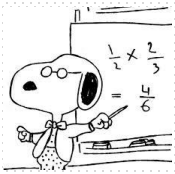
MATH 107
INTRODUCTION TO FINITE MATH
WINTER 2021



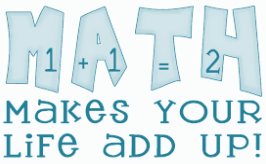
PROFESSOR: Janet Betterton
CLASS 107: WINTER TERM

OFFICE HOURS: MW 9:00 – 10:00

OFFICE: Available to message and video chat during this time

EMAIL: jbetterton@ferrum.edu

PURPOSE/RATIONALE:
This purpose of this course is to both to fulfill the mathematics core requirement and to prepare students for statistics.



COURSE DESCRIPTION:
This course was designed as an introduction to topics from finite mathematics. Topics include sets, probability, algebra of functions, and descriptive statistics. These topics are typically found on the Praxis test. This course will be 3 credits in the general math requirement for most majors. The focus is on analyzing, interpreting data and problem-solving to provide a firm quantitative background and prepare students for

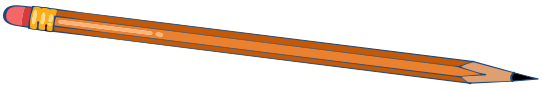
Textbooks and Materials:

College Mathematics: Tracey Haynie, J. B. (n.d.). *College Mathematics.* Scottsdale Community College

Supplemental Textbooks – see list in Brightspace

TI-83/84 Plus Graphing Calculator Preferred or TI-30 scientific calculator Computer Emulator provided in Brightspace

Computer with internet access; use the site: https://www.ferrum.edu/online-learning-resources/ if you need computer



Methods for Success:
1. **Attend all classes**
2. **Keep up with all assignments, read sections that correspond to topics**
3. **Ask questions, take notes from lectures and videos**
4. **Seek help immediately.**
5. **Skim topics prior to class to be prepared**
6. **If you miss a class, get the assignment and missed concepts. Be sure to contact me immediately to discuss the absence.**
7. **Review the topics after class even if there is no specific assignment**
8. **Be prepared for classes and assessments.**

Prerequisites: Math 100 or Math 105 or test

Assessments

Homework	15%
Practice Quizzes	25%
Attendance	5%
Module/Unit Tests	40%
Final Exam	15%

Grading Scale

A	90% - 100%
B	80% - 90%
C	70% - 80%
D	60% - 70%
F	0% - 60%

Videos/Presentations

PowerPoint presentations will accompany the videos to many classes. Class demonstrations will be available as needed as students are working on assignments. Lesson quizzes will follow. When you are absent, or you are having difficulty with a topic you can go back to the video or presentation to review topics.

Homework/Assignments

You will be assigned homework from each lesson in order to practice each of the concepts. The homework is essential to practice in order for you to understand the concepts presented and master learning objectives required. Other assignment will follow topics, some of which will be in groups.

Learning Methods

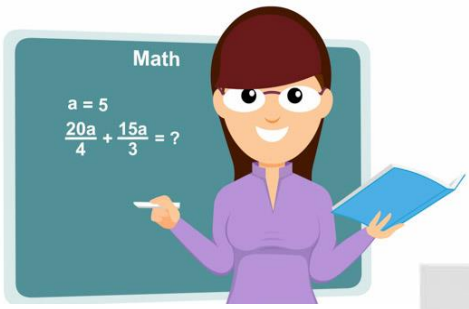
Vocabulary/Notes

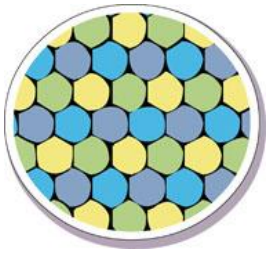
The vocabulary for each module is important. The better that you understand the vocabulary and symbols the better you will understand math concepts. The notes stress the vocabulary and concepts. You will have vocabulary and notes with each module that you will be responsible to use for each unit.

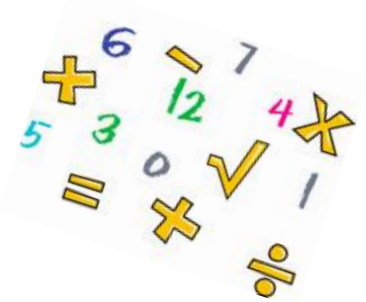
Module/Unit Tests/ Final Exam

All of the components should provide preparation for the unit or module test. There will be a module test and a final exam. The final exam will be cumulative.

Learning Opportunities will consist of personal demonstrations, video demonstrations, PowerPoint presentations, notes, student practice/homework, video concept assignments, group and individual assignments, online discussion assignments, online meetings, tutoring sessions, question/answer session, quizzes online, module/unit test online. A variety of activities will be utilized and provided for students. What and how much you participate will help to determine your success in the course. I am here to direct and facilitate your learning, but it is up to you to take advantage of the opportunities and utilize the resources available. As the instructor, I do reserve the right to make adjustments in student opportunities as the term







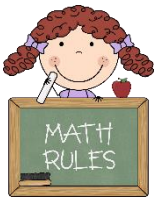
Attendance Policy

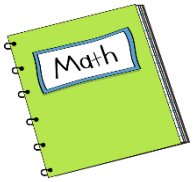
College policy dictates that attendance is required at a minimum of three-fourths of all class meetings in order to receive credit in a course. **It is recommended that very few (if any) missed classes be seen in your records. Class attendance and with your hard work will correlate highly with good grades. Notify me if there are extenuating circumstances. You are responsible for keeping up with all missed material and assignments. Since attendance is so important, students missing a class for any reason, needs to contact me regarding the absence and missed work immediately. In this online course, attendance is determined by keeping work completed by the due dates. If work is turned in within 1 day of the due date, it will be tardy accessed for attendance. Work can be turned in later**

See Brightspace for other

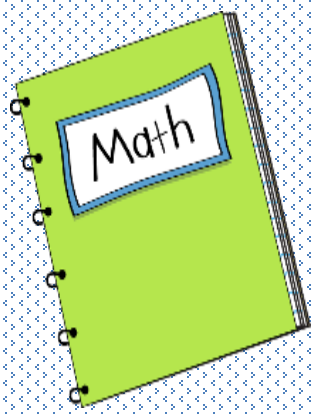
Basic Course Schedule Outline

Topic	Assignments
Week 1 – Course Orientation and Start Unit 1 and start Unit 2	Complete Class Orientation segments & readings
Class Orientation	Orientation Quiz
Module 1 – Getting Started	
Module 2 – Orientation	
Unit 1 - Functions	
Module 3 – Intro to Functions	Lesson 1 Functions
Module 4 – Linear Functions	Lesson 2 Functions
Module 5 – Quadratic Functions	Lesson 3 Functions
Module 6 – Test Unit 1 Functions	Test
Unit 2 - Sets	
Module 7 – Intro to Sets/Operations with Sets	Lesson 1 Sets
Module 8 – Operations with Sets	Lesson 2 Sets
Week 2 – Complete Unit 2 &-Start Unit 3	
Module 9 – Venn Diagrams	Lesson 3 Sets
Module 10 – Test Unit 2 Sets	Test
Unit 3 - Probability	
Module 11 - Introduction to Probability	Lesson 1 Probability
Module 12 – Probability Basics	Lesson 2 Probability
Module 13 – Probability	Lesson 3 Probability
Module 14 – Test Unit 3 Probability	Test
Week 3 – Complete Unit 3 - Exam	
Unit 4 - Statistics	
Module 15 – Introduction to Statistics, Sampling & Frequency Distributions	Lesson 1 Statistics
Module 16 – Graphs & Central Tendencies & Measures of Positions	Lesson 2 Statistics
Module 17 – Measures of Variation, Standard Deviation, Z-Scores, Normal Distributions	Lesson 3 Statistics
	Lesson 4 Statistics
Module 18 - Linear Correlation & Regressions	Lesson 5 Statistics
Module 19 - Test Unit 4 Statistics	
Module 20 - Exam	Test
	Exam

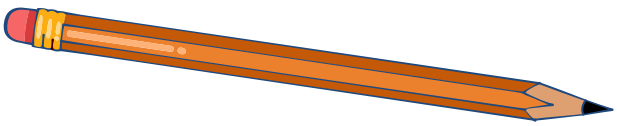


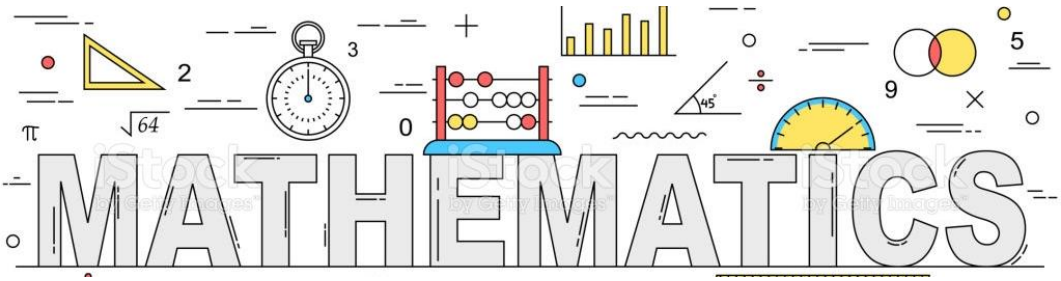


Math Tutoring:
To increase your success in this Math class, it is essential that tutoring be utilized sooner than later. If you are having difficulty in this course, it is essential that you seek help by email immediately. The longer you wait for assistance, the less likely your success will be to pass the course. I will be available to explain how to navigate the course materials on the first day during office hours. I will be available during office hours for easy direct access via Zoom for needed questions on content or course navigation. It is vital that you seek help as needed as soon as problems occur. The purpose of this is to make sure that you are successful in this class.



$a^2+b^2=c^2$





Civility in the Classroom Policy:
Civil and mutual respect between faculty and students are critical in the college classroom environment if teaching, learning, critical thinking, and sharing of ideas are to occur. Respectful and civil behavior at a very basic level includes the following: turning off cell phones, removing headphones and mp3 players. Arriving to class on time. Engaging appropriately in classroom activities, lecture, or discussion through attentive listening without interruption or side chats and demonstrating the ability to discuss topics without inappropriate language or attacking others (physically or verbally). Students who do not comply with the Civility in the Classroom policy described in the faculty Handbook and the Student Handbook will be removed from the academic setting and may risk serious consequences as outlined in the civility policy.

Academic Integrity:
The regulations of the honor board apply to all graded work – see student handbook. In all instances, polices identified in the Ferrum College Catalog and the Ferrum College Handbook regarding the Honor System shall be followed. Working on homework in groups is permitted and strongly encouraged. However, each student should work on and contribute to each problem and write up the work by themselves to avoid impressions of duplicated work. Students are expected to display academic integrity at all times and in all circumstances.

Office of Academic Accessibility (OAA):
As directed by Ferrum College's policy, any student with a disability who qualifies for and chooses to seek academic accommodations (such as testing, captioning, or other services) must request accommodations through the Office of Academic Accessibility (OAA) Information for Students with Disability Documented. The director, Nancy Beach, can be reached by email at nbeach@ferrum.edu and information about academic accessibility is available on the OAA webpage at www.ferrum.edu/accessibility . Students pursuing academic accommodations must submit appropriate documentation to the director of OAA and follow Ferrum College's OAA established procedures in a timely manner. Nancy Beach's office is in the Carter Center, Lower Level of Stanley Library Room 110 and her phone number is 540-365-4262. If you believe you are not receiving the accommodations needed, your responsibility is to immediately contact the director by email, explain your concern to the degree you feel comfortable explaining it in writing, and request an appointment. As a reminder, please remember that accommodations cannot be granted retroactively; they must be requested in a timely manner prior to when the accommodation is needed and Ferrum's established procedures must be followed. If you have any concerns, make an appointment with the director. Students pursuing academic accommodations must submit appropriate documentation to the director of OAA and follow Ferrum College's OAA established procedures in a timely manner.

***Remember that accommodations cannot be granted retroactively; they must be requested in a timely manner before the accommodation is needed.**

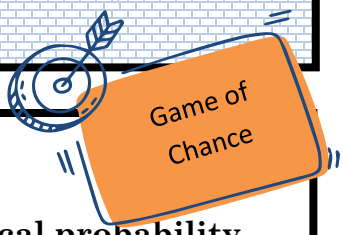
Class Policies: **During class and with all work relating to our class, I expect students to adhere to rules from the Ferrum College Student and Faculty Handbooks. The specifics of those rules relating to the Honor System, Attendance, Civility in the Classroom, etc., can be found in the Student Handbook, on Ferrum College's website and within the course syllabus and website on Brightspace. My interpretation of these rules boils down to the following basics:**

1. **Turn in work on time, stay on top of class assignments & due dates (This means asynchronously)**
2. **Be courteous to all during class, online etc. knowing the rules for correct etiquette online**
3. **If you do not know how to use something, find assistance**
4. **Always utilize academic integrity in all circumstances**
5. **Always use appropriate behavior, language, etc. with online assignments and communications**
6. **Turn in assignments and complete work on time. Late work will have penalties.**
7. **Follow directions on assignments, they are not suggestions.**
8. **Help yourself by using given resources or find your own but use resources.**
9. **Basic computer skills such as using Email, navigating Brightspace, navigating the Internet, connecting online through Teams or Zoom, etc., using various software such as Word, Excel or PowerPoint, operating flash drives, etc. are expected skills, but if you have difficulty, reach out to find help quickly. Other software or sites may arise during the course as well.**

Course Objectives

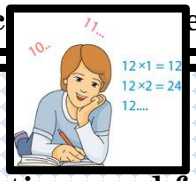
Sets:

1. Use various methods to identify, name, list and describe sets
2. Determine and identify equal sets and equivalent sets
3. Determine and identify subsets and proper subsets
4. Use Venn diagrams to represent sets
5. Complete set operations such as complements, intersections, unions, and differences



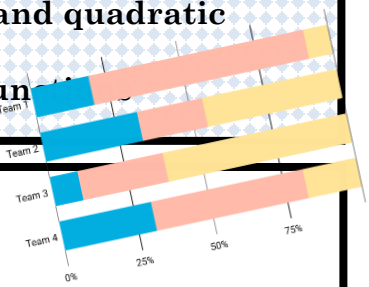
Probability:

1. Be able to identify differences between empirical vs. theoretical probability
2. Use the Law of Large Numbers and equally likely events to determine expected values
3. Use the counting principle, permutations and combinations to determine expected outcomes
4. Be able to construct a sample space using various techniques such as listing, tree diagrams or formulas
5. Calculate the odds for or against an event occurring and use the relationship of odds and probability to find each
6. Calculate compound probability events
7. Combine probabilities using appropriate formulas
8. Distinguish between mutually exc endent and independent events



Functions:

1. Find the domain and range of relations and functions
2. Evaluate functions
3. Express functions verbally, numerically, algebraically and graphically
4. Be able to solve linear and quadratic equations
5. Be able to graph and analyze linear, and quadratic (vertex and quadratic formulas), graphs and functions
6. Be able to solve real world applications involving various fun

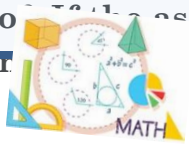


Statistics:

1. Identify quantitative vs qualitative data types
2. Identify methods of sampling
3. Create and interpret bar graph, pie charts, frequency distributions, and histograms
4. Calculate and use measures of center such as mean, median, midrange and mode
5. Calculate and use measures of dispersions such as range, IQR, and deviations
6. Calculate and use measures of position such as z-scores, percentiles, and normal distributions
7. Understand and use normal distribution curve regardless of form as area under the curve, percentage, or probability etc

Online Attendance Policy:

Ferrum College policy dictates that attendance is expected for 75% of meeting times and that students are responsible for all course work assigned in their online courses. Simply logging into an online course is not sufficient by itself, other requirements may be necessary. Demonstrating academic attendance by a student, in an online course, is determined by the instructor. These requirements may include, but are not limited to, submission of an academic assignment, exam, online discussion forum post, or emailing the course instructor (also see documenting attendance when students are enrolled in distance education courses). If a student is unable to complete work or misses a course deadline for any reason, the student must account for the "absence" with their instructor. Unusual circumstances include extended illness or other emergencies, the student's participation in college-sponsored activities, or some combination thereof. If the assignment is for attendance then it may also reflect "tardies" if the assignment is submitted late.



Shortened Term Attendance:

With online classes, students will be following attendance rules based on the due date of class assignments that day. If the assignment is turned in within the 24 hours of due date, then attendance will be tardy. Anything later is still recorded as an absence. In order to also meet the number of hours needed for a 3 hour credit course, The course content is based on the average number of hours needed to complete an assignment module. If you work slower, you still have to complete the assignment. This means you will need to spend approximately 4 to 8 or an average of 6 hours per day to complete the assignments for a 3 hour credit class in 3 weeks. My plan is to credit you for your time watching or studying the material for class as part of that time so there will be various assignments with each lesson to log the added time. You will be given various assignments which could include any of the following items such as a discussion board post, practice problems, reading assignments, supplemental videos, practice quizzes, homework problems to complete and/or a drop box submission any of which assignments will also count for attendance. All these assignments will help you to master the concepts required for the course and have been developed to be utilized to provide you the best success in the course. The homework assignments should resemble similar problems that you may get in a regular classroom. The work list may seem like a great deal, but a step-by-step approach will bring success and many of the assignments will increase your knowledge levels and help with concepts. I have included extra study material, problems, study guides that you may find useful, but they are not part of the required assignments. It will be to your advantage to use these materials as much as possible, especially if you are having difficulty. I just want you to be prepared.

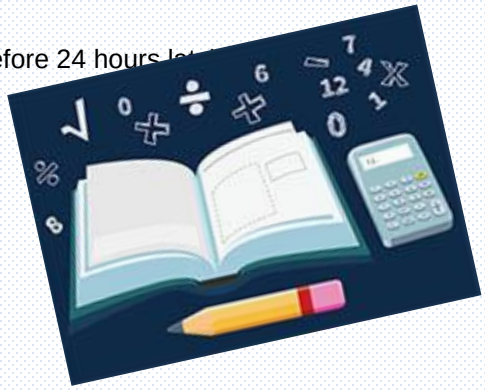
Attendance Codes in You Attend:

Attendance will be part of your grade. Online attendance will be based on assignments turned in at due dates to document the attendance. The following is a key to attendance codes and their point values as they are entered in Brightspace You Attend:

PW – Present Work completed and turned in on time

PTO – Present Tardy Online (assignment turned in after due date before 24 hours la

ANW – Absent No work Turned in Completed



Best of Luck—I am excited for our new experiences together—*Remember,* DO not hesitate to Contact me with