St. Mary's College
Department of Math and Science

Course Title:	College Math II
Course Number:	MAT212
Term:	Spring 2024
	Mon, Wed, Fri. 9:30 – 10:20 am
Professor:	Joseph B. Strong, PhD
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Phone:	785-437-2471, extension 410

Prerequisites

MAT211 or permission of the instructor.

Required Materials

Mathematical Ideas, 9th Edition, by Miller, Heeren, and Hornsby.
Simple Scientific Calculator (sin, cos, tan functions)

Course Description

This course is designed to strengthen the mathematical and reasoning skills, building on the material covered in MAT211, with an emphasis on understanding the principles behind the algorithms followed to get the correct results.

Objectives

After completing the course students will be expected to understand:

- Linear, quadratic, exponential functions and their application
- Linear inequalities, and systems of equations
- The fundamentals of Euclidean geometry
- The concept of non-Euclidean geometry, chaos and fractal geometry
- Counting methods, working with permutations and combinations
- Probability, fundamental concepts and applications
- Statistics, measures of central tendency, dispersion and distribution

Grading Policy

- Grades will be based on the following rubric:

Homework:	**15%**
Quizzes:	**15%**
Tests:	**30%**
Exam:	**40%**

- Assignments will be given periodically. Feel free to come for help but try to work on these by yourselves. You cannot build muscles by having people exercise for you!
- Quizzes will be used to check how diligently students are reviewing notes, working on assignments, and paying attention in class.
- There will be three tests during the semester, and a cumulative final exam. Test dates are subject to change.

Assignment Policy

- All submitted work should be on your own paper, either handwritten or typed. DO NOT submit work written in the margins of any given handout.

- Any part of any assignment that seems to be taking too long is taking too long. If you can't get through something after exercising some effort on it, put it aside and come to me for help as soon as possible. I can usually give a student a gentle nudge in the correct direction so you can accomplish the task in a more time-efficient manner.

- Please use the homework assignments for what they are meant to be - a learning tool for you to engage the material. They are not just busywork to get through. Without that engagement by you, the class will get harder instead of easier because many topics tie together to generate a cumulative understanding. With this in mind, be neat in the presentation of your work so that you can use it as a review and study guide.

Attendance Policy

- If you know you are going to miss a class, please get prior approval. Any unexcused absence that occurs during a test, quiz, or lab will result in a zero. Assignments must be turned in on time even if you are absent, so please make arrangements. Any exceptions must be in writing.

Course Schedule

Week 1. 01/14 - 01/20:

    Hour 1. Chapter 8.1

        i. HW: p424, #22, 28, 30, 36, 40, 44, 50, 54, 60

    Hour 2. Chapter 8.2-8.3

        i. HW: p433 #16,38,50,64, p442 #18,30,40,58,69

    Hour 3. Chapter 8.4

        i. HW: p457 #12,14,16,20,26,28,30,38,54,64

Week 2. 01/21 - 01/27

    Hour 1. Chapter 8.5

        i. HW: p469 #16, 30, 42, 46, 48, 50, 56

    Hour 2. Chapter 8 review day

    Hour 3. Chapter 8.6

        i. HW: p480 #2,6,8,10,14,18,48,50,58,62

Week 3. 01/28 - 02/03

    Hour 1. Chapter 8.7

        i. HW: p498 #8,18,32,38,56 ,66,70,78,82,84

    Hour 2. Chapter 8.8

        i. HW: p514 #22,25,28,31,34

    Hour 3. Chapter 8 review day

Week 4. 02/04 – 02/10

    Hour 1. **TEST Chapter 8**

    Hour 2. Chapter 9.1 and 9.2

        i. p538 #42, 44, 46, 48, 50, 52, 54

    Hour 3. Chapter 9.3

        i. p551 #26, 28, 42, 46, 52, 54, 60, 68, 74, 80

Week 5. 02/11 - 02/17

    Hour 1. Chapter 9.4 with extension

        i. HW: p563 #4,24,38,40,72,76,78,86,90 p.573 # 16

    Hour 2. Chapter 9 review day

    Hour 3. Chapter 9.5

        i. p573 #18, 20, 24   p582 #26, 50, 52, 54

Week 6.   02/18 - 02/24   **RETREAT WEEK**

Week 7.   02/25 - 03/02

     Hour 1.   Chapter 9.6-9.7

          i.   Fractal video on Sharepoint

     Hour 2.   Chapter 9 review day

     Hour 3.   **TEST Chapter 9**

Week 8.   03/03 - 03/09

     Hour 1.   Chapter 10.1

          i.   HW: p615 #25, 26, 28, 34, 36, 42, 46, 54, 56, 62

     Hour 2.   Chapter 10.2

          i.   HW: p625 #10,12,18,22,24,32,34,36,42,44,50

     Hour 3.   Chapter 10.3

          i.   HW: p637 #22, 26, 31, 32, 44, 45, 48, 54

Week 9.   03/10 – 03/16:

     Hour 1.   Chapter 10.4

          i.   p644 #9, 12, 14, 15, 18, 31

     Hour 2.   Chapter 10 review day

     Hour 3.   Chapter 10.5

          i.   HW: P653 #6, 10, 18, 20, 40

Week 10. 3/17 - 03/23

     Hour 1.   Chapter 10 review day

     Hour 2.   Chapter 11.1

          i.   HW:p666 #5, 6, 10, 12, 44, 50, 56, 63

     Hour 3.   Chapter 11.2 and 11.3

          i.   HW: p675 #7, 18, 32 ,34, 40 p684 #10, 12, 26, 62

Week 11. 04/07 – 04/13

     Hour 1.   Chapter 11.4

          i.   HW: p692 #4, 8, 22, 34, 48

     Hour 2.   Chapter 10 and 11 review day

     Hour 3.   **Test, Chapter 10**

Week 12.   04/14 – 04/20

    Hour 1.   Chapter 11.5

        i.   HW: p700 #10, 14, 20

    Hour 2.   Chapter 11 review

    Hour 3.   Chapter 11.6

        i.   HW: p706 #2, 4, 5

Week 13. 04/21 - 04/27

    Hour 1.   Chapter 12.1

        i.   HW: p718 #2, 4, 6

    Hour 2.   Chapter 12.2

        i.   HW: p734 #3, 9, 13, 15, 47

    Hour 3.   Chapter 12.3

        i.   HW: p745 #5, 11, 13, 21, 25, 35, 36, 45 (do #35 and 36 first)

Week #2. 04/28 – 05/04:

    Hour 1.   Chapter 12.4

        i.   HW: p753 #2, 18, 19, 34

    Hour 2.   Chapter 12 Review

    Hour 3.   Chapter 12.5

        i.   HW: TBD

Week #3. 05/05 – 05/11

    Hour 1.   Chapter 12.6

        i.   HW: working with Excel

    Hour 2.   Chapter 12 special topics

    Hour 3.   Chapter 12 review

Week #4. 05/12 – 05/18

    Hour 1.   Final thoughts

    Hour 2.   Exam practice