MA107: Precalculus Mathematics

College of Graduate and Continuing Studies, Norwich University

Course Description

A course on topics in pre-calculus mathematics involving algebra and trigonometry designed to prepare students to progress into introductory calculus. It is a rapid development of elementary topics in algebra to linear, quadratic, logarithmic, and exponential functions, followed by an analytical treatment of trigonometry.

Prerequisite: Grade of "C" or better in MA 103 or equivalent as determined by departmental placement testing. Not open for the first time to students with credit in any course requiring MA107 as a prerequisite.

Course Overview

This course will provide you with important foundations in various mathematical concepts with an emphasis on real-world applications of functions, quadratic models, exponential equations, as well as concepts from trigonometry.

The course is designed to prepare you to progress into calculus, and provide a strong foundation for other courses which rely on mathematical concepts from algebra and trigonometry.

Throughout the course, we will apply these mathematical concepts and modeling techniques to real world examples taken from economics, business, data science, biology, physics, engineering and other fields. We will also use a graphing approach to help visualize mathematical concepts. This will provide valuable insights to better understand the behavior for various mathematical models that we investigate.

The course will utilize MyLab for online homework assignments and exams. In addition, MyLab contains many excellent help resources such as videos, animations, guided lecture notes, and visualizations. The homework assignments have built in help resources including a guided step by step solution method for each homework problem.

The goal for this MA107 course is to provide the resources so that you can be successful in the course. Please be sure to reach out to your instructor for any extra assistance at any time.

Student Learning Outcomes

Upon successful completion of this course, the student will be able to:

1. Explain and apply functions and combinations of functions including linear, quadratic, rational, exponential and logarithmic functions.
2. Construct and apply inverse functions for trigonometric, exponential and other functions.
3. Calculate domain, range, roots, asymptotes and other characteristics for graphs of various functions.
4. Solve applications involving six trigonometric functions, right angle trigonometry, Law of Sines and Law of Cosines.

Expectations

You are expected to be actively engaged throughout this course. This means you will participate in the course activities, such as reading the course material, viewing presentations, completing all exercises and actively participating in all required discussions. To successfully complete the course you must participate in all required course activities each week.

The course is divided into weeks, and for each week, you are expected to use resources such as textbook readings, video lectures, and guided lecture notes. In addition, there are supplemental resources available such as additional videos, animations, interactive figures, PowerPoint files and guided visualizations. These are additional learning tools that you can use for any topics where supplemental resources would provide additional insights and explanations to help you to be successful in this course.

You can expect that your instructor will also be actively engaged in this course. Your instructor will facilitate all discussions, prompt deeper thinking and application through additional questions, and give feedback to either you or the entire class. This is a collegiate level engagement. It is not a transfer of knowledge, it is a guide for you to gain knowledge through the research, formulating an argument, debate, and supporting your conclusions with credible sources of facts. All citations must be done using APA style format.

Required Textbook

The textbook required for this course is the following:

- Sullivan, M. (2020). *Precalculus* (11th ed.). Pearson Education.
  - Note: This is a loose-leaf version of the textbook that includes an 18 week access to MyLab. The book can be accessed as an ebook within MyLab.

For complete textbook information for this course, see the Norwich University Booklist.

See the Required Readings for all readings in this course.

Grades

The following table shows the graded assessment types contained within this course and the assigned weighting to determine the final course grade.

Graded Assessments	Location of Assessment	Week	Points	Weights (%)
Assignments (Homework)	MyLab	Weeks 1-8 (multiple per week)	160 (20 points each)	16%
Discussions	Moodle	Weeks 1-7	140 (20 points each)	14%
Exams	MyLab	Weeks 2, 5, 7	450 (150 points each)	45%
Final Exam	MyLab	Week 8	250	25%
Total			**1000**	**100**

Letter grades for the course will be based on the following grading scale.

Letter Grade	Percentage	Grade Point
A	93-100%	4.0

A -	90-92.9%	3.7
B +	87-89.9%	3.3
B	83-86.9%	3.0
B -	80-82.9%	2.7
C +	77-79.9%	2.3
C	75-76.9%	2.0
C -	73-74.9%	1.7
D +	70-72.9%	1.3
D	67-69.9%	1.0
D-	63-66.9%	0.7
F	0-62.9%	0.0

For complete information on the Grading Policy, please refer to the [CGCS Online Catalog.](#)

Course Assessment Information

Assignments

- **Completed within MyLab.**
- You are required to complete all assignments by the given due dates, which are listed on each assignment.
- **Do not** attempt to do any assignment problems unless you learn the concepts in each section first. Watch each section's lecture video, textbook, or PowerPoint presentation and use the provided videos, lecture notes and other resources before you attempt to do any problem.
- **You can redo problems as many times as necessary until you master the materials.** Try your best to get 100% correct on each assignment.
- **Assignments are untimed, have unlimited attempts and various help resources are provided** under the QUESTION HELP button (which is located in the upper right corner of the screen) when working on any of the problems.

Discussion Boards

- **Completed within Moodle.**
- Read the instructions carefully.
- Respond to **all of the questions** which are provided. Failure to respond to any of the questions may result in a loss of points.
- Carefully review the rubrics provided to ensure you understand the requirements to receive full credit.

Exams

- **Completed within MyLab.**
- Covers content as follows:
    - Exam #1 - material from weeks 1 and 2.
    - Exam #2 - material from weeks 3, 4 and 5.
    - Exam #3 - material from weeks 6 and 7.
- Consists of 20 questions.

- **2 hour time limit.**
- **One attempt.**
- No help resources are available when taking the exams. Use of any books, notes, or external help is not permitted. A handheld scientific calculator is permitted however graphing calculators are not permitted. Doing so would be a violation of the Norwich University honor code.

Final Exam

- **Completed within MyLab.**
- Comprehensive of the content from weeks 1 to 8.
- Consists of 30 questions.
- **3 hour time limit.**
- **One attempt.**
- No help resources are available when taking the exams. Use of any books, notes, or external help is not permitted. A handheld scientific calculator is permitted however graphing calculators are not permitted. Doing so would be a violation of the Norwich University honor code.

Late Work

Failure to submit assignments and exams on time will result in a penalty. This penalty can be up to 5% of the maximum final grade point value of the assignment or exam per day for each day late (for example, if an assignments max value is 390 points, at most 20 points can be taken off each day it is late). The instructor does not have to impose the maximum. However, a penalty will be imposed unless the student has an excuse approved by the instructor.

Late penalty for assignments completed in MyLab: Each assignment has numerous questions. Questions completed before the due date will not be subject to a late penalty. Questions within the assignment not completed by the due date will have the late penalty applied.

Unless arrangements have been made beforehand, it is expected that assignments and exams will be submitted on or before the due date.

Academic Honesty and the Norwich University Honor Code

A student must submit work that represents the student's own original analysis and writing. Copying another's work is not appropriate. If the student relies on the research or writing of others, the student must cite those sources. Words or ideas that require citations include, but are not limited to all hardcopy or electronic publications, whether copyrighted or not, and all verbal or visual communication when the content of such communication clearly originates from an identifiable source. While students are encouraged to seek editing feedback, extensive revisions of one's work by another person is considered a lack of academic honesty, as it is representing another student's work as one's own.

For more information see:

Academic Dishonesty
Academic Integrity
Norwich University Honor Code

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Section 504 of the Rehabilitation Act of 1973/ADA

Please consult Appendix H: University Policy - Section 504 of the Rehabilitation Act of 1973/Americans with Disabilities Act (ADA) for instructions on obtaining an accommodation.

Disclaimer: Please note the specifics of this Course Syllabus are subject to change. Students are responsible for abiding by any such changes. Your instructor will notify you of any changes.