הפקולטה לניהול
ע״ש קולר
אוניברסיטת תל אביב

Coller School
of Management
Tel Aviv University

Sofaer Global MBA
Mathematical Methods Workshops
Syllabus 2021-2022

Course Section Details

Day	Hour	Classroom
Sunday	15:15-16:30	254 Recanati
Sunday	16:45-18:00	254 Recanati

Muhammad Zidani, Muhammadzidani@gmail.com.

Office hours: after class, contingent upon an appointment.

Course Focus

Mathematicians seek and use patterns to formulate new conjectures; they resolve the truth or falsity of such by mathematical proof. When mathematical structures are good models of real phenomena, mathematical reasoning can be used to provide insight or predictions about nature[1].

The main objective of this workshop is to equip you with basic knowledge and practical tools in mathematical methods that will prepare you for further courses in the program.

Course Book

Schaum's Outline of Mathematical Methods for Business and Economics, Edward Dowling.

Electronic Access to Course Materials

I will post lectures, problem sets, solutions and other course material on: Moodle.tau.ac.il

Course Requirements

Problem Sets: There will be problem sets during the workshops, they will not be handed in because they are for your own practice. So that you internalize the material be solve them daily.

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[1] https://en.wikipedia.org/wiki/Mathematics

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Tentative Plan

Day:	Topic*	Readings
Day 1:	**Review** 1. Exponents 2. Polynomials 3. Factoring 4. Fractions 5. Radicals 6. Order of Mathematical Operations **Equations & Graphs** 1. Equations 2. Cartesian Coordinate System 3. Linear Equations and Graphs 4. Slopes 5. Intercepts 6. The Slope-Intercept Form 7. Determining the Equation of a Straight Line 8. Applications of Linear Equations in Business and Economics	Ch. 1 Ch. 2
Day 2:	**Functions** 1. Concepts and Definitions 2. Graphing Functions 3. The Algebra of Functions 4. Applications of Linear Functions for Business and Economics 5. Solving Quadratic Equations 6. Facilitating Nonlinear Graphing 7. Applications of Nonlinear Functions in Business and Economics	Ch. 3
Day 3:	**Systems of Equations** 1. Introduction 2. Graphical Solutions 3. Supply-and-Demand Analysis 4. Break-Even Analysis 5. Elimination and Substitution Methods	Ch. 4

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	6. Income Determination Models 7. IS-LM Analysis 8. Economic and Mathematical Modeling (Optional) 9. Implicit Functions and Inverse Functions (Optional)	
Day 4:	**Linear Programing: Using Graphs** 1. Use of Graphs 2. Maximization Using Graphs 3. The Extreme-Point Theorem 4. Minimization Using Graphs 5. Slack and Surplus Variables 6. The Basis Theorem	Ch. 7
Day 5:	**Differential Calculus: The Derivative and the Rules of Differentiation** 1. Limits 2. Continuity 3. The Slope of a Curvilinear Function 4. The Derivative 5. Differentiability and Continuity 6. Derivative Notation 7. Rules of Differentiation 8. Higher-Order Derivatives 9. Implicit Functions	Ch. 9
Day 6:	**Differential Calculus: Uses of the Derivative** 1. Increasing and Decreasing Functions 2. Concavity and Convexity 3. Relative Extrema 4. Inflection Points 5. Curve Sketching 6. Optimization of Functions 7. The Successive-Derivative Test 8. Marginal Concepts in Economics 9. Optimizing Economic Functions for Business 10. Relationship Among Total, Marginal, and Average Functions	Ch. 10
Day 7:	Recap	

* note the coverage of these topics may change slightly.