MAT 116-01: Trigonometry

Spring 2024

Instructor:	Jared McBride	**Time:**	MR 3:30 – 4:20 PM
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Student Hours: Student hours are just office hours with a better name. They are held at these times: MWF 1:00 PM – 3:00 PM, Tuesday 7:30 AM – 9:00 AM, Thursday 7:30 PM – 9:00 PM, or by appointment. Student hours will be held in my office or the Magnolia Conference room (right next to my office), which I have reserved for these times. Usually during these times I will be in the conference room (109 Magnolia Hall). If I am not, I will likely be in my office (next door to the conference room). Please, feel free to come and study. No appointment is necessary. If you wish to discuss something privately, it likely would be better for you to make an appointment for some time other than student hours. However, you are welcome to try your luck and come to student hours and see if I can meet with you privately then.

My tentative weekly schedule is as follows,

Time	Monday	Tuesday	Wednesday	Thursday	Friday
7:00 AM		Student Hours			
8:00 AM	MAT 410	Student Hours	MAT 410		MAT 410
9:00 AM					
10:00 AM	MAT 341		MAT 341		MAT 341
11:00 AM	MAT 221	MAT 221	MAT 221	MAT 221	
12:00 PM		MAT 115		MAT 115	
1:00 PM	Student Hours		Student Hours		Student Hours
2:00 PM	Student Hours		Student Hours		Student Hours
3:00 PM	MAT 116			MAT 116	
4:00 PM	MAT 116			MAT 116	
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7:00 PM				Student Hours	
8:00 PM				Student Hours	

Textbook: We will be using *Algebra and Trigonometry 2e* by OpenStax. The book is available online and is free.

Required Materials:

- a one-year subscription to XYZHomework.com is required to complete the homework.

  NOTE: The easiest way to purchase the subscription is to go directly to XYZ and create an account (if you don't already have one), you can then use the course code provided below to link your account to the course. You can sign up for free and use the software for 14 days before you have to purchase.

- iPad Apps: Canvas Student, Desmos, and an app of your choosing that will scan/convert/export as PDF, such as Adobe Scan or CamScanner.

Course Overview: In trigonometry, we are setting out to write and use the definition of trigonometric functions, sketch the graph of the trigonometric functions, prove trigonometric identities, solve trigonometric equations, learn and then apply the law of sines and the law of cosines. The course is meant to prepare students for further courses in mathematics (Linear Algebra, Calculus, Geometry, etc.), Physics 201/202, and MAT 305/306.

Prerequisites: MAT 115 (may be taken concurrently)

Class Policy:

- Regular attendance is essential and expected.
- It is suggested to spend at least 2 hours outside of class for each hour in class in order to understand the material. To achieve excellence, more time may be required. So, budget at least 6 hours each week (in addition to class time) to spend learning this material. Note that if you are taking 15 credits that comes to about 45 hours of work a week.
- Cell phone usage during class is very distracting. Unless you are expecting an emergency call, keep your cell phone on silent. Please do yourself a favor and allow yourself to focus by not using your phone.
- Class time is work time. During the times we meet, I expect you to be ready to work. This is not a lecture series in which you can sit and listen passively. My goal will be to get each of you to exercise your minds each day in class.

General instructional Format: Each day in class will basically run as follows: I will briefly introduce a topic we will discuss this and then practice it. There will frequently be short assessments after the in-class practice. These will be worth a (very) few points and will not be scheduled. I will drop a number of these at the end of the semester. You will not have mastered a concept after this in-class practice. There will likely be some things you still need to read in the book. The purpose of the homework is to incentivize this additional effort. Many students are surprised at the impact even a little preparation before class has on their ability to understand. Please, take a moment and read through the section before class.

Soon after we conclude a section you will take a very small quiz in Canvas, called a section quiz.

Grading Scheme:

XYZ Homework	20%
XYZ Written Work	15%
Section Quizzes	20%
Final	45%
Total	100%

(The percentages guarantee at least the following letter grades.)

A	93%	C+	77%
A-	90%	C	73%
B+	87%	C-	70%
B	83%	D+	67%
B-	80%	D	63%

XYZ Homework: The homework questions will be found in Canvas. This system is powered by xyzhomework.com and will allow you to input your answers (in Canvas), and it will grade your homework automatically. The score you get on this assignment will be input into the gradebook as-is. I will drop both the 2 lowest homework scores.

To access the homework for the course, simply click on the first assignment in Canvas. You will be prompted to either log in with you current XYZ account or set up an XYZ if you don't already have one. At first, you get a 15-day trial period, but you get a one-year subscription to XYZ homework with your course. You can get this subscription for a discounted rate by purchasing the OpenStax Pass using the discount code XYZF20. And remember, the book is free.

All work for the course must be completed and submitted by April 26th at 11:59 pm to be included in your final grade.

XYZ Written Work: As you work through the homework, you need to show your work for each question on scratch paper. Once you complete the assignment, you will need to scan or export these pages and upload them as a PDF file to the appropriate location in Canvas. This portion of the assignment is graded on completion, and you will lose one point for each missing question. The goal here is for you to get instant feedback while at the same time allowing me to see how you work. Please provide enough detail so that if you get something wrong in XYZ I should be able to look at the scratch work and find what went wrong; that is what I am most interested in. I will accept late XYZ written work.

Late Work: I do accept late work, within some parameters:

- You are given 100 late passes to begin the semester. These are loaded into your XYZ account, and you can use them without informing me. Each late pass will extend the original due date of the assignment by 240 hours (10 days) past old due date. These can be applied to the assignment if the due date has passed, and can be applied multiple times, each time pushing back the due date by three days. I will be happy to supply additional late passes if you need them, simply email me and I will get those added for you.
- I will only accept late XYZ written work provided it submitted before the next celebration of knowledge after it is due.
- The cut-off date for late work is the scheduled Reading Day at 11:59 PM. No exceptions.

Section Quizzes: After a section of the book has been discussed in class, there will be a short quiz in Canvas on the section. These will need to be completed soon after class (as in that day.) A number of these will be dropped at the end of the semester. For that reason these cannot be made up.

Final: The final will be a big, paper-pencil, closed note, closed book, comprehensive test. The same calculator policy applies to the final exam. It is both university and class policy that the final exam will NOT be rescheduled due to travel. Plan your travel arrangements around your exams. If you do not plan your own travel, please make a point to pass this information on to the people who purchase your airfare.

Core Learning Goals (CLG): Students completing Southern Virginia's core curriculum are expected to attain the following college-level competencies:

- *Careful Writing:* Ability to present arguments in clear written English with proper spelling, grammar, vocabulary, and transitions.
- *Critical Thinking:* Ability to separate a conclusion from its premises and evaluate how well the premises support the conclusion.
- *Analytic Reasoning:* Ability to evaluate a body of evidence and draw appropriate conclusions.

Core Values: Students demonstrate:

- *Scholarship* by coming prepared to class, focusing on activities in class, and meticulously completing homework assignments.
- *Discipleship* by being respectful of others and showing courtesy and concern for others and the learning environment.
- *Accountability* by faithfully attending class and coming on time, coming prepared, being aware of assignments given and completing them on time.
- *Enthusiasm* by participating in class discussions and completing in-class activities, showing interest in cultural material and discussions about mathematics in general.
- *Refinement* by going above and beyond in living the dress and grooming standards, their manner of speech and actions, cleaning up the classroom and following proper classroom etiquette. This includes not using cell phones (texting, etc.) or other electronic devices that may disrupt learning in the class.

Student Learning Outcomes (SLO) for the Mathematics Major: A student successfully completing this major will;

1. Competently work with the concepts of calculus, differential equations, geometry, analysis, algebra, and statistics. (Foundation-Formulate)
2. Learn to read, understand, analyze, and produce proofs at increasing depth. (Mathematical Proofs-Prove)
3. Use appropriate technology to enhance mathematical thinking and understanding, solve mathematical problems, and judge the reasonableness of results. (Technology-Solve)
4. Exhibit knowledge of formulating and solving problems, interpreting solutions, and modeling techniques central to applications of mathematics. (Mathematical Modeling -Model)
5. Demonstrate the ability to effectively communicate mathematics and other quantitative ideas in written and oral forms. (Communication-Communicate)

Course Goals: Through completion of the course, you should be able to do the following:

- Solve problems involving trigonometric and inverse trigonometric functions. (CLG 3)

- Solve problems involving trigonometric identities. (CLG 3)
- Analyze and solve a variety of application problems involving trigonometry. (CLG 2, 3)

Title IX: Southern Virginia University is committed to providing an environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking. Title IX of the Education Amendments of 1972 states that "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." Title IX applies to all employees and students, and covers discrimination in programs, admissions, and activities. You can report any concerns to the Title IX Coordinator (Adam Whipple titleix@svu.edu 540-460-2010), your professor, the Wellness Center, or any university administrator. Please be aware that all instructors are mandated reporters, so by law, we must disclose details relayed to us about any possible Title IX infraction to the University's Title IX coordinator. SVU's Title IX can be found at https://svu.edu/titleix/.

Accessibility Services and Accommodations for Disabilities: Southern Virginia University is committed to providing a learning environment that accommodates and supports students with disabilities through accommodations. The Office of Accessibility Services oversees Academic Accommodations. Students with any type of physical, medical, psychological, or emotional disability are entitled by the Americans with Disabilities Act (ADA) to receive accommodations to provide equal access to academic settings. Any student seeking accommodations should contact the Office of Accessibility Services by emailing accessibility@svu.edu or contacting Jamie Chandler at jamie.chandler@svu.edu. Students are advised to take care of the necessary documentation and paperwork early in the semester. Accommodations are not made until the student follows the procedures outlined on the website, receives an official accommodation letter AND discusses it with their professors.

Academic Honesty: Cheating, plagiarism, and other forms of dishonesty are against the code of conduct (https://svu.edu/campus-life/code-of-conduct/) and will be reported to the provost and office of the registrar. Students have the right to appeal decisions on academic honesty (https://catalog.svu.edu/academic-honesty/) to the appropriate division chair following the Student Grievance Procedure (https://catalog.svu.edu/student-grievance-procedure/).

Tentative Course Schedule:

Wk	Date	Sections Covered	Due
1	2/29	7.1: Angles	
2	3/4	7.2: Right Angle Trigonometry	
	3/7	7.3: Unit Circle	xyz: 7.1
3	3/11	7.4: The Other Trigonometric Functions	xyz: 7.2
	3/14	8.1: Graphs of the Sine and Cosine Functions 8.2: Graphs of the Other Trig Functions	xyz: 7.3
4	Spring Break		
5	3/25	8.3: Inverse Trigonometric Functions	xyz: 7.4
	3/28	9.1: Solve Trigonometric Equations with Identities	xyz: 8.1, xyz: 8.2
6	4/1	9.2: Sum and Difference Identities 9.3: Double-Angle, Half-Angle, and Reduction Formulas	xyz: 8.3
	4/4	9.4: Sum-to-Product and Product-to-Sum Formulas	xyz: 9.1
7	4/8	9.5: Solving Trigonometric Equations	xyz: 9.2, xyz: 9.3
	4/11	10.1: Non-right Triangles: Law of Sines 10.2: Non-right Triangles: Law of Cosines	xyz: 9.4
8	4/15	10.3: Polar Coordinates 10.4: Polar Coordinates: Graphs	xyz: 9.5
	4/18	10.5: Polar Form of Complex Numbers	xyz: 10.1, xyz: 10.2
9	4/22	Final Exam Review / Make-up date	xyz: 10.3, xyz: 10.4
	4/25		xyz: 10.5
17	Th May 2	Final Exam will be given in-person in the regular classroom, 4:00 - 6:50 PM	