

Syllabus: Topics in Microeconomics, 21:220:401

Vlad Manole, Ph.D.

Term: Spring 2022

Location: Hill Hall 114

Meeting: Monday & Thursday 1 pm – 2:20 pm

Instructor: Vlad Manole

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Office Hours: Thursday 2:30 pm or by appointment. To set up an appointment, the best way to contact me is by e-mail.

Course description

This course will provide an introduction to the tools and insights of Game Theory. Game theory is the study of interactive decision-making, or decision problems that involve more than one person, each of whom is affected by the decisions of others. Game theory is used to study problems of coordination, cooperation and conflict. Examples of applications include relations between countries, including decisions to engage in an arms race and negotiations to avoid such a race; relations between firms, including decisions to collude in setting prices or engage in price wars; relations between firms and unions, including negotiations over wage rates and decisions to strike or relations between political candidates, including the setting of policy positions. Game theory has a major impact on the development of several branches of economics like Industrial Organization, International Trade, Labor Economics, Macroeconomics, and, as a reflection of its importance, ten game theorists received the Nobel prize in economics in the last 20 years (in 1994, 2004, 2006 and 2012). On the other hand, the use of Game Theory is not restricted just to economics, with notable contributions for the development of other fields, such as Political Science, International Relations, Sociology and Biology.

The course provides a well-rounded coverage of issues in Game Theory very useful for both students willing to continue their education toward a Ph.D. and toward students on their way to public and private sector employment.

There are no graduate course pre-requisites. However, it will be assumed that all students have had undergraduate coursework in Microeconomics and basic knowledge of calculus.

Grading: There will be seven problem sets during the semester, with the best five grades counting for the homework grade. Solving problems is the only way to really learn Game Theory.

Textbook: Games of Strategy 4th Edition,

by Avinash K. Dixit, Susan Skeath, David H. Reiley

W. W. Norton & Company;

ISBN-10: 9780393124446

ISBN-13: 978-0393124446

Recommended Material: The New York Times, The Economist, or the Financial Times.

Exams

Midterm: TBD

Final: TBD

Exams will contain problems similar to those proposed in the homework assignments. The midterm and final exams must be taken at the dates and times announced in class.

To be fair to all students, there is NO extra credit for any work that is not required from all students. Please do NOT request differential treatment as a way to boost your grades.

There are no makeup exams!

Class Participation:

I expect you to attend all lectures, to prepare in advance, and to participate actively in class discussions. Some of the material I will present in class is not in the textbook, but it will be required at the exams. Attendance and active participation are essential to understand the material, to do the homework and to pass the exams.

Course Outline

This schedule is subject to change during the semester, based on the overall pace of the class.

- 1 Basic Ideas and Examples Dixit, Skeath, & Reiley Chapter 1
2. How to Think About Strategic Games Dixit, Skeath, & Reiley Chapter 2
3. Sequential Move Games Dixit, Skeath, & Reiley Chapter 3
4. Simultaneous Move Games with Pure Strategies Dixit, Skeath, & Reiley Chapter 4 and 5
5. Mixed Strategies Dixit, Skeath, & Reiley Chapters 7 and 8
6. Combining Simultaneous and Sequential Moves Dixit, Skeath, & Reiley Chapter 6
7. Uncertainty and Information Dixit, Skeath, & Reiley Chapter 9
8. Strategic Moves Dixit, Skeath, & Reiley Chapter 10
- 9 The Prisoner's Dilemma and Repeated Games Dixit, Skeath, & Reiley Chapter 11
- 10 Collective Action Games Dixit, Skeath, & Reiley Chapter 12
- 11 Evolutionary Games Dixit, Skeath, & Reiley Chapter 13
- 12 Brinkmanship: The Tragic Tale of George and Saddam Dixit, Skeath, & Reiley Chapter 14
- 13 Auctions Dixit, Skeath, & Reiley Chapter 16
- 14 Bargaining Dixit, Skeath, & Reiley Chapter 17

❑ **Absences:** Per the University's Course Attendance policy (10.2.7), students are responsible for communicating with their instructors regarding absences. The Division of Student Affairs is available to verify extended absences: (973) 353-5063 or DeanofStudents@newark.rutgers.edu.

❑ **Academic Integrity:**

As an academic community dedicated to the creation, dissemination, and application of knowledge, Rutgers University is committed to fostering an intellectual and ethical environment based on the principles of academic integrity. Academic integrity is essential to the success of the University's educational and research missions, and violations of academic integrity constitute serious offenses against the entire academic community. The entire Academic Integrity Policy can be found here: <http://academicintegrity.rutgers.edu/academic-integrity-policy/>

❑ **Accommodation and Support Statement:**

Rutgers University Newark (RU-N) is committed to the creation of an inclusive and safe learning environment for all students. RU-N has identified the following resources to further the mission of access and support:

- **Students with Disabilities:** Rutgers University welcomes students with disabilities into all of the University's educational programs. The Office of Disability Services (ODS) is responsible for the determination of appropriate accommodations for students who encounter barriers due to disability. In order to receive consideration for reasonable accommodations, a student with a disability must contact ODS, register, have an initial appointment, and provide documentation. Once a student has completed the ODS process (registration, initial appointment, and

documentation submitted) and reasonable accommodations are determined to be necessary and appropriate, a Letter of Accommodation (LOA) will be provided to the student. The student must give the LOA to each course instructor, followed by a discussion with the instructor. This should be completed as early in the semester as possible as accommodations are not retroactive. More information can be found at ods.rutgers.edu. Contact ODS: (973) 353-5375 or ods@newark.rutgers.edu.

- **Religious Holiday Policy and Accommodations:** Students are advised to provide timely notification to instructors about necessary absences for religious observances and are responsible for making up the work or exams according to an agreed-upon schedule. The Division of Student Affairs is available to verify absences for religious observance, as needed: (973) 353-5063 or DeanofStudents@newark.rutgers.edu.
- **Counseling Services:** Counseling Center Room 101, Blumenthal Hall, (973) 353-5805 or <http://counseling.newark.rutgers.edu/>.
- **Students with Temporary Conditions/Injuries:** Students experiencing a temporary condition or injury that is adversely affecting their ability to fully participate in their courses should submit a request for assistance at: <https://temporaryconditions.rutgers.edu>.
- **Students Who are Pregnant:** The Office of Title IX and ADA Compliance is available to assist students with any concerns or potential accommodations related to pregnancy: (973) 353-1906 or TitleIX@newark.rutgers.edu.
- **Gender or Sex-Based Discrimination or Harassment:** Students experiencing any form of gender or sex-based discrimination or harassment, including sexual assault, sexual harassment, relationship violence, or stalking, should know that help and support are available. To report an incident, contact the Office of Title IX and ADA Compliance: (973) 353-1906 or TitleIX@newark.rutgers.edu. To submit an incident report: tinyurl.com/RUNReportingForm. To speak with a staff member who is confidential and does **NOT** have a reporting responsibility, contact the Office for Violence Prevention and Victim Assistance: (973) 353-1918 or run.vpva@rutgers.edu.

☐ Learning Resources:

- Rutgers Learning Center (tutoring services)
Room 140, Bradley Hall
(973) 353-5608
<https://sas.n.rutgers.edu/student-support/tutoring-academic-support/learning-center>
- Writing Center (tutoring and writing workshops)
Room 126, Conklin Hall
(973) 353-5847
nwc@rutgers.edu
<https://sas.n.rutgers.edu/student-support/tutoring-academic-support/writing-center>