

# Econ 701: Fall 2023

Course:	Economics 701 (Intro to Game Theory)
Instructor:	Prof. David McAdams (call me David).
Email:	david.mcadams@duke.edu.
Class:	Tues & Thur, 1:25–2:40PM, SOCSCI 119.
TA Session:	Mon 6:30-7:30PM, SOCSCI 113.
Prof Office Hours:	Thur & Fri 3:00-4:00PM, DFE conference room (2nd floor).
TA Office Hours:	Wed 4:30-5:30PM, SOCSCI 124 & Sat 11:00AM-12:00PM by Zoom.
Midterm Exam:	Oct. 12, 6:00–9:00PM in Gross Hall 103.
Final Exam:	Dec. 16, 7:00–10:00PM in SOCSCI 119.

The overall Microeconomics Core sequence consists of a half-semester on microeconomic foundations, two half-semester on game theory, and a half-semester on monotone comparative statics and information, usually taught in that order. This year, because I am only available to teach in the Fall, we are switching up the order and doing game theory first.

The texts for this semester are *Microeconomic Theory* by Mas-Colell, Whinston, and Green (Micro) and *Game Theory* by Fudenberg and Tirole (Games). Other useful books include: *Game Theory for Applied Economists* by Gibbons, *A Course in Game Theory* by Osborne and Rubinstein, *The Economics of Contracts: A Primer* by Salanie, *Auction Theory* by Krishna, and *Games of Strategy* by Dixit, Skeath, and McAdams. Notes and lectures slides will be posted on Sakai.

Your grade for Econ 701 will be determined by aggregating your performance on the homeworks, the midterm exam, and the final exam. Problem sets will count for 10% of the grade, the midterm exam will count for 45%, and the final exam will count for 45%.

There are a total of 12 problem sets, which are already in the Resources folder on Sakai. Problem sets will be submitted on Gradescope and graded as: 2 (serious effort), 1 (not very serious effort) or 0 (not handed in). Problem sets are due on Sundays by 6:00PM according to the following schedule: PS1 = Sep. 3; PS2 = Sep. 10, PS3 = Sep. 17, PS4 = Sep. 24, PS5 = Oct. 1, PS6 = Oct. 8, week off for midterm, PS7 = Oct. 22, PS8 = Oct. 29, PS9 = Nov. 5, PS10 = Nov. 12, PS11 = Nov. 19, week off for Thanksgiving, PS12 = Dec. 03.

You may work with other students on solving the problem sets, but every student must turn in their own solutions. So that everyone has equal access, the answers to all problem sets used in previous years are also posted on Sakai. You are *strongly* encouraged to attempt the problem sets without first consulting the answers. The midterm and final exams will be closed notes (no cheat sheet) and closed book. You may use a calculator on the exam. Your exam answers should be yours and yours alone – do not attempt to copy others' work or permit others to copy yours.

The class will use the Testing Center to provide testing accommodations to students registered with and approved by the Student Disability Access Office (SDAO). The Testing Center operates by appointment only and appointments must be made at least 7 consecutive days in advance, but please schedule your appointments as far in advance as possible. You will not be able to make an appointment until you have submitted a Semester Request with the SDAO and your accommodations or supports have been approved. If you have not already done so, promptly submit a Semester Request to the SDAO in order to make your appointment in time. For instructions on how to make an appointment at the Testing Center, visit their website at <https://testingcenter.duke.edu>.

## Lectures and Reading Schedule

TOPIC	DATES	MICRO	GAMES	NOTES
Static Games of Complete Information	Aug. 29	7, 8.A–8.C	1.1,2.1	lec1
Nash Equilibrium	Aug. 31	8.D, 8.appx	1.2,1.3	lec2
Static Oligopoly	Sep. 5	12.C	—	lec3
Continuous Mixed Strategies and the All-Pay Auction	Sep. 7	—	—	lec4
Dynamic Games of Perfect Information	Sep. 12	9.A,9.B	3.1–3.6	lec5A
Subgame Perfection	Sep. 14	—	4.1,4.2	lec5B
Repeated Games	Sep. 19	12D	4.3,5.1–5.3.1	lec6
Full Information Dynamic Bargaining	Sep. 21	9.appxA	4.4–4.6	lec7
Markov Perfect Equilibrium	Sep. 26	—	13.1,13.2	lec8
Agency with Hidden Actions	Sep. 28	14.B	—	lec9
The Informativeness Principle	Oct. 3	—	—	lec9
Optimal Linear Contracts	Oct. 5	—	—	lec10
Intro to Repeated Games with Imperfect Monitoring	Oct. 10	—	5.5	lec11
MIDTERM EXAM (6-9pm in Gross Hall 103)	Oct. 12	—	—	—
NO CLASS (Fall Break)	Oct. 17	—	—	—
Bayesian Games	Oct. 19	8.E	6.1 - 6.5	lec12
Bayesian Mechanism Design	Oct. 24	14.C, 23.B	7.1.1	lec13
Screening under Ex Post Private Information	Oct. 26	23D–E	—	lec14
Intro to Auction Theory	Oct. 31	—	—	lec15
Equivalent and Optimal Auctions	Nov. 2	23F	7.5.1	lec16
The (simple) VCG Mechanism	Nov. 7	23C	7.4.3	lec17
Adverse Selection	Nov. 9	13.A, 13.D	—	lec18
Dynamic Bayesian Games	Nov. 14	7.C	8.2.1	lec19
Signaling	Nov. 16	13.C	8.2.2	lec19
Screening and Bargaining	Nov. 21	—	10.2.1, 10.2.2	lec20
NO CLASS (Thanksgiving Break)	Nov. 23	—	—	—
Reputation	Nov. 28	—	9.2.1, 9.2.2	lec 21
The War of Attrition with Incomplete Info	Nov. 30	—	—	lec 22
FINAL EXAM (7-10pm in SOCSCI 119)	Dec. 16	—	—	—