I. Course Description:
A major objective of this course is to give the student substantial experience in modeling and solving real-world problems. The course begins with the development of a library of elementary algebraic functions (Chapters 1 and 2), including their properties and uses. Students are expected to investigate mathematical ideas and processes graphically and numerically, as well as algebraically. This development lays a firm foundation for studying mathematics both in this course and in future endeavors. Then the course will introduce the student to the subject of Finite Mathematics which can be thought of as three units: Mathematics of Finance (Chapter 3); Linear Algebra, including matrices, linear systems, and linear programming (Chapters 4, 5 and 6).

Chapter 3 presents a thorough treatment of simple and compound interest and present and future value of ordinary annuities. Chapter 4 covers linear systems and matrices with an emphasis on using row operations and Gauss-Jordan elimination to solve systems and to find matrix inverses. This chapter will cover applications of mathematical modeling utilizing systems and matrices. Chapters 5, and 6 provide broad and flexible coverage of linear programming. Graphing, and the Simplex Method Techniques will be covered to solve linear programming problems.

The second part of the course (MATH 162/Fall 2016) consists of differential calculus. Emphasis is given to the uses of calculus as a problem-solving tool. Special effort will be made to present the basic concepts in an intuitive fashion, and examples and
II. Prerequisites, Helpful Knowledge and Skills:
The student should have a sound knowledge of College Intermediate Algebra (MATH 105) or equivalent.

III. Learning Objectives/Outcomes:
Quantitative Reasoning (QR) Mode of Inquiry Learning Outcomes:
1. Frame contextual questions using mathematical representation.
2. Apply models to deduce consequences or make predictions.
3. Communicate quantitative arguments using clear prose.
4. Critique quantitative arguments with respect to assumptions, constraints, and logical coherence.

Courses with QR designation address all of the above learning outcomes.

To satisfy the requirement of Quantitative Reasoning, students who were admitted to Linfield College Adult Degree Program in Fall 2011 or later must demonstrate meeting the learning objectives by choosing an assignment, or collection of assignments, and submitting them electronically to TaskStream, the Online repository, as discussed in the A.D.P. Student Handbook. The assignment chosen for exemplar work must be supported with a paragraph description. To receive credit for the mode of inquiry, these exemplars must be posted by the last day of finals of the semester the course is taken.

After completing this course the student should have the knowledge of the principles, concepts and applications of finite mathematics. Many of these principles and concepts are applicable to solving problems in business and economics, life science, and social science as well as other aspects of the student’s professional and personal life. Consequently, the student should expect the benefits of studying Finite Mathematics to serve him/her in those areas as well.

IV. Methodology:
The mode of delivery for learning are homework assignments, Class discussions of students postings, mini-projects, three Online examinations, and a comprehensive Online final Examination. Class discussion of the subject matter concepts and interactive dialogue among students and the instructor are expected/encouraged to ensure clear understanding of finite mathematics concepts and its applications to problem-solving, decision making in business and economics, life science and social science areas.

V. Resources:
VI. Evaluation & Grading:
The student’s learning is evaluated continuously through class interactions On ground and online, assignments, class project, and three examinations. The course grade is based on the student performance on the following:

Class participation: 5%, Chapters 1 - 6
Exam 1: 20%, Chapters 1 & 2
Exam 2: 20%, Chapters 3 & 4
Exam 3: 20%, Chapters 5 & 6
Final Exam: 25%, Chapters 1, 2, 3, 4, 5 & 6
Mini projects: 10%

Class participation: Students are expected to participate in class discussion of key concepts and their applications to real life scenarios.

Grading scale:
How points and percentages equate to grades

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VII. COURSE POLICIES
Incompletes: A grade of Incomplete (I) is given only in emergency situations. The student must request an Incomplete in writing and must obtain my permission. All uncompleted work must be completed within the time limits I set. If you simply don’t turn in the final assignments or the final exam, your
course grade will be calculated with the missed portion counting for 0 points.

POLICY ON ACADEMIC INTEGRITY

I will adhere to the college policy on academic honesty, as published in the Linfield College Course Catalog.

Rules of Discussion: The classroom should be a safe haven within which individuals can discuss the widest possible range of topics without fearing retribution, ridicule, or attack. In order for this to happen, we must assume that we are all persons of intelligence and good will who may ultimately disagree, sometimes to a profound degree, with one another but whose characters are not impugned or intelligence disparaged because of this disagreement. The classroom is not a forum for proselytizing, nor it is a soapbox for diatribes by either students or faculty. For the academic endeavor to succeed, we must treat each other with civility, courtesy, and respect. All perspectives and questions are welcome, as long as they are impelled by a genuine desire for knowledge, can be articulated thoughtfully, and supported by sound reasoning.

Linfield College Policy Statement and Guidelines Regarding Services for Students with Disabilities: Students with disabilities are protected by the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. If you are a student with a disability and feel you may require academic accommodations please contact Learning Support Services (LSS), as early as possible to request accommodation for your disability. The timeliness of your request will allow LSS to promptly arrange the details of your support. LSS is located in Melrose Hall 020 (503-883-2562). Students with disabilities are encouraged to communicate with faculty about their accommodations.

VIII. Tentative Course Outline:

Weeks (01 - 04)/[02/15/2016 - 03/12/2016]  
Linear Equations and Graphs.  
Functions and Graphs  
Mini project 01 (Due 03/05/2016) 
Exam One (Online-Blackboard/Due by Saturday 03/05/2016) 
(Chapters 1 and 2)

Weeks (05 - 09)/[03/03/2016 - 04/16/2016]  
Mathematics of Finance  
Systems of Linear Equations; Matrices 
Mini project 02 (Due 04/16/2016) 
Exam Two (Online-Blackboard/Due by Saturday 04/16/2016) 
(Chapters 3 and 4)

Weeks (10 - 14)/[04/17/2016 - 05/21/2016]  
Linear Inequalities and Linear Programming.  
Linear Programming: The Simplex Method. 
Mini project 03 (Due 05/21/2016) 
Exam Three (Online-Blackboard/Due by Saturday 05/21/2016) 
(Chapters 5 and 6)
INSTRUCTOR BIOGRAPHY: Malek Daaboul has a broad industrial background with a record of contribution in marketing, sales, customer support, engineering, manufacturing, information technology, and business management. Strong planning and management skills complemented with a thorough technical and analytical background. Worked at Owens Illinois in Toledo, Ohio for about nine years in different capacities: Manufacturing Engineer, Senior Operations Research Analyst, and Systems Software & Technical Supervisor. He then worked for Tektronix in Beaverton, Oregon for about six years as Technical Services Manager before joining Sequent Inc. in Beaverton, Oregon for about four years as Computer Resources Group Manager and later as Rightsizing Marketing Manager. Then he worked for IBM Global Services in Portland, Oregon for about four years as a Senior Business Management Consultant/Solutions Manager and for Oracle Corporation in Portland, Oregon for about two years as Consulting Services Practice Manager. Responsibilities at IBM and Oracle included business development in Oregon, marketing, and selling consulting services as well as overall management of consulting engagements and executive relationships. Malek has been teaching undergraduate and graduate (MBA) courses since 1974. Courses taught include Strategic Marketing Management, Industrial Marketing, Services Marketing, International Marketing, Management Decisions Making, Decision and Executive support Systems, Economic Decision Making, Managerial Forecasting, Operations Research, Operations Management, Information Technology and Mathematics. He has masters degrees in electrical and industrial engineering and done Ph.D. work (two years) in systems engineering.