Instructor: Professor Lilia Maliar
The Graduate Center, CUNY and Baruch College

1. Contact information
The Graduate Center, CUNY
Office: 5313.01 (the Graduate Center)
Phone: 212 817 8267
Email: lmaliar@gc.cuny.edu
https://lmaliar.ws.gc.cuny.edu/
Office hours: By appointment.

2. Course description, goals and topics
This is an introductory course in mathematics for economists. The goal is to familiarize the students with a set of fundamental mathematical tools that are frequently used in economics. The emphasis will be on application, while attention will be given to the underlying theoretical assumptions. As a main reference, I will use the books of Chiang and Wainwright (2005) and Casella and Berger (2002), as well as my lecture notes and slides.

We will cover the following topics (tentative):

1. Introduction. Mathematical economics.
5. Differentiation and its use in comparative statics.
6. Total differential, total derivative and the implicit function theorem.
7. Optimization with one variable and Taylor expansion.
8. Exponents and logs.
9. Optimization with more than one choice variable.
10. Optimization under equality constraints.
11. Optimization with inequality constraints.
12. Integration.
15. Statistics: Point estimation and hypothesis testing.
3. Texts

**Main:**

**Additional:**

4. Logistic details

The course is composed of lectures and recitations. Recitations are taught by the teaching assistants. The every-day schedule is as follows:

- Lectures: Monday, 10:00am-1:00 pm, and Friday, 10:00 am-1:00 pm.
- Recitations (review of the key concepts and problem solving):
  - Economics: Tuesday, 2:00 pm-4:00 pm; Business: TBA

5. Homework

Three problem sets will be assigned. Not all material will be reflected in homework; you are encouraged to practice questions from the textbooks of Chiang and Wainwright (2005) and Casella and Berger (2002). Homework must be submitted individually. You are encouraged to work hard on homework: some questions on the exam will strongly resemble homework questions.

6. Teaching assistants

Economics: Christopher Naubert, cnaubert@gradcenter.cuny.edu
Business: Muhammed Yonac, Muhammed.Yonac@baruch.cuny.edu
Office hours: TBA

7. Evaluation

Your final grade will reflect your homework assignments (30%) and the final exam (70%). The final exam will include problems similar to those included in the problem sets, as well as brief questions about the theoretical issues discussed in lectures and recitations; the material considered in lab sessions is not included. The final exam will take place two weeks after the end of the course.

8. Schedule for lectures (tentative)

• Lecture 3 (3 hours). Monday, September 4. Optimization with one variable and Taylor expansion. Exponents and logs. Chiang and Wainwright (2005), Ch. 9, 10.
• Lecture 4 (3 hours). Friday, September 7. Optimization with more than one choice variable. Chiang and Wainwright (2005), Ch. 11.
• Lecture 10 (3 hours). Friday, September 28. Statistics: Point estimation and Hypothesis testing. Casella and Berger (2002), Ch. 7, 8.