

Moravian College
IDIS 196 – Foundations of Mathematical Thinking Syllabus
Fall 2018

Instructor: Jennifer Rao
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Lectures: MW 2:35-3:45pm, SMC 106

Office Hours: Available by appointment, typically Monday, Wednesday or Friday mornings

Course Page: [IDIS 196 Canvas shell](#)

Online Homework System: <https://www.aleks.com/> Course Code: **4DEEP-UWTAA**

Course Overview:

The goal of this class is to provide a brief review of key mathematical topics from high school as well as help you develop tools to be successful in your college career. Topics will include algebra, geometry, and logic as well as critical thinking skills. The ALEKS online system will be used to identify topics that require particular review and support. In class we will use open-ended team-based problems to help you develop creativity and logic-based problem solving skills using the math you have learned. There will also be a semester-long project involving the study of a [Rubik's cube](#), which will conclude in each student giving a presentation of their findings on the last day of class.

Upon completion of this course, you will receive a half elective credit toward your college degree. Note that this will not count as a mathematics credit: you will still need to complete your F2 (quantitative reasoning) requirement during your tenure at Moravian College.

Goals and Objectives:

- Develop a mastery of basic algebraic skills (through the ALEKS curriculum)
- Develop creative and methodical solutions to geometric challenges.
- Using appropriate mathematical tools (graphs, equations, spreadsheets, etc.) to model and solve a given problem.
- Demonstrate positive problem-solving strategies, including creativity, logical thinking, and making connections to related problems.
- Demonstrate a professional work ethic, including both independent work and effective cooperation in team-based activities.
- Enhanced proficiency in effective written and oral communication skills through semester long project including a final presentation.

Grading:

<i>Attendance and Participation</i>	5%
<i>ALEKS Assignments</i>	35%
<i>In-Class Investigations</i>	40%
<i>Rubik's Cube Project</i>	15%
<i>Final Presentation</i>	5%

The following grading system will be used for the final grade:

90–100%	A +/-
80–89%	B +/-
70–79%	C +/-
60–69%	D +/-
0–59%	F

Attendance and Participation:

Attendance and punctuality is required for this class since each day's in-class investigation will make up a majority of your grade. During each class it is expected that you will arrive prepared to work and actively participate in that day's in-class investigation and discussion. You are responsible for all work covered in class and all assignments, even if you are absent.

If you miss class due to illness or emergency please notify your instructor immediately. If your absence is due to unforeseen circumstances it may be excused by the instructor with documentation from a health care professional. You are still required to do the In-class investigation on your own and hand it in before the next class. All in-class investigations will be posted to Canvas after that day's class.

For each unexcused absence you will be given a score of zero for that day's attendance and participation, as well as a zero for the in-class investigation (see In-Class Investigations section below).

ALEKS Assignments:

This course is designed to help you review core mathematical skills needed to succeed in college. During the first week of class you will register for the ALEKS system and take the placement test. ALEKS will then provide curriculum paths to help you develop your mathematical skills. You should plan to spend about 5-6 hours working in ALEKS each week for a total of 40 hours spent by the end of the semester.

Success in this course will partly depend on mastering the skills through ALEKS. Your grade for the ALEKS assignments will be based on the progress you make. The goal is to show improvement, not to reach an absolute final score on the ALEKS assessment.

In-Class Investigations:

During each class meeting students will be placed in teams to work on that day's mathematical investigation. You should come to class each day with paper and a pencil with an eraser. Some in class work will require use of your computer. Reminders will be given when the computer is needed.

Your grade for each investigation will be based on your written submissions, as well as the evaluation of your participation and engagement with the class material. This will include:

- Your completion of any reading or homework that was assigned in preparation for the class.
- Your participation in class by taking part in class conversations. Note that asking questions counts as taking part . . . if you don't understand, please ask!
- Being supportive of your classmates. This means helping a classmate if they are not understanding, or working together to solve challenges. This also means giving your classmate space to find their own solution: not everyone works at the same pace.

There will be a total of 10-12 in-class investigations, but the lowest grade of the semester will be dropped. If you miss class due to an excused absence you can do the In-class investigation on your own to receive credit.

Typical Class Structure

- Opening: The first 10 minutes of class may be used to go over the previous in-class assignment if needed.
- Main topic: Work on that day's in-class investigation activity.
- Any remaining time: Work on ALEKS or Rubik's cube assignment.

Rubik's Cube Project:

During the first week of class each student will be given a Rubik's cube which you will then spend the semester learning about. Each week there will be a homework assignment that will explore different aspects of the Rubik's cube. These assignments will require you to gather and organize data about the cube to answer the questions proposed.

Each assignment will build on the one before it, so it is essential that you complete all of the assignments. At the end of the semester each student is expected to present their findings and experience with the Rubik's cube to the class (see next section).

Final Presentation

During the last day(s) of class each student will give a 10 minute presentation about their Rubik's cube experience. The presentation should include some, if not all, of the following topics:

- Were you able to solve the cube? If not how far did you get and where did you get stuck?
- What methods did you use to track your data each week?
- Did you learn anything from the Rubik's Cube experiments that you think you could apply to other areas?

The main purpose of this presentation is to help you practice your public speaking skills, as well as your ability to explain your thought process to others. A scoring rubric will be provided before the presentations.

Title IX and Confidentiality:

Moravian College faculty are committed to providing a learning environment free from gender discrimination and sexual violence. Should a student disclose a concern of this nature, the faculty member is obligated to inform the Title IX Coordinator, who will assist the student in determining resources for support and resolution. Fully confidential reporting options include the Counseling Center, Health Center, and Religious Life (chaplain). Survivors are encouraged to seek immediate assistance by contacting the Advocates at (484) 764-9242. For more information, please visit www.moravian.edu/titleix.

Academic Code of Conduct:

Please be familiar with [Moravian College's Academic Code of Conduct](#) described in the online Student Handbook. For this class specifically:

- All the ALEKS work should be done by you alone.
- In-class investigations are meant to be done collaboratively and require you to work together with your team members. These investigations should be done through your own experimentation and reasoning (do not search for the answers on the internet).
- For weekly Rubik's cube assignments you can discuss the assignment with your instructor and your classmates, but submissions should be in your own words.

Policy on Cell Phones/Mobile Communication Devices:

Please do not use and do not answer your cell phone (or other text messaging device) during course meeting times. If you may need access to your device due to an emergency situation, please let the instructor know before class.

Classroom Management:

During each class you will be working in teams with other students. Please treat others with respect and courtesy so that we can establish a positive working environment. You may be asked to leave the classroom if you are being disruptive or disrespectful.

Tutoring and Academic Support:

The Academic Support Center houses Disability Support and Greyhound Tutoring on the first floor of Monocacy Hall and can be reached at 610-861-1401. Greyhound Tutoring provides course-specific tutors to Moravian students, free of charge. Request a tutor using the link <http://bit.ly/NeedTutorMC>. You will need 2-3 business days to connect with a tutor.

Students who wish to request accommodations in this class for a disability should contact the assistant director of learning services for academic and disability support in the Academic Support Center, Monocacy Hall or call 610-861-1401. Accommodations cannot be provided until authorization is received from the Academic Support Center.

Final Notes:

This syllabus is subject to change and any updates will be announced in class and on Canvas. Students are responsible to check their email daily to keep up to date with any changes. Grading of assignments and your final grade is subject to instructor discretion.