# Math 45-52981 Contemporary Mathematics

**Semester/Year:** Spring 2019
**Units:** 3
**Location:** FEM 4
**Office Hrs:** Mon, Wed, & Fri 10-11am
Tues 1-2pm

**Instructor**:  Kelly Winter
**Office Location:** FEM 1L
**Phone number:** (559) 638-0300 ext 3471
**Email**:  kelly.winter@reedleycollege.edu
**Virtual Office Hr**: Thurs. 12-1pm via Canvas

**Length:**  18 weeks (Jan 14 – May 17)
**Schedule**
    This class meets every Monday,
    Wednesday and Friday from 8-9am.

**Prerequisite:** none

**Final Exam:** Wednesday, May 22, 8-10am

**Welcome to Contemporary Mathematics:** It is my desire to help each one of my students succeed and gain confidence in their math and statistics skills. I believe that all students can succeed if they stay organized, set aside consistent work time, complete all assigned work, ask questions and prepare for exams. I am here to guide you through the course, answer questions and encourage you to work hard. I am looking forward to this semester.

There are many excellent resources available to you on our campus.  Other students in class are a good resource and I would encourage you to form small groups to study and do homework together. If you have an unanswered question, come by my office (FEM 1L) which is in the FEM building located in the Math Center. I am working in the Math Center Mondays 12-2pm and Tuesdays 12-1pm.
Other available resources are:
- The Math Center in the FEM building, room 1. Hours: Monday-Thursday 8:00am - 4:00pm and Friday 8:30am -12:00pm. (559) 638-0300 ext. 3158
- The Tutorial Center. Hours: Monday-Thursday 8am-4pm, Friday 8am-3pm.
- The Library and computer lab. Hours Monday-Thursday 7:30am-8pm, Friday 7:30am-3pm.

**Course Description:** This course provides an introduction to mathematical problem solving in diverse areas of contemporary life such as statistics, social choice, measurement, and management science for students in the arts, humanities, and social sciences. This course is transferable to both UC and CSU.

**Textbook:** Excursions in Modern Mathematics by Peter Tannenbaum 9th edition

**Other Course Materials/Technology:** Our class will rely heavily on the use of online materials. To access our course materials and homework assignments, you will need to log in to MyMathLab via Canvas. **Access to MyMathLab is a requirement for this course. MyMathLab can be purchased a couple of ways. You can buy a new paper textbook in the bookstore and it comes with a MyMathLab access code. You can also purchase just the access code, which will give you access to a book online only. You must have access to MyMathLab by Friday, January 18th or you may be dropped from the course. A scientific calculator is a requirement for the course.** A phone, ipod, ipad, computer, or other device will not be allowed during a test.

**Makeup Work/Late Assignments:** Each week there will be homework assigned online in MyMathLab. Each week's assignments open on Monday morning and are due the following Monday evening by midnight. This gives you plenty of time to work through each assignment and get help on questions that you may get stuck on. You are given three attempts to answer each question correctly in MyMathLab before you will be marked down. Please use "Similar Question" in order to restart a question and receive full credit. All students in this course should spend a minimum of **six hours per week** outside of the classroom on homework, studying, reading the text and preparing for exams.

| Assignment Point Values | |
| --- | --- |
| *Assignment* | *Value* |
| Homework & Quizzes | 20% |
| Chapter Exams | 60% |
| Final Exam | 20% |

| Final Grades | |
| --- | --- |
| *Letter Grade* | *%* |
| A | 90 -100 |
| B | 80 – 89.4 |
| C | 70 - 79.4 |
| D | 60 - 69.4 |
| F | 0-59.4 |

**Grading Policies/Rubrics:** Please monitor your grade on Canvas. It is your responsibility to make sure that your grade is accurate. If there is a discrepancy, please email me ASAP.

**ACADEMIC DISHONESTY**
Students at Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share the responsibility to ensure that this education is honestly attained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences.

**Cheating** is the act or attempted act of taking an examination or performing an assigned, evaluated task in a fraudulent or deceptive manner, such as having improper access to answers, in an attempt to gain an unearned academic advantage. Cheating may include, but is not limited to, copying from another's work, supplying one's work to another, giving or receiving copies of examinations without an instructor's permission, using or displaying notes or devices inappropriate to the conditions of the examination, allowing someone other than the officially enrolled student to represent the student, or failing to disclose research results completely.

**Plagiarism** is a specific form of cheating: the use of another's words or ideas without identifying them as such or giving credit to the source. Plagiarism may include, but is not limited to, failing to provide complete citations and references for all work that draws on the ideas, words, or work of others, failing to identify the contributors to work done in collaboration, submitting duplicate work to be evaluated in different courses without the knowledge and consent of the instructors involved, or failing to observe computer security systems and software copyrights. Incidents of cheating and plagiarism may result in any of a variety of sanctions and penalties, which may range from a failing grade on the particular examination, paper, project, or assignment in question to a failing grade in the course, at the discretion of the instructor and depending on the severity and frequency of the incidents.

## Objectives
In the process of completing the course, the student will:
1. Characterize and compare different voting systems, using plurality, borda count, or pair-wise comparison.
2. Derive the probability of succeeding at basic games of chance.
3. Describe statistical data in a variety of methods such as in using mean, median, and standard deviation.
4. Use the empirical numbers to answer statistical questions.
5. Find the apportionment of a finite number of items.
6. Use various procedures to divide items fairly.
7. Find the terms of a sequence and series.
8. Measure the rate of growth of different systems, example: linear vs. exponential growth.
9. Solve problems from the area of management science by means of linear programming.
10. Create geometric shapes using recursive construction rules.

## Course Outline
A. Mathematics of Social Choice
   1. The mathematics of voting
   2. Weighted voting systems
   3. Fair division
   4. Apportionment
B. Management Science
   1. Euler circuits
   2. Hamilton circuits
   3. Networks
   4. Scheduling
C. Growth & Symmetry
   1. Spiral growth & Fibonacci's Numbers
   2. Linear & exponential growth
   3. Symmetry
   4. Fractals
   5. Financial Mathematics
D. Statistics & Probability
   1. Collecting data
   2. Descriptive statistics
   3. Normal distributions
   4. Probability