Learning Outcomes

1. Apply inductive and deductive reasoning to problems.
2. Identify and solve problems involving patterns that form linear and quadratic functions.
3. Create and thoroughly explain expressions for patterns involving summations and/or figurate numbers.
4. Apply a variety of problem-solving strategies in order to solve both geometric and word problems involving patterns.
5. Identify patterns on Pascal’s Triangle. Write an expression that works for multiple patterns identified.
6. Identify properties of geometric figures and apply these in problems.
7. Demonstrate knowledge of concepts of number and number relationships, number systems, number theory, estimation, and computation in the context of problem solving.
8. Communicate mathematical ideas orally and in writing including making mathematically convincing arguments.
9. Demonstrate a positive disposition toward persistence and reflection in doing mathematics.
10. Demonstrate the ability to interact within groups, and with the class as a whole, while demonstrating cognizance of working with students at different levels.

**Course requirements**

1. **Attendance and active participation in all sessions. Two or more unexcused absences will lower your final grade. Because active group participation is an essential component of this course, missing 25% of classes or more with unexcused absences will result in a grade of F for this course.**
2. You may collaborate on solving the homework problems (Menus 1 and 2). However, it is imperative that you are able to solve problems independently on the exam. Graduate students are required to complete four additional and more complex problems for Menus 1 and 2. These will be distributed in class.
3. Complete individual menus of problems, group tasks, and homework problems. If you must miss class, you are expected to complete any missed group work or tasks from the missed class.
4. Complete article reviews and other readings. Full directions and expectations for these assignments are on Canvas.
5. Complete an in-class Midterm Performance Assessment near the middle of the semester and a Final Performance Assessment at the end of the semester.
6. Develop a Final Mathematics Portfolio. Directions will be provided on Canvas.
7. Complete a final mathematics task to be included in your Portfolio. This task will be distributed in class and is in addition to the Portfolio tasks described on Canvas.
8. Have a positive and productive disposition toward yourself, your classmates, and mathematics. Be respectful of fellow classmates and the instructor as you share ideas.

**Course Grades**

Students earn their grade in the course as determined in the table below. Points accumulated will be recorded in CANVAS. Important due dates will be listed in CANVAS calendar. Recall that there is no grade of D for graduate students.

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Percent of Final Grade</th>
</tr>
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<tbody>
<tr>
<td>Two Math Menus (homework)</td>
<td>24</td>
</tr>
<tr>
<td>Participation/Attendance*</td>
<td>5</td>
</tr>
<tr>
<td>Article Reviews/ Discussion</td>
<td>10</td>
</tr>
<tr>
<td>Midterm</td>
<td>24</td>
</tr>
<tr>
<td>Mathematics Portfolio</td>
<td>10</td>
</tr>
<tr>
<td>Final</td>
<td>27</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Percent Earned</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>92-100</td>
<td>A</td>
</tr>
<tr>
<td>82-91</td>
<td>B</td>
</tr>
<tr>
<td>72-81</td>
<td>C</td>
</tr>
<tr>
<td>71 and below</td>
<td>F</td>
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</tbody>
</table>

* The participation score is intended to recognize those who put forth a maximum effort and demonstrate persistence in problem solving. The instructor will use her best professional judgment in awarding the 5% for this item based on a student’s full participation in class activities, attempts at completion of challenging tasks, and may be influenced by a student’s attempts or non-attempts at desert items from the menu problems. Five percent will be awarded to students who: have few or no absences (and make up the work for any absences), actively participate in all group and independent tasks, demonstrate persistence in pursuing challenging problems and tasks, show craftsmanship in solving problems and seek to extend their thinking on problems, stay on task without reminders during class activities, show the ability to work independently on tasks, demonstrate the ability to work with others on tasks without providing too much assistance, complete all required tasks on the menus and give good faith attempts at some of the desserts on the menus. If in the judgment of the instructor a student fails to meet all of the above, the instructor will assign a score between 0 and 5% with appropriate credit given for partial successes in meeting course goals. The instructor’s decision here is based on his/her professional experience and is the final judgment on this item.
Course Policies

Cell Phones and Other Devices
Let me know in advance if there is an important reason for you to be accessible by phone during class. Please silence your cell phone so you can be fully present to the members of our class and your small groups. Other devices are not permitted in class unless otherwise approved by the instructor.

Exams
A make-up exam will be scheduled only when requested within the first two days of the term for a valid and verifiable reason or in case of an extreme emergency.

Attendance and Tardiness/Early Departure Policy
Attendance every day is expected and essential to success. Please be on time to class and let me know as soon as possible if it is necessary to miss class. Class roll will be taken at the beginning of each class period and recorded. Always sign in as documentation of your attendance and punctuality. It is your responsibility to talk with your peers regarding what you missed, ask classmates to turn in your assignments, etc. You will be held responsible for content during your absence. Tardiness to class and early departures are disrespectful to the instructor and your classmates.

Late Assignments/Revisions
All assignments are due at the indicated/assigned due date and time in Canvas unless otherwise instructed. In the event the instructor will accept a late assignment, ten percent of the assignment grade will be deducted per day late. No revisions will be possible unless requested by the instructor. If the instructor requests a revision of an assignment, the grade you receive will be an average of the first and second attempts.

Academic Misconduct
UAB Faculty expects all members of its academic community to function according to the highest ethical and professional standards. You are expected to be aware of, and rigorously adhere to UAB code of conduct with regard to academic honesty and inter-personal relations.

Academic dishonesty and misconduct includes, but is not limited to, acts of abetting, cheating, plagiarism, copying homework, fabrication, and misrepresentation. Candidates are expected to honor the UAB Academic Code of Conduct as detailed in the most current UAB Student Catalog.

Reasonable Accommodations
UAB is committed to providing an accessible learning experience for all students. If you are a student with a disability that qualifies under Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act, and you require accommodations, please contact Disability Support Services for information on accommodations, registration and procedures. If you are registered with Disability Support Services, please contact DSS to discuss accommodations that may be necessary in this course. Disability Support Services can be reached at 934-4205 or www.uab.edu/dss or in the Hill Center Suite 409.

Non-harassment, hostile work/class environment:
The UAB College of Arts and Sciences expects students to treat fellow students, their Course Instructors, other UAB faculty, and staff as adults and with respect. No form of hostile environment or harassment will be tolerated by any student or employee. In this class, we will only use constructive criticism and will work to build a community of life-long learners.

Title IX Statement
UAB is committed to providing an environment that is free from sexual misconduct, which includes gender-based assault, harassment, exploitation, dating and domestic violence, stalking, as well as discrimination based on sex, sexual orientation, gender identity, and gender expression. If you have experienced any of the aforementioned conduct we encourage you to report the incident. For more information about Title IX, policy, reporting, protections, resources and supports, please visit http://www.uab.edu/titleix for UAB’s Title IX Policy, UAB’s Equal Opportunity, AntiHarassment Policy and Duty to Report and Non-Retaliation Policy.
Syllabus: This syllabus is subject to changes announced in class.