Instructor: Thang Nguyen.
E-mail: tnguyen@nyu.edu.
Office: WWH 619.
Office Hours: T 10:30 am–11:30 am, W 5:30 pm–6:30 pm or by appointments.

Lecture: - TR 12:30 pm–1:45 pm at 19W4 101.

Course description: By the end of Math for Economics II, students should have a complete understanding of optimization and should be able to apply the Lagrange multipliers approach to constrained optimization problems. They will also learn to solve systems of equations using linear algebra. Time permitting, they will also be exposed to the principal methods of dynamic analysis of economic processes, and introductory concepts and results of integration and differential equations. A student should be able to find solutions of elementary differential equations and analyze their stability.

Prerequisite: Students who wish to enroll in Math for Economics II must meet one of the following prerequisites:

- Placement into Math for Economics II by our departmental placement test.
- A grade of C or higher in Math for Economics I, MATH-UA.211

See the math departments placement web page for more information.


(Webassign lets you access Stewart’s Essential Calculus, which is listed as an optional textbook)

Grading: The final grade will be computed with the following weights:

- Homework 10%
- WebAssign 10%
- Quizzes 10%
- Midterm 1 20%
- Midterm 2 20%
- Final Exam 30%

A note on grades of W and I. You may drop the course in the first two weeks without it appearing on your transcript. After that, and through the ninth week, you may withdraw and receive a grade of W on your transcript. No withdrawals are granted after the ninth week.

A grade of Incomplete (I) is granted only in the rare circumstances that an emergency prevents a student in good standing from finishing the course in its last few weeks. As per the CAS Bulletin:

Students who are ill or have a serious personal problem should see, call, or write to an adviser in the College Advising Center, College of Arts and
Science, New York University, Silver Center, 100 Washington Square East, Room 905, New York, NY 10003-6688; 212-998-8130.

NYU Classes: The main communication tool for this course will be the course Classes site, accessed through newclasses.nyu.edu. Assignments, grades, announcements, resources will be updated on this course site.

Homework: Weekly homework will be collected in class.

Quizzes: In recitation sections, almost weekly.

Midterm Exam: There will be two in-class midterm exams during the semester, Thursday March 14 and Thursday April 18.

Final Exam: The final exam will take place on Friday, May 17th, 10:00-11:50 AM.

Policy on out-of-sequence exams and missed quizzes

We are only able to accommodate a limited number of out-of-sequence exams due to limited availability of rooms and proctors. For this reason, we may approve out-of-sequence exams in the following cases, documents are needed:

- A documented medical excuse.
- A University sponsored event such as an athletic tournament, a play, or a musical performance. Athletic practices and rehearsals do not fall into this category. Please have your coach, conductor, or other faculty advisor contact your instructor.
- A religious holiday.
- Extreme hardship such as a family emergency.

We will not be able to accommodate out-of-sequence exams, quizzes, and finals for purposes of more convenient travel, including already purchased tickets. Please note again the date of the final and plan your summer travel accordingly.

Scheduled out-of-sequence exams and quizzes (those not arising from emergencies) must be taken before the actual exam. Make-ups must occur within one week of the regularly scheduled exam or quiz, otherwise a zero score will be given.

If you require additional accommodations as determined by the Center for Student Disabilities, please let your instructor know as soon as possible.

Academic Honesty: Guidelines regarding cheating and plagiarism are laid out in the http://cas.nyu.edu/page/academicintegrity College of Arts and Sciences guidelines and will be adhered to strictly. Collaboration is permitted, in fact encouraged, for home and class assignments; however, all submitted assignments must be written up independently and represent the student’s own work and understanding.

Lecture plan: There are 27 lectures, which will likely cover following topics.
Topics covered

Below is a list of topics we will cover, in order. The sections correspond to the textbooks listed on the syllabus. Please see the class notes to determine what sections were covered during each lecture.

1. Review of functions of several variables (Stewart 11.1)
2. Review of partial derivatives (Stewart 11.3)
3. Introduction to vectors (Stewart 10.1-10.3)
4. Directional derivatives, gradients, differentials and linearization (Stewart 11.4-11.6)
5. Review of optimization: max and min values (Stewart 11.7)
6. Review of constrained optimization by substitution (Stewart 11.7)
7. Lagrange multipliers (Stewart 11.8)
8. Applications: maximizing utility and production with budget constraints (Sydsaeter 14.1 – 14.6)
9. Introduction to linear algebra: systems of equations, matrices (Sydsaeter 15.1-15.2)
10. Matrix operations, transition matrices (Sydsaeter 15.3-15.5)
11. Gaussian elimination, applications (Sydsaeter 15.6)
12. Determinants and inverse matrices (Sydsaeter 16.1-16.6)
13. Cramer’s Rule (Sydsaeter 16.8)
14. *Applications: Leontief input and output model
   (Sydsaeter 15.9) (MIDTERM 1: In the week of March 11-15 - ask your Instructor for exact date)
15. Intro to definite integral: areas (Stewart 5.1)
16. Left and right Riemann sums (Stewart 5.2)
17. Evaluating definite integrals (stewart 5.3)
18. Fundamental Theorem of Calculus (Stewart 5.4)
19. Integration techniques: substitution, int. by parts, partial fractions (Stewart 5.5, 6.1, 6.3)
20. *Consumer and producer surplus (Sydsaeter 9.4)
21. *Present and Future Values (Sydsaeter 10.5)
   (MIDTERM 2: In the week of April 15-19)
22. Introduction to differential equations (Stewart 7.7)
23. Differential equations of order one, separable equations
   (Stewart 7.7, Sydsaeter 9.8-9.9)
24. *Applications to compound interest and population models (Sydsaeter 9.8-9.9)
25. *Double integrals (Stewart 12.1-12.2)
26. *Normal distributions
*time permitting