University approved (e.g., a job interview, illness/ flu or club activity), instructors are encouraged to work directly with students to determine the best approach to missed classes and make-up assessment and assignments.

#### *Honor Code Statement*

All students are expected to follow the guidelines of the UNC Honor Code. In particular, students are expected to refrain from "lying, cheating, or stealing" in the academic context. If you are unsure about which actions violate the Honor Code, please see me, or consult [studentconduct.unc.edu](http://studentconduct.unc.edu).

#### *Syllabus Changes*

The instructor reserves the right to make changes to the syllabus including project due dates and test dates. These changes will be announced as early as possible.



### *Acceptable Use Policy*

By attending the University of North Carolina at Chapel Hill, you agree to abide by the University of North Carolina at Chapel Hill policies related to the acceptable use of IT systems and services. The Acceptable Use Policy (AUP) sets the expectation that you will use the University's technology resources responsibly, consistent with the University's mission. In the context of a class, it's quite likely you will participate in online activities that could include personal information about you or your peers, and the AUP addresses your obligations to protect the privacy of class participants. In addition, the AUP addresses matters of others' intellectual property, including copyright. These are only a couple of typical examples, so you should consult the full [Information Technology Acceptable Use Policy](#), which covers topics related to using digital resources, such as privacy, confidentiality, and intellectual property. Additionally, consult the [Safe Computing at UNC](#) website for information about data security policies, updates, and tips on keeping your identity, information, and devices safe.

### *Data Security & Privacy*

[UNC-Chapel Hill Privacy Statement](#): Sakai's Discussion Forum, Assignments, DropBox, Gradebook, and Tests & Quizzes tools are designed to share FERPA-protected information privately between instructors and individual students.

### *Grade Appeal Process*

If you have any concerns with grading and/or feel you have been awarded an incorrect grade, please discuss it with me as soon as possible. If we cannot resolve the issue, you may talk to our director of undergraduate studies or department chair.

## **Services & Student Support Policies**

### *Accessibility Resources & Services (ARS)*

[Accessibility Resources and Service](#) (ARS – [ars@unc.edu](mailto:ars@unc.edu)) receives requests for accommodations, and through the Student and Applicant Accommodations Policy determines eligibility and identifies reasonable accommodations for students with disabilities and/or chronic medical conditions to mitigate or remove the barriers experienced in accessing University courses, programs and activities. ARS also offers its Testing Center resources to students and instructors to facilitate the implementation of testing accommodations. Faculty and instructors with any concerns or questions about accommodations and/or their implementation, are invited to [reach out to ARS](#) to discuss.

### *Counseling & Psychological Services (CAPS)*

UNC-Chapel Hill is strongly committed to addressing the mental health needs of a diverse student body. The [Heels Care Network](#) website is a place to access the many mental health resources at Carolina. CAPS is the primary mental health provider for students, offering timely access to consultation and connection to clinically appropriate services. Go to their website <https://caps.unc.edu/> or visit their facilities on the third floor of the Campus Health building for an initial evaluation to learn more. Students can also call CAPS 24/7 at 919-966-3658 for immediate assistance.

### *Title IX Resources*

Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Reports can be made online to the EOC at <https://eoc.unc.edu/report-an-incident/> or by contacting the University's Title IX Coordinator (Elizabeth Hall, [titleixcoordinator@unc.edu](mailto:titleixcoordinator@unc.edu)) or the Report and Response Coordinators in the Equal Opportunity and Compliance Office ([reportandresponse@unc.edu](mailto:reportandresponse@unc.edu)). Confidential resources include Counseling and Psychological Services and the Gender Violence Services Coordinators ([gvsc@unc.edu](mailto:gvsc@unc.edu)). Additional resources are available at [safe.unc.edu](https://safe.unc.edu).

### *Policy on Non-Discrimination*

The University is committed to providing an inclusive and welcoming environment for all members of our community and to ensuring that educational and employment decisions are based on individuals' abilities and qualifications. Consistent with this principle and applicable laws, the University's [Policy Statement on Non-Discrimination](#) offers access to its educational programs and activities as well as employment terms and conditions without respect to race, color, gender, national origin, age, religion, genetic information, disability, veteran's status, sexual orientation, gender identity or gender expression. Such a policy ensures that only relevant factors are considered, and that equitable and consistent standards of conduct and



performance are applied. If you are experiencing harassment or discrimination, you can seek assistance and file a report through the Report and Response Coordinators (email [reportandresponse@unc.edu](mailto:reportandresponse@unc.edu) or see additional contact info at [safe.unc.edu](http://safe.unc.edu)) or the Equal Opportunity and Compliance Office at <https://eoc.unc.edu/report-an-incident/>.

### *Diversity Statement*

I value the perspectives of individuals from all backgrounds reflecting the diversity of our students. I broadly define diversity to include race, gender identity, national origin, ethnicity, religion, social class, age, sexual orientation, political background, and physical and learning ability. I strive to make this classroom an inclusive space for all students. Please let me know if there is anything I can do to improve. I appreciate any suggestions.

### *Undergraduate Testing Center*

The College of Arts and Sciences provides a secure, proctored environment in which exams can be taken. The center works with instructors to proctor exams for their undergraduate students who are not registered with ARS and who do not need testing accommodations as provided by ARS. In other words, the Center provides a proctored testing environment for students who are unable to take an exam at the normally scheduled time (with pre-arrangement by your instructor). For more information, visit <http://testingcenter.web.unc.edu/>.

### *Learning Center*

Want to get the most out of this course or others this semester? Visit UNC's Learning Center at <http://learningcenter.unc.edu> to make an appointment or register for an event. Their free, popular programs will help you optimize your academic performance. Try academic coaching, peer tutoring, STEM support, ADHD/LD services, workshops and study camps, or review tips and tools available on the website.

### *Writing Center*

For free feedback on any course writing projects, check out UNC's Writing Center. Writing Center coaches can assist with any writing project, including multimedia projects and application essays, at any stage of the writing process. You don't even need a draft to come visit. To schedule a 45-minute appointment, review quick tips, or request written feedback online, visit <http://writingcenter.unc.edu>.