УКРАЇНСЬКО-АМЕРИКАНСЬКИЙ
УНІВЕРСИТЕТ КОНКОРДІЯ

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MATHEMATICS FOR ECONOMICS

Syllabus
ЗП 1.6
Specialty: 073 "Management"
Educational program "Business Administration in Management and International Business"

Quarter/Year: Spring /2022

Instructor: Yuliya Gladka, Ph.D

ECTS Credits: 6

US Credits: 3

Contact information: Email: yuliya.gladka@uacu.edu.ua

Prerequisites: -

Course Description

The course presents topics in algebra, including the number system, percentages, polynomials, algebraic functions, exponents, radicals, linear and quadratic equations, inequalities, lines in the plane, linear modelling, algebra of functions, exponential functions and systems of equations and inequalities. The course develops the topic of graphing in the coordinate plane with analysis of equations and graphs with applications.
Topics covered include functions and using functions to create simple models of real world problems. The main focus is maid on practicing the skills necessary to properly manipulate algebraic expressions and equations. Development and solutions of mathematical models include economic and other applications.
This course will fulfil a prerequisite for future math and economic disciplines.

Course Outcomes

PH3. Demonstrate knowledge of theories, methods and functions of management, modern concepts of leadership.
PH4. Demonstrate skills to identify problems and justify management decisions.
PH6. Identify skills of search, collection and analysis of information, calculation of indicators to justify management decisions.
PH7. Demonstrate organizational design skills.
PH9. Demonstrate skills of interaction, leadership, teamwork.
PH10. Have the skills to justify effective tools to motivate the staff of the organization.
PH11. Demonstrate skills of situation analysis and communication in various areas of the organization.
PH17. Perform research individually and/or in a group under the guidance of a leader.

Competencies
3K8. Skills in the use of information and communication technologies.
3K10. Ability to conduct research at the appropriate level.
CK4. Ability to identify functional areas of the organization and the relationships between them.
CK8. Ability to plan the activities of the organization and manage time.
CK12. Ability to analyze and structure the problems of the organization, to form sound decisions.

Internationality:
The international aspect of the course includes adherence to the international standards in educational process, using American textbooks and support materials, considering different examples of simple mathematical models application in solving economic problems.

Communications
For individual issues, students should contact the professor ONLY by given e-mail or by Moodle. In the Subject line they should put: **UACUFirstName LastName**. E-mail messages will normally be answered within 24 hours.
Note! Only emails sent from the student's corporate email address will be answered.

Student Responsibilities
Time Commitment
The study of technical courses is cumulative (i.e., an understanding of earlier material is necessary to grasp concepts covered later). Past experience has shown a high correlation between procrastination and low grades. Students must be committed to completing tasks on time.

Technical Aspects
The student is obliged to provide himself/herself with all the necessary technical equipment for the educational process (laptop or computer, webcam, headsets or headphones and microphone), as well as access to the Internet.
Only students signed-in with their own first and last name are allowed into video lectures in Zoom.

Grading Policy
The course is based on mastery of course outcomes. The student's grade for this course will be calculated based on performance.
Note: the minimal grade to pass a subject is 60% .

Graduate Grading Guidelines
The assignment of a letter grade for a course is an indication of the student's overall success in achieving the learning outcomes for the course. The course letter grade may be viewed as a summary statement of the student's achievement in individual assessments (assignments & activities). These assessments are intended to identify for students their strengths as well as those areas in need of improvement. Student work is assessed according to the guidelines below.

Course-level Grading guidelines:

Grade	ECTS Grade	International Grade
90% - 100%	A	5 (Excellent)
83% - 89%	B	4 (Very Good)
75% - 82%	C	4 (Good)
70% - 74%	D	3 (Good)
60% - 69%	E	3 (Acceptable)
35% - 59%	FX	Not acceptable, possible repetition of course

Criteria for grading:

ECTS grade	Requirements for the student
A	The student demonstrated a comprehensive systemic and in-depth knowledge of program material; processed basic and additional literature; obtained a solid grasp of the conceptual apparatus, methods, techniques and tools provided by the program; found creative abilities in the presentation of the educational program material both on this issue and on related modules of the course and related courses, or the student had a current control of 90-100 points
B	The student demonstrated good knowledge of program material; processed the basic literature, mastered the conceptual apparatus, methods, techniques and tools provided by the program, but with some inaccuracies
C	
D	The student showed mediocre knowledge of the core program material; learned information mainly from a lecture course or just one textbook; mastered only certain methods, techniques and tools provided by the program
E	
FX	The student has significant gaps in knowledge of the main program material; fragmentary mastered the basic concepts, techniques and tools; significant mistakes are made when using them

Maximum total possible points - 500 points incl. (midterm and final exam are 60% of overall evaluation, where Midterm – 20% and Final – 40%)
Test / Class Assignment – 20 points (2 times during the course)
Homework Assignment – 15 points (2 times during the course)
Quiz – 15 points (6 times during the course)
Problem Solving Activity in Class (total possible 40 points)
Midterm exam - 100 points
Final exam - 200 points

Student Workload

It is assumed that for each out of 17 class sessions a student spends about 10.5 academic hours of work. This includes 3.5 academic hours of lectures with the instructor and 7 academic hours of personal work. Personal work includes reviewing lectures, doing homeworks, preparing for tests, quizzes using recommended materials.

Please pay attention that 1 academic hour equals to 40 minutes.

Assignment Format

- All work should be shown in time. If the student misses the deadline – the task is failed
- There are 6 quizzes (15 points each) that a student will take during the lessons, total 18%.
- Two Tests/Class Assignments should be done with books closed to help student practice, learn and better understand statistical skills, total 8%.
- Two Homework Assignments (15 points each), total 6%.
- Problem Solving Activity in Class (5 points each class), total 8%.
- Midterm covers topics from previous lectures (weeks 1-7). It includes multiple choice questions and cases and takes about 1hour.
- The final exam covers all course material and includes multiple choice questions. It lasts for 1.5 hours. Admission to the final exam is possible only if all the tasks of the curriculum are covered.
- After the Midterm and Final is graded a student has access to the grade only. Access to the attempt, corrects answers and information whether the answer is correct cannot be granted.

Academic dishonesty

Academic integrity is submitting one's own work and properly acknowledging the contributions of others. Any violation of this principle constitutes academic dishonesty and is liable to result in a failing grade and disciplinary action. Forms of academic dishonesty include:

Plagiarism – submitting all or part of another's work as one's own in an academic exercise such as an examination, a computer program, or written assignment.

Cheating – using or attempting to use unauthorized materials on an examination or assignment, such as using unauthorized texts or notes or improperly obtaining (or attempting to obtain) copies of an examination or answers to an examination.

Facilitating Academic Dishonesty – helping another commit an act of dishonesty, such as substituting for an examination or completing an assignment for someone else.

Fabrication – altering or transmitting, without authorization, academic information or records.

Any violation of these rules constitutes academic dishonesty and is liable to result in a failing grade and disciplinary action. In case of any academic dishonesty a student is not allowed to continue or retake the assessment activity and for the Final the unsatisfactory grade ("0") is assigned for the course total. Cases of the academic dishonesty are not considered by the Academic Council.

Midterm and Final are valid only if they are taken on-campus (room defined by the dean's office) and on UACU's computer/laptop. Students who will not meet this requirement will be expelled from the course with grade "0".

In case of missed midterm or final exam (for a valid reason like sickness or an emergency) a request to repeat the exam is possible. Permit to repeat a midterm or final exam is done through a letter to the dean's office with request and approval of subject lecturer.

Submission or retaken of any assessment activities after deadlines are forbidden

Submission & Return Policy

Assignments must be submitted to the professor on or before the due date indicated in the Course Schedule. The assignments submitted after the due dates receive zero points.

****** NO MAKE –UP QUIZZES AND EXAMS ******

Schedule

Lecture #	Research Projects	Assignments Due	Point
Lecture 1	Topic 1. Sets and Real Numbers Set notation, Union of Sets, Intersection of Sets. The Rational numbers, the Irrational numbers, Intervals of Real numbers. Operations on a Set of Real numbers.	Review Lecture Class Problem Solving Activity	5
Lecture 2	Topic 2. Evaluating Arithmetic and Algebraic Expressions Arithmetic Expressions, Exponential Expressions. Square Roots. Order of Operations. Algebraic Expressions. Reading a Graph.	Review Lecture Quiz	15
Lecture 3	Topic 3. Decimals, Fractions and Percentages Perform Addition, Subtraction, Multiplication and Division on Decimals and Fractions. Converting Decimals to a Fraction. Percentages, Simple and Compound interest.	Review Lecture Class Problem Solving Activity	5
Lecture 4	Topic 4. Linear Equations What is an Equation? Solving Equations. Types of Equations. Strategy for solving Linear Equations. Investment Problems. Mixture Problems. Commission Problems.	Review Lecture Test / Class Assignment	20
Lecture 5	Topic 5. Linear Inequalities Inequality symbols. Interval notations and Graphs. Solving Linear Inequalities. Absolute Value Equations and Inequalities.	Review Lecture Quiz Homework Assignment	15 15
Lecture 6	Topic 6. Systems of Linear Equations Graphing Lines in the Coordinate Plane. Graphing a Linear Equation in two variables. Using Intercepts for Graphing. Slope of a Line. Parallel and Perpendicular Lines. Three forms for the Equation of a Line.	Review Lecture Class Problem Solving Activity	5
Lecture 7	Topic 7. Systems of Linear Inequalities Graphing Linear Inequalities. The Test Point Method. Graphing Compaund Inequalities. Absolute Values Inequalities. Inequalities with No Solutions.	Review Lecture Quiz	15
	Midterm Exam (20%)		_100_
Lecture 8	Topic 8. Functions and Relations The Concept of a Function. Function Notation.	Review Lecture	15 5

	Domain and Range of a Function. Applications.	Quiz Class Problem Solving Activity	
Lecture 9	Topic 9. Systems of Linear Equations Solving a System by Graphing. Types of Systems. Solving by Substitution. Applications. The Addition Method. Applications.	Review Lecture Class Problem Solving Activity	5
Lecture 10	Topic Topic 10. Exponents and Polynomials Positive and Negative Exponents. Raising a Product to a Power. Polynomials. Multiplying Binomials. Factoring Polynomials. Factoring Trinomials. Solving Equations by Factoring.	Review Lecture Quiz	15
Lecture 11	Topic Topic 11. Rational Expressions Properties of Rational Expressions and Functions. Multiplication and Division of Rational Expressions. Applications.	Review Lecture Class Problem Solving Activity	5
Lecture 12	Topic Topic 12. Polynomial Functions Addition and Subtraction of Polynomial Functions. The Remainder Theorem. Fractions and Proportions. Solving Equations Involving Rational Expressions.	Review Lecture Test / Class Assignment	20
Lecture 13	Topic 13. Radicals and Rational Exponents Roots and Variables. Product Rule and Quotient Rule for Radicals. Rational Exponents. Solving Equations with Radicals and Exponents.	Review Lecture Class Problem Solving Activity Homework Assignment	5 15
Lecture 14	Topic 14. Quadratic Equations Solving Quadratic Equations by Completing the Square. The Quadratic Formula. Number of Solutions.	Review Lecture Quiz	15
Lecture 15	Topic 15. Quadratic Functions and Their Graphs Quadratic Functions, Graphing Quadratic Functions. The Vertex and Intercepts. Aplications.	Review Lecture Class Problem Solving Activity	5
	Final Exam (40%)		_200_

Recommended Materials

Mark Dugopolski “Algebra for College Students”, Sixth Edition, 2015.
Michael Sullivan “College Algebra”, Tenth Edition, 2016.
Mark Dugopolski “College Algebra and Trigonometry”, A Unit Circle Approach, Sixth Edition, 2012.
Robert Haese, Sandra Haese, Michael Haese et. al. Mathematics for the International Student. Mathematics SL third edition. – A.: Australia, IBO, Haese Mathematics 2012.
Marvin L. Bittinger “College Algebra: Graphs and Models”, 6th Edition.
Richard W. Fisher “No-nonsense Algebra“, Second Edition, 2018.

Internet links

1) http://www.mathhelp.com (for straightforward explanations of mathematical terms and concepts)
2) http://www.study.com (a lot of examples and practical tasks with solutions)

** The above schedule and procedures are subject to change in the event of extenuating circumstances.*

Протокол засідання кафедр № 1 від 22.01.2022 року

Проректор з навчально-методичної роботи Л.І.Кондратенко

Завідувач кафедри А.В.Кінаш

Викладач Ю.А.Гладка