INSTRUCTOR: Dr. Hui-Kuan Tseng
OFFICE: 227A, Friday Building
OFFICE HOURS: M 11:00 am – 1:00 pm and TR 11:00 am – 12: 30 pm, other hours by appointment only
OFFICE PHONE: 704-687-7598
Email: htseng@uncc.edu
Teaching Assistant: to be announced


Electronic Distribution of Class Material: There is a Moodle page for this course, accessible through 49er Express. Syllabus, lecture outlines and other materials will be posted on the Moodle. The pace of my lectures will be based on the assumption that you have read the outlines before you come to class.

Course Description: ECON4100. Mathematical Economics. (3) Prerequisites: ECON 2101 and 2102 and MATH 1120 or 1241. Both microeconomic and macroeconomic problems are analyzed with quantitative techniques. Emphasis is given to the study of methods for mathematically formulating economic relationships including the tools used for finding maximums, minimums, and limits to single, recursive, and simultaneous economic relationships. Not available for credit in the M.S. program in Economics.(Alternative years)

Course Objectives: The objective of this course is to help students acquire the mathematical skills used in the three major types of economic analysis: equilibrium analysis, comparative statics and optimization problems. These include calculus, matrix algebra, multivariable optimization, etc. Such tools are useful not only in microeconomic and macroeconomic theories, but also in many branches of applied economics, including public finance, industrial organization, international trade, etc.

Course Policies

Attendance: Students are expected to attend, to arrive on time and to stay the entire class period. Attendance will be taken each week. No points are explicitly added for attendance nor subtracted for absences. However, attendance will be considered when I determine your final course grade. When missing class, students will be expected to obtain class notes or assignments from other students in the class.
Grading:

<table>
<thead>
<tr>
<th>Test/Exam</th>
<th>Points</th>
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<tbody>
<tr>
<td>TEST 1</td>
<td>100</td>
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<tr>
<td>TEST 2</td>
<td>100</td>
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<tr>
<td>FINAL EXAM (non-cumulative)</td>
<td>100</td>
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<tr>
<td>Total</td>
<td>300</td>
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Notes:

1. There will be two 100-point tests during the semester plus a 100-point non-cumulative final exam, totaling 300 points.
2. Make-up tests will only be allowed for pre-excused absences. Written proof of the reason for absence must be provided. Examples of acceptable reasons are: medical (minor illnesses not included), death of or serious illness to family members, major traffic accident, and athletes and others who represent the university on a regular basis. Remember, excused absences must provide a written reason from the appropriate official(s) indicating the exact dates for which class was or will be missed.
3. The final exam will be given according to the university's final exam schedule. There will be no consideration given to students who wish to take the final exam early.
4. **Bonus Opportunities:** There are extra credit opportunities. You may earn extra credits from in-class practice questions. Ten percent (10%) of the total points you earn on the practice questions counts as your extra credit. When the extra credits are offered, they must be completed in class and only students who are present are eligible for the extra credits. **No** make-up for in-class practice questions.
5. The course grade is determined by the following formula and scale:

\[
\text{Average(\%)} = \frac{\text{Test 1} + \text{Test 2} + \text{Final Exam} + 10\% \text{ practice}}{300}
\]

- A = 90% or above
- B = 80% - 89.9%
- C = 70% - 79.9%
- D = 60% - 69.9%
- F = below 60%

**Cells phones and other technology:** The use of cell phones, beepers, or other communication devices is disruptive, and is therefore not permitted during class. If you have a personal or professional emergency or urgent matter, let the instructor know that you may need to respond to a call during class; turn your cell phone to the "vibrate" option, and leave the room to respond to the call. Otherwise, cell phones and other communication devices should be turned off. I also ask that students do not "surf" the internet, text-message or twitter during class; if you have a personal emergency let me know; you can leave the room to respond to a call or text-message. One more thing, you may not use the calculator features of your cell phone during exams.
**Academic Integrity**: Students have the responsibility to know and observe the requirements of The UNC Charlotte Code of Student Academic Integrity. This code forbids cheating, fabrication or falsification of information, multiple submissions of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. Any special requirements or permission regarding academic integrity in this course will be stated by the instructor and are binding on the students. Academic evaluations in this course include a judgment that the student's work is free from academic dishonesty of any type; and grades in this course therefore should be and will be adversely affected by academic dishonesty. Students who violate the code can be expelled from UNC Charlotte. The normal penalty for a first offense is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases, the course grade is reduced to F. Copies of the code can be obtained from the Dean of Students Office. Standards of academic integrity will be enforced in this course. Students are expected to report cases of academic dishonesty to the course instructor.

**TENTATIVE READING ASSIGNMENT:**

I. INTRODUCTION

The Nature of Mathematical Economics
Economic Models

II. EQUILIBRIUM ANALYSIS

Equilibrium Analysis in Economics
Linear Models and Matrix Algebra

2/11

****** Test 1 ******

Linear Models and Matrix Algebra (Continued)

III. COMPARATIVE–STATIC ANALYSIS

Comparative Statics and the Concept of Derivative
Rules of Differentiation and Their Use in Comparative Statics

3/24

****** Test 2 ******

Comparative-Static Analysis of General-Function Models

IV. OPTIMIZATION PROBLEMS

Optimization: A Special Variety of Equilibrium Analysis
Optimization with Equality Constraints
Exponential and Logarithmic Functions

Selected Topics

Thursday, 5/12

11:00 am - 1:30 pm

***** Final Exam *****

The Belk College of Business strives to create an inclusive academic climate in which the dignity of all individuals is respected and maintained. Therefore, we celebrate diversity that includes, but is not limited to ability/disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.