Math 1250: Precalculus and Trigonometry (DC)
Online Course

Instructor: Andy Taylor

Contents

1 Office and Contact Information:

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2 Office Hours:

These will be held via Zoom, with the link to be posted in Blackboard under 'Office Hours'. Tentatively, office hours will be accessible during these times:

12:00pm-3:00pm, Tuesday/Thursday

However, on certain occasions (such as before exams/project due dates) there may be additional office hours available. Also, if these office hours do not work with your schedule, please let me know and I will be happy to set up an appointment to meet with you Monday thru Friday in the afternoon or evening.

3 Overview

Welcome to Math 1250! Here is the UNM course description:

> Trigonometry and Pre-Calculus includes the study of functions in general with emphasis on the elementary functions: algebraic, exponential, logarithmic, trigonometric and inverse trigonometric functions. Topics include rates of change, limits, systems of equations, conic sections, sequences and series, trigonometric equations and identities, complex number, vectors, and applications.
>
> **Prerequisites/placement**: Prerequisites/placement: Grade of C or better in Math 1220 or minimum ACCUPLACER score 249 (AF), or math ACT score of 25+, or math SAT score of 570+. Meets University of New Mexico Core Curriculum Area 2: Mathematics and Statistics.

Note: This syllabus is subject to change, if needed.

4 Student Learning Outcomes (SLOs)

1. **Trigonometry**

   (a) Students will be able to define and evaluate the trigonometric functions as functions of angle in both degree and radian measure using the definitions in terms of x,y, and r; as the ratio of sides of a right triangle using the unit circle; using reference angles, commonly used angles, and using a calculator.

   (b) Students will be able to solve right triangles. They will be able to draw a sketch in an applied problem when necessary.

   (c) Students will be able to solve non-right triangles using the law of sines and the law of cosines.

   (d) Students will be able to prove trigonometric identities and apply addition and subtraction, double-angle, half-angle and power reduction formulas.

   (e) Students will be able to graph the six trigonometric functions, their transformations and their inverses.

   (f) Students will be able to use algebraic methods, including the use of identities and inverses, to solve trigonometric equations and demonstrate connections to graphical and numerical representations of the solutions.

2. **Precalculus**

   (a) Reinforce recognizing a function from its graph and from its algebraic expression.

   (b) Reinforce identification of a one-to-one function graphically and from its algebraic expression.

   (c) Reinforce identification of inverse functions graphically and algebraically.

   (d) Reinforce combining functions arithmetically and compositionally.

   (e) Be able to calculate the average rate of change of a function and depict it graphically.

   (f) Be able to find a limiting value of a function and be able to identify and use the notation that describes this.

   (g) Reinforce graphing skills using key characteristics of functions to graph them.

   (h) Be able to graph conic sections from their key characteristics such as foci, eccentricity and asymptotes.

   (i) Be able to identify all functions mentioned from their graphs, describing their key aspects.

   (j) Solve Exponential/Logarithmic equations using the rules of exponents and logarithms.

   (k) Solve systems of linear equations by elimination.

   (l) Solve non-linear systems algebraically and graphically.

   (m) Analyze various mathematical models with functions with an emphasis on exponential and logarithmic functions, growth and decay.

5 Technical Requirements

5.1 Computer

- A high-speed Internet connection is highly recommended.
- Supported browsers include: *Detailed Supported Browsers and Operating Systems*
- Any computer capable of running a recently updated web browser should be sufficient to access your online course. However, bear in mind that processor speed, amount of RAM and Internet connection speed can greatly affect performance. Be aware, some programs that use mathematics will not work well on mobile devices such as smart phones or tablets.
- Microsoft Office products are available free for all UNM students:
  UNM IT Software Distribution and Downloads page
- Please update your contact information in Loboweb: *MyUNM*. When you log into MyUNM, Enter LoboWeb. Click on the Personal Information link to make sure your contact information is up to date.
- Laptops may be available for checkout for the Fall semester from the *UNM-Valencia Library* . Contact *UNM-Valencia Student Services* for more information.

5.2 Printer/Scanner

You will need access to a printer/scanner in order to print out written assessments such as projects or exams, and scan them in order to submit via UNM Learn.

5.3 Web Conferencing

Web conferencing will be used in this course during office hours and study sessions. For the online sessions, you will need:

- A USB headset with microphone. Headsets are widely available at stores that sell electronics, at the UNM Bookstore or online.
- A high-speed internet connection is highly recommended for these sessions. A wireless Internet connection may be used if successfully tested for audio quality prior to web conferencing.
- You should also dress as you would when attending an in-person class, even if you do not turn on your video camera.
- To create a UNM supported Zoom account, visit the *UNM Zoom log in page*.

6 Netiquette

NOTE: For links to online PDF formatted documents, you may need to give permission for the document to open. Look for a pop-up window asking for your permission.

One of the overriding principles in online conversations is to âcraft your responses effectively.â It is sometimes difficult to remember that there are real people reading posted messages. This is especially true

of online communication where others do not have the opportunity to see body language or hear tone of voice; therefore, misunderstandings are more likely.

Please, follow these guidelines in all of your online responses and discussion postings:

- Honor everyone's right to an opinion.
- Respect the right of each person to disagree with others.
- Respond honestly but thoughtfully and respectfully; use language which others will not consider foul or abusive. You may also use emoticons to convey a lighter tone.
- Respect your own privacy and the privacy of others by not revealing information which you deem private and which you feel might embarrass you or others.
- Be prepared to clarify statements which might be misunderstood or misinterpreted by others.

6.1 A Special Note about Anger

- Do not send messages that you have written when you are angry, even anonymous ones. In the online world, angry messages are known as "flamingâ and are considered bad behavior. Venting and flaming are two different things. It is possible to vent without becoming "ugly.â Stick to the facts of what is causing you frustration.
- Do not send messages that are written all in upper case; this is the visual equivalent of SHOUTING. It is considered aggressive and is considered bad behavior. If you ever feel like shouting a message, take a deep breath and wait until you have calmed down before responding. Then, respond in a calm and factual manner.
- For more information on netiquette, please refer to *UNM Netiquette document*.

7 Notes to students about participation in course using UNM Learn:

7.1 Tracking Course Activity

UNM Learn automatically records all studentsâ activities including: your first and last access to the course, the pages you have accessed, the number of discussion messages you have read and sent, web conferencing, discussion text, and posted discussion topics. This data can be accessed by the instructor to evaluate class participation and to identify students having difficulty.

7.2 Submitting Assignments

When you submit an assignment via UNM Learn, you will receive an email receipt of your submission from do-not-reply@learn.unm.edu. Save this email as confirmation of your submission.

8 Coursework and Participation

8.1 Communication with Instructor

I routinely check for student emails, Monday through Friday, at various times throughout the morning, afternoon and evening, as well as occasionally on weekends. Expect a response no later than 24-48 hours. If I haven't responded within 48 hours, please resend your email, as it may have (accidentally) been overlooked!

8.2 Expectations for Students

Please note that in order to be successful in this course, and in mathematics courses in general, you will need to spend a fair amount of time each week working on this course.

Here are my recommendations for the *minimum* amount of time you should be spending in this course *each week*:

- Homework: 4-6 hours/week
- Office Hours: 30 min to 2 hours/week
- General Studying: 1-3 hours/week outside of homework and office hours

A more detailed schedule for assignments, exams, projects and their due dates can be found on Blackboard, and may be subject to change.

9 Course Structure

This course will consist of the following graded components:

- Homework (20%)
  - This will be assigned, collected, graded by your high school instructor.
- Projects (40%)
  - There will be two projects, worth 20% each.
- Exams (40%)
  - There will be two exams, worth 20% each.
  - One will be the Midterm Exam, given in mid-October. The other will be the Final Exam, given in mid-December. Exact days/times will be determined based upon when you will be in your high school class during those weeks.

10 Grading Policy

Your final grades will be calculated as follows. Your current average can be found in the 'My Grades' section in Blackboard.

Cumulative Average	Final Grade
[96.5%, 100%]	A+
[93%, 96.5%)	A
[89.5%, 93%)	A-
[86.5%, 89.5%)	B+
[83%, 86.5%)	B
[79.5%, 83%)	B-
[76.5%, 79.5%)	C+
[69.5%, 76.5%)	C
[66.5%, 69.5%)	D+
[59.5%, 66.5%)	D
[0%, 59.5%)	F

11 Semester Deadlines

Fall 2021: 16-week classes (Full term)

- **Monday, August 23rd**: First day of class, classes available in Blackboard Learn
- **Friday, September 3rd, by 5:00 PM**: Last day to add a class or to change credit hours or grade mode in LoboWEB.
- **Monday, September 6th** Labor Day: No class.
- **Friday, September 10th, 5:00pm**: Last day to drop without "W" grade and with 100% refund on LoboWEB
- **October 14th and 15th**: FALL BREAK: No class.
- **Friday, November 12th**: Last day to drop without Dean's permission on LoboWEB. Will receive "W" grade and will be responsible for tuition for the course.
- **November 25th and 26th** Thanksgiving break: No class.
- **Friday, December 10th**: Last day to drop with Dean's permission. Will receive "W" grade and will be responsible for tuition for the course.
- **December 13th - 17th**: Finals week.

12 UNM Policies

12.1 EQUAL OPPORTUNITY AND NON-DISCRIMINATION:

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see page 15 of this link). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: *https://policy.unm.edu/university-policies/2000/2740.html*.

12.2 Copyright

All materials in this course fall under copyright laws and should not be downloaded, distributed, or used by students for any purpose outside this course. The *UNM Copyright Guide* has additional helpful information on this topic.

12.3 Accessibility and Accommodations

The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodations of their disabilities. If you have a disability requiring accommodation, please contact:

- *UNM-Valencia Student Services* if you are a Valencia campus student. The phone number is 505-925-8560.
- The *UNM Accessibility Resource Center* in 2021 Mesa Vista Hall if you are a main campus student. The phone number is 505-277-3506.

12.4 Academic Integrity

You should be familiar with *UNM's Policy on Academic Dishonesty* and the *Student Code of Conduct* which outline academic misconduct defined as plagiarism, cheating, fabrication, or facilitating any such act.

13 UNM Resources

- *UNM Valencia Campus Tutoring Services*
- *UNM Main Campus CAPS Tutoring Services*
- *UNM-Valencia Library*
- *UNM Libraries*
- *"Life" Resources available to UNM-Valencia Students*
- *Student Health Counseling (SHAC) Online Services*

14 General Education Core Curriculum Essential Skills

In addition to the course learning objectives listed above, because this class meets a UNM General Education Core Curriculum requirement, activities in each unit (i.e.: discussions, assignments, and assessments) are developed so that you can demonstrate development of these essential skills:

14.1 Critical Thinking

- Problem Setting: Delineate a problem or question to be considered critically.
- Evidence Acquisition: Identify and gather the information/data necessary to coherently address the problem or question.
- Evidence Evaluation: Evaluate the information given by sources for credibility (e.g. bias, reliability, validity) and probably truth.
- Reasoning/Conclusion: Develop conclusions and outcomes that reflect an informed, well-reasoned argument.

14.2 Communication

- Genre and Disciplinary Conventions: Use formal and informal rules/registers appropriate for the particular audience, community, purpose, context, and kind of text and/or media at hand; use them to guide formatting, organization, and stylistic choices are present.
- Strategies for Understanding and Evaluating Messages: Apply strategies such as reading/analyzing for main points or themes; recognizing the variety of rhetorical situations and accompanying strategies that may contextualize messages; locating supportive documentation for arguments to understand and evaluate messages in terms of the rhetorical situation.
- Evaluation and Production of Arguments: Recognize and evaluate the authority of sources in their own arguments and those of others; distinguish among supported claims, unsupported claims, facts, inferences, and opinions.

14.3 Quantitative Reasoning

- Communication and/or Representation of Quantitative Information: Express quantitative information symbolically, graphically, and in written or oral language
- Analysis of Quantitative Arguments: Interpret, analyze and critique information or a line of reasoning presented by others
- Application of Quantitative Models: Apply appropriate quantitative models to real-world or other contextual problems