MATH D032 10Z   Precalculus II   Summer 2021

Course Description:

In this course, we will explore the theory of trigonometric functions and their applications.

Course Content:

1. Unit circle and right triangle trigonometry
2. Graphing trigonometric functions: period, amplitude, phase shifts
3. Inverse trigonometric functions
4. Modeling with periodic functions
5. Trigonometric identities and inverse trigonometric identities
6. Verifying trigonometric identities and solving trigonometric equations
7. Polar coordinates
8. Polar form of complex numbers
9. 2-dimensional vectors

Textbook and Calculator:

Great news: your textbook for this class is available for **free** online!

Precalculus from OpenStax (Links to an external site.), ISBN 1-947172-06-9

You have several options to obtain this book:

- View online (Links to an external site.) (Links to an external site.) (Links to an external site.)
- Download a PDF (Links to an external site.) (Links to an external site.) (Links to an external site.)
- You can order a print copy from De Anza Bookstore (Links to an external site.)

You can use whichever formats you want. Viewing online is recommended -- the responsive design works seamlessly on any device.

You will need a scientific calculator for this class. This can be a physical or an online app, such as the one at https://www.desmos.com/scientific (Links to an external site.). Occasionally, you will find a graphing calculator to be handy. You may use the one at https://www.desmos.com/calculator (Links to an external site.).

Prepared Lecture Notes:

The PDFs for prepared lecture notes will be shared with you in 'Modules'. These are designed to help you keep your lecture notes organized. Please print them, or open on a tablet if you have the ability to annotate electronically. As you watch the prerecorded video lectures, take notes! If you don't have access to a printer or a tablet, then simply take notes in a regular notebook, as you would in any other class. I hope that being able to pause and replay portions of the video will help you master the lecture material.

Weekly Schedule:

- **Saturday through Monday** (and possibly other days)**:** Read textbook, watch video lectures (and take notes), work on homework, respond to discussion boards, and study!
- **Tuesdays and Thursdays:** Attend synchronous sessions of the class and continue work on HW and Problem Sets.
- **Wednesdays and Fridays**: Finish up and submit HW and Problem Set from the previous day's material.

If, for any reason, you stop participating and intend to drop the class, please do an official drop in a timely manner. If you fail to do so, you will receive an 'F' in the class. Follow the deadlines for this class in My Portal. I do not have the ability to make exceptions to these.

Important Notes:

- Since we are conducting the class fully online, I will look for your engagement through participation during synchronous sessions, and through the submission of assignments. Be sure to submit all first week assignments to get into the "rhythm" of the class. Please note that if you're not submitting any assignments, I will assume that you are not interested in the taking the class and may drop you (so you can get your refund)!
- Taking classes online comes with a set of challenges, such as staying motivated, conflicts with work and other responsibilities, working with classmates, getting help on material, feeling a sense of community with the class, lack of ideal workspace, in addition to technical issues, such as device malfunction and unreliable internet access. Almost half of all student report staying motivated as their greatest challenge. Here are my top recommendations for succeeding in my class in the online setting:
  1. **Log into our course in Canvas every day!** Check for upcoming deadlines and make sure you are aware of them.
  2. **Turn everything in!** Every homework, every discussion, every problem set. Also, don't miss any quizzes or exams.
  3. **Prepare for quizzes and exams as if they were closed-notes assessments.** That is, prepare as if you were allowed only paper, pencil and calculator. Preparing this way for quizzes will help you retain the material for exams. Preparing this way for exams will help you retain this material for when you need it for the next math or physics class(es).
  4. **Email me questions, or make appointments to see me, and post/answer in discussions.** You can feel quite isolated in a fully asynchronous class. Engaging with your classmates and me will help you stay motivated.

5. **Don't wait to ask for help!** I cannot know what you don't tell me, especially in fully online, asynchronous setting. If you're dealing with an unusual or an unexpected challenge, please let me know if I can do something to help keep the class manageable for you.

Office Hours:

Office hours this summer will be on Wednesdays and Fridays 9:30-10:30am (Zoom link: https://fhda-edu.zoom.us/j/92042881170), or by appointment only. Please email me to schedule.

Homework and Problem Sets

The best way to succeed in any math class is doing all of the assigned work correctly and in a timely manner, making sure you really understand what you are doing! Focus on how to think mathematically about problems, not just on following a procedure or learning a skill! Time spent on the homework and in-class group work on problem sets will directly benefit you on quizzes and exams.

Online Homework: You will have online homework for each section we cover. The homework will be embedded within Canvas, and will be graded for correctness. The links are within the modules. When doing the online HW, if you find yourself struggling with a question, use 'Message Instructor' button within the problem. I will get the message and respond soon (usually within 12 hours). The online HW for the week will be due on Wednesdays and Fridays by 11:59pm. You will have 5 late passes, each of which will give you a 24-hour extension.

Problem Sets: For almost each class, we will have a problem set that you will work on in groups. These problems will be posted as a PDF in the Canvas modules. You will need to finish them up on your own and submit individually. These sets include problem-solving and critical-thinking exercises that rely on your conceptual understanding of the material and related skills.

Problem Sets Submission Guidelines:

- *Write up your solution on separate paper or tablet. Be sure to present all important details, as modeled in the textbook and in lectures.*
- *Write up your solutions independently (even though you may have discussed the solutions with your group), and in a way that represents your understanding of the content.*
- *Label each problem clearly – use highlighter to mark the number, or put a box around it, so it's easy to find. You don't need to write the question, just fully-worked out solutions.*
- *Do the problems in order, showing all work neatly, clearly and completely.*
- *Draw well-labeled, carefully sketched diagrams and graphs when they are helpful in understanding your solution.*
- *Submit a single PDF document, NOT multiple images. Use the Notes app on iOS, or a scanning app such as Adobe Scan or Genius Scan (both free), or something else from among many options. Be sure to check that your scanned copy is legible. I will need to be able to read it for you to get points.*
- *Problem sets are due by 11:59pm on the due date. You can have a 24-hour extension with 10% penalty.*

Participation:

Even though this is an online class, you are expected to participate. I expect you to:

- Attend each synchronous session on Tuesdays and Thursdays, ask questions, answer questions, and participate actively during group work time.
- Participate in weekly discussion boards (it's part of your grade)
- Post and answer questions in questions discussion boards (1 point extra credit for posting or answering a question, up to a maximum of 3 extra credit points per chapter)
- Engage with me over email and messages through myopenmath to get your questions answered (email me for an appointment if you need)

Quizzes:

We will have six 20-minute quizzes (see the bottom of this page for calendar). These will be similar to your online homework. We will take the quizzes during the synchronous sessions of the class (see calendar). *IMPORTANT: There will be NO MAKEUPS for any of the quizzes. However, your lowest quiz score will be dropped.*

Exams:

We will have two midterm exams, and a <u>cumulative</u> final exam. See the calendar for the dates. Midterm exams will be 1 hour. A cumulative final exam will be given on the last day of class. All dates are listed on the calendar. Each exam will have a written component that will require you to upload your solutions into Canvas for some of the questions.

IMPORTANT: In case of an unforeseen emergency or illness due to which you cannot take an exam, please get in touch with me immediately, and I can work with you to find a solution. If this happens for the final exam, that may result in an 'Incomplete' (provided that you supply me with a sufficient proof).

Evaluation:

Your final grade will be computed as follows:

Category		Points
Homework	18 @ 5 points each	90
Problem Sets	9 @ 10 points each	90

Weekly Discussions	6 @ 5 points each	30
Quizzes	Top 5 @ 20 points each	100
Exams	2 @ 70 points each	140
Final Exam		100
TOTAL		550

Overall percentage	Your grade will be at least
97 % or greater	A+
92% to less than 97%	A
89% to less than 92%	A-
87% to less than 89%	B+
82% to less than 87%	B
79% to less than 82%	B-
75% to less than 79%	C+
70% to less than 75%	C
55% to less than 70%	D
less than 55%	F

Help:

1. Your classmates are a great resource. Ask for help and provide help to others using Canvas questions discussion boards!
2. Message me through Canvas, or make an appointment for questions. On online homework, you can message me by using 'Message Instructor' button.
3. Get help from De Anza's Math Student Success Center. See details at http://deanza.edu/studentsuccess/ (Links to an external site.).
4. Use NetTutor for help through Canvas.
5. If you need any technical help with MyPortal, Zoom, Canvas, etc., visit https://www.deanza.edu/online-winter/#Learning (Links to an external site.).
6. On the link above, under 'Student Services and Support', you will find links to services with some specific to this time, such as for help with tech equipment, food and financial assistance, health services, resources for undocumented students, etc.

Academic Integrity:

All students are expected to exercise academic integrity throughout the term. Any instances of cheating or plagiarism will result in disciplinary action, which may include recommendation for dismissal. You are encouraged to work together on homework but simply copying down from someone else's work is wrong! Also, that activity will be of no help to you later. Cheating on a quiz or an exam will result in getting a 0 on it, an 'F' in the course or dismissal from the class. Also, each incident of cheating will be reported to the Dean of the Physical Science, Mathematics and Engineering Division. Depending on the seriousness of the offense, the incident will be reported to the Office of Student Development. Please see the De Anza

College's page on Academic Integrity: https://www.deanza.edu/policies/academic_integrity.html (Links to an external site.).

Disability Notice:

If you feel that you may need an accommodation based on the impact of a disability, please contact me privately to discuss your specific needs. Also, please contact Disability Support Programs & Services through https://www.deanza.edu/dsps/ (Links to an external site.) for information or questions about eligibility, services and accommodations for physical, psychological or learning disabilities. If you already have accommodations, please let me know at the earliest so you can start using them right away.

Miscellaneous:

In any math class, and especially this one, your goal should be to get **ownership** of the material. This means that you understand the concepts, can demonstrate the skills, and explain the concepts and skills to someone that doesn't have them. When I teach Calculus, I find that the students are the weakest in their trigonometry background. Those with weak trigonometric backgrounds (and generally, precalculus background) often don't do well in Calculus because of lack of prerequisite skills. So, this is not a "learn and forget" class. Rather, it's a "learn well so you remember" class. Here are some tips to help you succeed.

1. **Stay on schedule**. While the video lectures can be watched any time, you should stick to the schedule I have recommended on the calendar. Don't fall behind! Be disciplined about this to stay on top of the class. When you watch the videos, take careful notes in the prepared lecture notes. Writing aids memory so you are more likely to retain the material you watched.
2. To succeed in any math class you must **do your work (homework and problems sets) diligently**. I am aware that there are many sources that can provide you the answers and even the worked solutions to homework problems; however, such resources will be only be of so much use if you don't understand what you're doing. **Productive struggle** is essential in learning most things, especially mathematics. To learn and retain the material, you must sweat through the problems, especially ones that challenge you.
3. **Form a virtual study group**. Exchange your contact information with at least 3 other people in the class. This will come in handy if you want to work with someone on homework, problem set, or while studying for an exam. **This is an essential college skill, especially for STEM students.**
4. **Read the textbook**! Simply watching the lectures is not enough to give you a complete idea of the material. I expect you to be familiar with the examples in the textbook in addition to video lecture examples. I will cover different examples in the lecture videos than those in the textbook. Studying a richer set of examples will benefit you.
5. **Review your notes** regularly and keep them complete! Ask questions about anything that's unclear in a timely manner to avoid losing points on quizzes and exams.
6. **Ask questions**! Whether it's to your classmates, me or a tutor, get your questions answered in a timely manner.
7. Make **summary review sheets** of important concepts for yourself throughout the term to make sure you have the key concepts, facts and skills organized in your head. This will help you prepare

better for exams, but more importantly, it will come in handy when you truly need this material in Calculus and beyond.

8. **The summer quarter passes very fast** – and it's almost impossible to catch up, so plan accordingly.

9. **Practice discipline**! Succeeding in a college class requires personal discipline. This is especially true for online classes. It's quite easy to put things off until later, skip some video lectures, skip taking notes while watching them, distract yourself with social media and other apps while studying, etc. A life skill you are expected to practice in the online setting is: Be mindful of what you are giving your attention to. Think carefully about your priorities, and give the most time and attention to your biggest priorities. Don't put off working on them because the task at the moment is hard or unpleasant. Learning anything that's worthwhile requires a sustained effort and discipline! And that practice is what ultimately leads to personal growth.

Course Calendar:

Math 32 Precalculus II - Tentative Calendar - Summer 2021

	Saturday	Sunday	Monday	Tuesday (synchronous meeting)	Wednesday	Thursday (synchronous meeting)	Friday
Week 1	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul	2-Jul
	Watch Videos: 5.1, 5.2, 5.3			Welcome, Questions, Problem Set 1	*5.1 HW PS 1 due*	Questions **Quiz 1** Problem Set 2	*5.2, 5.3 HW PS 2 due*
Week 2	3-Jul	4-Jul	5-Jul	6-Jul	7-Jul	8-Jul	9-Jul
	Watch Videos: 5.4, 6.1, 6.2			Questions **Quiz 2** Problem Set 3	5.4, 6.1 HW PS 3 due	Questions **Quiz 3** Problem Set 4	*6.2 HW PS 4 due*
Week 3	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	15-Jul	16-Jul
	Watch Videos: 6.3, 7.1, 7.2 (7.1, 7.2 ok to watch Friday)			Questions **Quiz 4** Problem Set 5	*6.3 HW PS 5 due*	Questions **Midterm Exam 1** (covers Ch 5, Ch 6)	
Week 4	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	23-Jul
	Watch Videos: 7.3, 7.5, 7.6			Questions, Additional Examples Problem Set 6	*7.1, 7.2, 7.3 HW PS 6 due*	Questions **Quiz 5** Problem Set 7	*7.5, 7.6 HW PS 7 due*
Week 5	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	30-Jul
	Watch Videos: 8.1, 8.2, 8.3, 8.4 (8.3, 8.4 ok to watch Friday)			Questions **Quiz 6** Problem Set 8	*8.1, 8.2 HW PS 8 due*	Questions **Midterm Exam 2** (covers Ch 7, 8.1, 8.2)	
Week 6	31-Jul	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug
	Watch Videos: 8.5, 8.8			Questions, Additional Examples Problem Set 9	*8.3, 8.4, 8.5, 8.8 HW PS 9 due*	**Final Exam**	

Student Learning Outcome(s):

* Formulate, construct, and evaluate trigonometric models to analyze periodic phenomena, identities, and geometric applications.