MTH 110-01: Math Perspectives, Fall 2017
TR 9:20-10:50, HSC 150

Professor: Dr. Pamela Richardson

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Email Policy

Email is the official means of communication at Westminster College. Please feel free to contact me via email, but be sure that you email the correct Dr. Richardson! All messages received after 5:00PM may not be answered until the following day.

Required Texts

1. We will use a custom textbook that includes sections of Excursions in Modern Mathematics, 8th Edition, by Peter Tannenbaum as well as sections of the student study guide for this book. You can only purchase the custom text from the bookstore. Anyone wishing to purchase a hard copy or digital copy of the full textbook instead may do so. We will use this book extensively throughout the course for both reading assignments and homework assignments.

2. Arcadia, by Tom Stoppard.

Course Description

Mathematics is not an isolated discipline, and many people are surprised to learn how mathematics is integrated into almost all aspects of human life. This course will introduce students to interesting and perhaps unexpected areas of mathematical study while developing valuable quantitative reasoning skills. In addition to exploring new mathematical topics, we will focus on how mathematics emerges in culture (art, architecture, music, theatre, film, etc.). Topics will be chosen from sequences, geometry, spiral growth, symmetry, fractals, tilings, and voting theory.

Course Outcomes

In this course, students will learn quantitative concepts and skills that will enable them to interpret and reason with quantitative information. By the end of the course, students should be able to do the following.
1. Apply concepts and skills introduced in class to solve new problems.

2. Determine the formula and properties of a sequence.

3. Correctly perform geometric calculations involving polygons, including similar polygons.

4. Solve problems involving the Fibonacci sequence and the Golden Ratio.

5. Apply iterated algorithms and determine the properties of fractals.

6. Apply and correctly analyze rigid motions of the plane.

7. Determine the symmetry type of finite plane objects, border patterns, and wallpaper patterns.

8. Determine the types and properties of tilings of the plane.


10. Articulate and discuss the intersections of mathematics and culture.

Attendance and Participation:

Attendance is very important in this course. If you must miss class, you are responsible for all material covered and announcements given in class. Any materials distributed to the class will be posted on the course site on D2L. Active participation in class will be expected of every student for the entire class period. Four percent of your final grade will be an assessment of your participation and engagement in class activities and discussions. Please note that this grade will be based on active participation and not merely attendance! If you are texting, checking e-mail, playing Tetris, chatting with classmates, etc., you are NOT engaging in the course material, and your grade will reflect this behavior. **Unless told otherwise, please turn off all cellular phones and other electronic devices during class.**

Homework:

Homework problems will be assigned after each class and may include both problems from the textbook as well as supplementary problems that I design for the course. Your homework assignments will be posted under “Content” on our course page in D2L; be sure to check it often for updates. Unless told otherwise, assignments will be collected weekly and will be due at the beginning of class each Thursday. Homework should be written up neatly, and all appropriate work must be shown to receive credit. All problems will be collected for each assignment, but only selected problems will be graded each week. The lowest two homework scores will be dropped; consequently, **absolutely no homework will be accepted late.** You may collaborate on your homework assignments in groups of at most 3 and submit one set of solutions for each group. However, please be aware that all group members are responsible for understanding (and being able to reproduce) the solutions that are submitted! You will be tested on the material, and students who do not actively contribute to homework solutions typically do not perform well on exams.
In addition to the problems I assign, you will frequently have reading assignments in this course. First, I expect you to read your textbook as part of your daily assignment. You will be responsible for reading sections in the book that we cover in class. Also, additional readings (journal/newspaper articles, *Arcadia*, etc.) may be assigned throughout the semester. Information on how to obtain additional readings will be posted on D2L.

**Quizzes**

We will frequently have in-class quizzes, including brief (approximately 15 minute) individual quizzes on reading assignments and/or previous homework problems as well as longer group quizzes. **Quizzes will not always be announced ahead of time,** so be sure to keep up with your work! The lowest quiz score will be dropped to allow for any unusual circumstances, and therefore **no makeup quizzes will be given.**

**Exams:**

There will be two written midterm exams and a final exam (the final exam will NOT be cumulative). The *tentative* dates of the midterm exams are as follows:

*Thursday, September 28*  
*Thursday, November 2*

Makeup exams may only be given if both Dr. Richardson and Dean McMinn approve the reason and alternate arrangements are made BEFORE the exam is given in class.

The final exam will be held on **Wednesday, December 13th, from 8:00-10:30AM.**

**Course Grades:**

Your course grade will be determined by the following distribution:

- Participation & Engagement: 4%
- Homework: 15%
- Quizzes: 15%
- Exams: 22% each.

The grading scale will be

- B+: 88-89  
- C+: 78-79  
- D+: 68-69  
- A: 92-100  
- B: 82-87  
- C: 72-77  
- D: 62-67  
- F: 0-59  
- A-: 90-91  
- B-: 80-81  
- C-: 70-71  
- D-: 60-61.
Academic Integrity:

Central to the purpose and pursuit of any academic community is academic integrity. All members of the Westminster community, including students, faculty, staff, and administrators, are expected to maintain the highest standards of honesty and integrity, in keeping with the philosophy and mission of the College.

Westminster College 2016-17 Undergraduate Catalog, p. 54

Some forms of academic dishonesty include (but are not limited to): copying a classmate’s work (homework, quizzes, or exams), divulging answers or information to another student during or about an exam or quiz, and using unauthorized aids (e.g., solution manuals, internet sites, etc.) on an assignment, quiz, or exam. Please note that presenting a solution found online as your own work is plagiarism. Academic dishonesty will not be tolerated in this class. The penalty for academic dishonesty is a grade of 0 on the assignment. Any event of academic dishonesty is reported to the Dean of the College. Other details of violations and consequences are given in the Catalog.

Students with Disabilities:

Westminster College actively strives for the full inclusion of all our students. Students with disabilities who require access solutions for environmental or curricular barriers should contact Faith Craig, Director of Disability Resources, located in 209 Thompson-Clark Hall. You may reach her at 724-946-7192 or craigfa@westminster.edu. No accommodations can be given without documentation from the Disability Resources Office.

Important Dates:

9/4: Last Day to Add/Drop
9/28: Exam 1
10/21-10/24: Fall Break - No Classes
11/2: Exam 2
11/3: Last Day to Withdraw
11/22-11/26: Thanksgiving Break - No Classes
12/8: Classes End
12/13: Final Exam