University of Soran
Faculty of Education/ School of Basic Education
Department of Mathematics

Course book

Finite Mathematics

First year mathematics department

Academic year: 2014-2015

Two hours per week

Instructor: Saeid Moloudzadeh

Email: saeidmoloudzadeh@gmail.com

About the course

Finite mathematics courses exhibit tremendous diversity with respect to both content and approach. Therefore, in developing this book, we incorporated a wide range of topics from which an instructor may design a curriculum, as well as a high degree of flexibility in the order in which the topics may be presented. For the mathematics of finance, we even allow for flexibility in the approach of the presentation.

This course includes: Algebra review, Functions and linear models, Systems of linear equations and matrices, Matrix algebra and applications, Sets and counting, Nonlinear models.

Course objectives:

To develop understanding of finite mathematics and their applications**.**

Homework:

These will be given in class and the due dates will be announced. This homework is some problems that should be solved by students.

Grading method:

Homework	5%
Mid-term exams	35%
Final exam	60%

Course Syllabus:

DRAFT SYLLABUS:

Weeks #1- #5 **Chapter zero: Algebra Review**

- Real numbers.
- Exponents and radicals.
- Multiplying and factoring algebraic expressions.
- Rational expressions.
- Solving polynomial equations.
- Solving miscellaneous equations.

Weeks #7- #9 **Chapter one: Functions and Linear Models**

- Functions from the numerical and algebraic viewpoints.
- Functions from the graphical viewpoint.
- Linear functions.
- Linear models.

Weeks #10- #13 **Chapter two: Systems of Linear Equations and Matrices**

- Systems of two equations in two unknowns.
- Using matrices to solve systems of equations.
- Applications of systems of linear equations.

Weeks #14- #17 **Chapter three: Matrix Algebra and Applications**

- Matrix addition and scalar multiplication.
- Matrix multiplication.
- Matrix inversion.

Weeks #18- #20 **Chapter four: Sets and Counting**

- Sets and set operations.
- Cardinality.
- The addition and multiplication principles.
- Permutations and combinations.

Weeks #21- #24 **Chapter five: Nonlinear Models**

- Quadratic functions and models.
- Exponential functions and models.
- Logarithmic functions and models.
- Trigonometric functions and models.

References:

- H. Anton, B. Kolman, Applied Finite mathematics, Academic press, 1974.
- M. Sullivan, Finite mathematics and applied approach, 11th Edition, John Wiley & Sons, Inc, 2011, ISBN: 13-978-0470-45827-3.
- S. Waner and S. R. Costenoble, Finite mathematics and applied calculus, 4th Edition, Thomson, 2007, ISBN: 0-495-01631-4.
- Internet.