

**Department:** Mathematics  
**Course Number:** MATH 120  
**Course Title:** Finite Mathematics  
**Credit Hours:** 3  
**Semester:** Fall 2008

**Instructor:** Keri Sinkhorn  
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*Peru State College's Teacher Education Unit*  
*Conceptual Framework*  
Creating Exemplary Educators: Reflective Decision-makers

**Course Description:**

This course is designed to give the business, life and social science major mathematical skills necessary for success in today's business world. Emphasis is placed on applications to business. The concepts covered will include linear, quadratic, exponential and logarithmic equations, functions and graphs, rates of change, linear algebra, linear programming, sequences and series.

**Prerequisites:**

Two years of college preparatory mathematics or Math 101.

**Text:**

Title: Mathematical Applications  
Author: Harshbarger and Reynolds  
Publisher: Houghton Mifflin  
Date: 2007 8<sup>th</sup> Edition

**Objectives:**

The students will be able to:

- Solve linear equations and systems of linear equations algebraically and graphically.
- Define, identify and use function notation.
- Graph and apply polynomial, rational, exponential and logarithmic functions.
- Use matrix notation and perform Gauss-Jordan elimination.
- Solve systems of linear inequalities in the context of linear programming.
- Apply and interpret the simplex algorithm.

- Apply arithmetic and geometric sequences to simple and compound interest, annuities, loans and amortization.

**Instruction Method/Mode of Delivery:**

Lecture-An introduction to each section will be given.

Discussion-If technically available, live chalkboard talk will also be used during office hours (part of Blackboard).

Quizzes-Explanation is given in the section below.

Exams-Explanation is given in the section below.

**Homework:**

Homework will be assigned for each section of the text. Homework is intended as guided practice. Your exams and quizzes are designed to test your problem solving skills. Homework assignments will not be collected and graded, but practicing your problem solving skills is a vital part of preparing for quizzes and exams.

**Assessment Method:**

Assessment is based on homework-based quizzes and four exams. Weight for each item follows:

Quizzes: 30%

Exams: 70%

**Quizzes and Exams:**

Quizzes and exams will be timed. You will need to submit the quiz or exam before time expires. Registered students are to take quizzes and exams on their own with the aide of their notes and the text but without the aide of other individuals and non-approved electronic aides. If violation of this requirement is suspected, you may be asked to take a proctored quiz or exam. Students are expected to take each quiz and exam during the availability dates set. The test will become available at 12:00 a.m. on the open date and will no longer be available after 11:55 p.m. on the close date. If a student is unable to take the quiz or exam during the available times, they are to make arrangements with the instructor prior to the availability window opening. The availability dates are as follows:

| Test         | Date Open | Date Closed |
|--------------|-----------|-------------|
| Ch. 0 Test   | 28-Aug    | 3-Sep       |
| 1.1-1.3 Quiz | 2-Sep     | 3-Sep       |
| 1.4 HW       | 2-Sep     | 4-Sep       |
| 1.5 Quiz     | 3-Sep     | 4-Sep       |
| 1.6 Quiz     | 4-Sep     | 5-Sep       |
| Ch. 1 Test   | 9-Sep     | 10-Sep      |
| 2.1 Quiz     | 10-Sep    | 11-Sep      |
| 2.2 Quiz     | 11-Sep    | 12-Sep      |

|            |        |        |
|------------|--------|--------|
| 2.3 Quiz   | 12-Sep | 13-Sep |
| 2.4 Quiz   | 14-Sep | 15-Sep |
| Ch. 2 Test | 17-Sep | 18-Sep |
| 3.1 Quiz   | 18-Sep | 19-Sep |
| 3.2 Quiz   | 19-Sep | 20-Sep |
| 3.3 Quiz   | 21-Sep | 22-Sep |
| 3.4 Quiz   | 22-Sep | 23-Sep |
| 3.5 Quiz   | 23-Sep | 24-Sep |
| Ch. 3 Test | 26-Sep | 27-Sep |
| 4.1 Quiz   | 28-Sep | 29-Sep |
| 4.2 Quiz   | 29-Sep | 30-Sep |
| 4.3 Quiz   | 30-Sep | 1-Oct  |
| Ch. 4 Test | 3-Oct  | 4-Oct  |
| 5.1 Quiz   | 5-Oct  | 6-Oct  |
| 5.2 Quiz   | 6-Oct  | 7-Oct  |
| 5.3 Quiz   | 7-Oct  | 8-Oct  |
| Ch. 5 Test | 9-Oct  | 10-Oct |
| 6.1 Quiz   | 10-Oct | 11-Oct |
| 6.2 Quiz   | 12-Oct | 13-Oct |
| 6.3 Quiz   | 13-Oct | 14-Oct |
| Ch. 6 Test | 16-Oct | 17-Oct |

**Grading Policy:**

- A 90-100
- B 80-89
- C 70-79
- D 60-69

**Attendance Policy:**

Students are expected to log into the class regularly and complete all assigned work. Attendance is a privilege and a responsibility represented by not only the student's investment, but also by a significant investment by the State of Nebraska. Attendance in an on-line class amounts to login and work on-line frequently throughout the term. It does not mean that you only need to check in at chapter test time.

**Incomplete Coursework:**

To designate a student's work in a course as incomplete at the end of a term, instructors record the incomplete grade (I). Students may receive this grade only when serious illness, hardship, death in the immediate family, or military service during the semester in which they are registered prevents them from completing course requirements. In addition, to receive an incomplete, a student must have completed a majority of the course's major requirements. Unless extenuating circumstances dictate otherwise, students must initiate requests for an incomplete by filing out an Incomplete Grade Completion Contract, which requires the student and faculty signature.

The Incomplete Grade Completion Contract cites the reason(s) for the incomplete and details the specific obligations the student must meet to change the incomplete to a letter grade. If students agree to complete required work prior to the normal deadline for making up an incomplete – the end of the subsequent semester – this date must appear in the contract. The division chair, the instructor, and the student receive signed copies of the incomplete Grade Completion Contract.

Even if the student does not attend Peru State College, all incomplete course work must be finished by the end of the subsequent semester. Unless Faculty Senate approves an extension, if the student does not fulfill contract obligations in the allotted time, the incomplete grade automatically becomes an F.

Students who have filed an application for graduation are not eligible for a grade of Incomplete.

**Accommodation Statement:**

The Rehabilitation Act of 1973 (public law 93-112) section 504, provides that “no otherwise qualified disabled individual in the United States...shall solely by reason...disabled, be excluded from the participation in, be denied the benefits of, or by subjected to discrimination under any program or activity receiving federal financial assistance.”

1. It is the student’s responsibility to notify the institution of any special circumstances that would affect his/her ability to complete equally in the college environment. Learning disabilities must be appropriately documented.
2. While students are encouraged to self-identify at the earliest possible time, students may not know or choose to self-identify, but can still receive services at any time once they self-disclose and document.
3. Students should contact the office of Student Support Services, Vice President for Student Affairs or the Director of Admissions for further advisement.

**Academic Dishonesty:**

Academic integrity is a basic principle that requires the student to take credit only for ideas and efforts that are his/her own. Cheating is defined as the submission of materials in assignments, exams, or other academic work that is based on sources prohibited by the faculty member. Cheating shall include, but is not limited to, situations in which a student:

1. Refers during an academic evaluation to material sources not authorized by the faculty member.
2. Utilizes devices during an academic evaluation that are not authorized by the faculty member.
3. Provides assistance to another student or receives assistance from another student during an academic evaluation in a manner not authorized by the faculty member.
4. Presents as his/her own the ideas or words of another person without customary and proper acknowledgment of sources.

5. Knowingly permits his/her words to be submitted by another person without the faculty member's permission.
6. Acts as a substitute or utilizes a substitute in any academic evaluation.
7. Fabricates data in support of laboratory or field work.
8. Possesses, buys, sells, obtains, or uses a copy of any materials intended to be used as an instrument of academic evaluation in advance of its administration.
9. Alters grade records of his/her own or another student work in a course or a component of a course.

**Outline of online material:**

For each unit (chapter) there will be the following:

Unit title; introduction

Section topic; introduction, lesson, homework, section quiz

Section topic; introduction, lesson, homework, section quiz

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Section topic; introduction, lesson, homework, section quiz

Timed, nonrepeatable unit exam

Chapter 0: Review of Algebra concepts.

Chapter 1: Linear Equations and Functions

Solutions of linear equations in one variable

Functions

Linear Functions

Graphs

Solutions of linear systems

Business applications

Chapter 2: Special Functions

Quadratic equations

Quadratic functions and parabolas

Business applications

Special functions and their graphs

Chapter 3: Matrices

Introduction to matrices and matrix arithmetic

Matrix multiplication

Gauss-Jordan Elimination

Inverses

Leontief input-output models

Chapter 4: Inequalities and linear programming

Linear inequalities in two variables

Linear programming: graphical

Linear programming: Simplex (on Excel)

Chapter 5: Other Functions

Exponential functions

Logarithmic functions

Solving exponential and logarithmic equations

Chapter 6: Interest

Annuities