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| **Course Code:** | ECN 308 |
| **Course Title:** | Quantitative techniques |
| **Number of NDU Credits:** | 3 credits |
| **Pre-Requisite(s):** | ECN 211, 212; Mat 204; and STA 207 or 210 |
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**Faculty member responsible for the course**:

*Dr. Georges Harb*

Faculty of Business Administration and Economics

Office: B 255

Office hours: Monday/Wednesday: 3:00-5:00

Class time: MWF: 10:00-11:00 Section: A

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**Course Description, Intended Learning Outcomes, and the Required Textbook**

This course provides students with a number of quantitative techniques that are typically used in economic analysis with applications in both microeconomics and macroeconomics. As such, the course consolidates the mathematical techniques previously acquired by the students whilst explicitly highlighting their relevance to economic analysis.

The main topics covered fall under three main areas: (i) static/equilibrium analysis, (ii) comparative static analysis, and (iii) optimization.

Upon the completion of the course, students should be able to:

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| **Intended Learning Outcomes** | **Program goals (BS)** |
| 1. Demonstrate solid command of quantitative techniques | G1.2 |
| 2. Interpret the components/results of economic/mathematical models | G1.2; G2.1; G2.3 |
| 3. Solve economic/mathematical models | G1.2; G2.3 |

***Required Textbook***

Chiang, A; Wainwright, K. "Fundamental methods of mathematical economics", 4th edition, McGraw-Hill (international edition), 2005

**Learning Strategies and Contents of the Course**

The course is based on two types of sessions: lectures and problem solving. Lectures are meant to equip students with key concepts and techniques, and outline their various economic applications. Problem solving sessions aim at consolidating students' understanding of the quantitative methods and their use in solving economic models.

The chapters covered from the textbook are highlighted in the following table:

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| **Topics** | **Chapters** |
| 1. Introduction | - Economic models (chapter 2) |
| 2. Static/equilibrium analysis | - Equilibrium analysis in economics (chapter 3)  - Linear models and matrix algebra (chapter 4)  - Linear models and matrix algebra (chapter 5) |
| 3. Comparative-static analysis | - Comparative statics and the concept of derivative (chapter 6)  - Rules of differentiation and their use in comparative statics (chapter 7)  - Comparative-static analysis of general-function models (chapter 8) |
| 4. Optimization problems | - Optimization (chapter 9)  - The case of more than one choice variable (Chapter 11) |

**Assessment Criteria and Grading Scheme**

The assessment will call upon students to demonstrate:

* Thorough *understanding* of the acquired knowledge.
* *Critical* *thinking* and *problem solving* ability.

***Assessments include***

* Two phase tests: 55% (the lowest grade accounts for 20% of the course grade, the highest for 35%)
* Final exam: 35%
* Attendance/Participation/Attitude in class: 5%
* Assignments: 5%

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| **Grade** | **Description** | **Quality Point Value** | **Percentage Equivalent** |
| *A+* | Outstanding | 4.0 | 97-100 |
| *A* | Excellent | 4.0 | 93 - 96 |
| *A-* | Very Good | 3.7 | 89 - 92 |
| *B+* | Good | 3.3 | 85 - 88 |
| *B* | Good | 3.0 | 80 - 84 |
| *B-* | Good | 2.7 | 77 - 79 |
| *C+* | Satisfactory | 2.3 | 73 - 76 |
| *C* | Satisfactory | 2.0 | 70 - 72 |
| *C*- | Passing | 1.7 | 66 - 69 |
| *D+* | Passing | 1.3 | 63 - 65 |
| *D* | Lowest Passing | 1.0 | 60 - 62 |
| *F* | Failure | 0.0 | 0 - 59 |
| *UW* | Unofficial Withdrawal | 0.0  The grade “*UW”* is assigned by the instructor when a registered student has never attended a class or has ceased attending and has not submitted an official course withdrawal request to the Office of the Registrar. This grade is computed as an *F* grade in the grade-point average. | |

***Notes***

* Make-up testswill not be administered for missed phase-tests irrespective of the circumstances. Make-ups are only allowed for students missing their final exams if valid documented absences are provided within a limited time period not exceeding two days after the exam date.
* If you miss the first phase test, the percentage will be spread over the second phase test and your final exam as follows: the second exam will account for 45% of the overall course grade, whereas the final exam will account for 45% of the grade.
* If you miss the second phase test, the percentage will be spread over the first phase test and the final exam as follows: (a) if your first exam grade is a passing grade, it will account for 40% of the course grade and the final exam for 50%; (b) if your first exam grade is not a passing grade, it will account for 45% while the final exam for 45%.
* Missing two phase-tests will result in a failing grade.
* The instructor reserves the right to change the frequency and dates of all tests subject to adequate notice period being given

**Corporate Connections**

The course addresses techniques used by decision makers, notably at the microeconomic level

**Social Aspects**

Ethical behaviour is emphasized in class and during tests throughout the course

**Contribution of Research**

Some of the techniques learned in class will help students in understanding research papers in economics

**Important Class Rules and Academic Misconduct**

**Hard work is required**: attending the lectures as well as preparing the assignments are crucial in order to perform well. Students are encouraged to participate in class.

As per the University regulation, the maximum number of absences for classes that meet on MWF is 6 and 4 for classes meeting on TTH.

**As a student in this class, you may expect**: clear and effective presentation of the course, prompt answers to your questions, fair grading of your work, and treatment with courtesy and respect.

**Cell phone use, chatting, late arrivals & stepping out of class are inappropriate:** these occurrences adversely affect the attendance grade. You are asked to switch your mobile phones to silent mode once in class. Do not arrive late for class. Leaving class requires the permission of the instructor.

Notre Dame University – Louaize is committed to a policy of honesty in all its operations, especially those pertaining to academic matters. Academic and/or disciplinary penalties for misconduct in academic affairs are implemented according to the policies and guidelines of NDU. It is the student's obligation to be aware of his/her responsibilities. **The following are extracts of NDU’s policies regarding academic integrity**:

Students are expected and encouraged to be honest and to maintain the highest standards of academic integrity in their academic work and assignments at the University. They shall refrain from any academic dishonesty or misconduct including but not limited to:

Plagiarism; that is, the presentation of someone else‘s ideas, words or artistic, scientific, or technical work as one‘s own creation. Also, paraphrasing, summarizing, as well as well as direct quotations are considered as plagiarism, if the original source is not properly cited.

Cheating.

Assisting in cheating.

Substituting a student in the taking of an examination.

Substituting examination booklets.

Submitting the same work for more than one course and the like.

Submitting papers written by others.

Receiving or providing unauthorized help or assistance in any academic work or assignment.

Intentional violation of program and degree requirements and regulation as established by the University.

Dishonest reporting of computational, statistical, experimental, research, results, or the like.

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