

College of Innovations and Solutions
MATH 131 – College Trigonometry (3,0)**Spring 2021**
3 Credits

Prerequisites: (1) Two years of high school algebra and equivalent/satisfactory score on ACT, COMPASS test or Placement Exam, or MATH 102 with a grade of C or better. (2) One half-year of high school trigonometry with a grade of C or better is strongly recommended.

Instructor: George Voutsadakis, CAS 206E; 906-635-2667; gvoutsad@lssu.edu

COVID-19:

LSSU Safety Protocols are based on federal, state, and local guidelines and recommendations from the Centers for Disease Control (CDC). The following four pillars provide the foundation for the continued safety and wellbeing of our University and surrounding community. Please do your part to adhere to these pillars.

- 1. Social Distancing:** Maintain six feet of distance from those around you when possible.
- 2. Mask/Face Covering:** Wear a mask or face covering when in enclosed, public locations and/or when other social distancing measures are difficult to maintain. * Per Michigan Executive order 2020-147 effective July 13, 2020, at 12:01 a.m., Lake Superior State University will require all individuals on campus property to wear a face covering when in any indoor space, and when outdoors and unable to consistently maintain a distance of six feet or more from individuals who are not members of their household. The requirement to wear a face covering does not apply to individuals who are giving a speech for broadcast or an audience. This means that a faculty member teaching a class does not have to wear their mask when they are speaking but will need to wear their mask when moving among students.
- 3. Sanitization:** Wash your hands with soap and water for 20 seconds multiple times each day or use hand sanitizer of at least 60% alcohol. Sanitize your desk or workstation twice daily, high-frequency touch surfaces, and living spaces with wipes found across campus.
- 4. Personal/Social Responsibility:** Actively encourage those around you to adhere to these pillars while doing so yourself. Remember, we are in this together and we all have a role to play in preventing the spread of COVID-19.

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
	8:00-10:00	1:00-3:00	9:00-10:00	

Required Text: Aufmann, Barker and Nation, College Trigonometry (6th Edition) ISBN 978-0-618-82507-3

Recommended Text: Aufmann, Barker, Nation, and Verity, Student Study Guide and Solution Manual for College Trigonometry (6th Edition) ISBN 978-0-618-82508-0.

Course Description: Basic theory of trigonometric functions and inverse trigonometric functions. Applications include trigonometric equations, plane trigonometry, vectors and complex numbers. Introduction to conic sections. Study of exponential functions and their connection to trigonometric functions, logarithmic functions and applications.

Course Learning Outcomes: After completion of MATH 131, students will be able to do the following:

1. Solve equations and inequalities.
2. Describe the basic construction of the trigonometric functions, both in terms of functions on angles of

College of Innovations and Solutions
MATH 131 – College Trigonometry (3,0)**Spring 2021**
3 Credits

- triangles and functions on real numbers,
3. Describe and apply the relationships between the trigonometric functions, including the sum, difference, double-angle and half-angle identities,
 4. Apply facts about the trigonometric functions to solve trigonometric equations,
 5. Apply trigonometry to solve applied problems,
 6. Describe the relationship between trigonometry and complex numbers and apply these facts to find complex-valued solutions to equations,
 7. Graph and find standard equations for conic sections,
 8. Compute basic operations on vectors.
 9. Analyze exponential and logarithmic functions and solve exponential and logarithmic equations and applications.

General Education Objectives: This course is designed to meet the Mathematics General Education Outcome. Students will be able to analyze situations symbolically and quantitatively in order to make decisions and solve problems.

This course contributes to LSSU’s Institutional Learning Outcomes by addressing:

2. Use of Evidence: Students will identify the need for, gather, and accurately process the appropriate type, quality, and quantity of evidence to answer a complex question or solve a complex problem.

3. Analysis and Synthesis: Students will organize and synthesize evidence, ideas, or works of imagination to answer an open-ended question, draw a conclusion, achieve a goal, or create a substantial work of art.

Grading Scale and Policies:

Exams	200 pts (4 x 50)
Final Exam	100 pts
Quizzes	100 pts (10 x 10)
Total	400 pts

Grading Scale:

A 90-100 (includes +/-) **B** 80-89 **C** 65-79 **D** 50-64 **F** 0-49

Grading Policies: You will be graded on correct methodology, i.e., if you provide an answer but show no work or your work is incorrect, you will receive no credit. Your solutions must be written in a connected, step-by-step logical fashion and all variables should be clearly defined. If your solution is not written clearly, you will not receive full credit. In many cases, setting up the correct mathematical model and using this model to solve a problem will be just as important as computing a numerical answer.

The homework exercises for each section covered are on the last page of this handout. You should spend a lot of your math study time doing homework. If you are struggling with your homework seek help from your instructor or the tutors in the Learning Center.

The course outline on the next-to-last page is a projection of the general structure and content of the course. It is tentative and subject to change without prior notice.

College of Innovations and Solutions
MATH 131 – College Trigonometry (3,0)

Spring 2021
3 Credits

Ground Rules:

- 1. Calculator:** The TI-83/84 Plus is the recommended calculator for this course. Your instructor reserves the right to ask you to solve problems in class, during quizzes and during exams without the use of a calculator. All other electronic devices (computers, PDAs, cell phones etc.), must be turned off for all class lecture sessions.
- 2. Purpose of Lecture:** Lectures are an opportunity for students to ask questions and seek clarification on material. This implies student preparation has been accomplished prior to class. Lecture is also the opportunity for the instructor to coordinate coverage of the material and present material that is historically or potentially difficult. It does not negate student preparation or study.
- 3. Attendance Policy:** Attendance is strongly encouraged. If you miss a class, or are late, you are still responsible for class notes and assignments. Moreover, you will be assigned a 0 score should a quiz take place during that missed lecture.
- 4. Make-up Policy:** Each exam should be taken at the designated time. An exam may be taken prior to or after the scheduled date, by agreement with the instructor, provided that the student provides a request with a documented valid excuse well in advance of the scheduled date. If an absence is unexcused, no make-up will be provided, either for exams or for quizzes.
- 5. Academic Integrity:** Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the Academic Integrity Procedures. Violations of the University Academic Integrity Policy may result in an F course grade.
- 6. Testing:** Use of head phones, cell phones and hats during exams is prohibited.

University Policies and Statements:

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Accessibility Services (AS), which is located in the KJS Library, Room 103, (906) 635-2355 or x2355 on campus. AS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through proactive communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns..

College of Innovations and Solutions
MATH 131 – College Trigonometry (3,0)
Spring 2021
3 Credits
Tentative Course Outline

Week	Dates	Monday	Wednesday	Friday
1	01/18	M. L. King	2.1	2.2
2	01/25	2.3	2.4	2.5
3	02/01	2.6	2.7	2.8
4	02/08	Review	Review	Exam 1
5	02/15	3.1	3.2	3.3
6	02/22	3.3	3.4	3.5
7	03/01	3.6	Review	Exam 2
8	03/08	4.1	4.2	4.3
9	03/15	5.1	5.2	5.3
10	03/22	Review	Review	Exam 3
11	03/29	6.1	6.2	6.3
12	04/05	Review	7.1	7.2
13	04/12	7.2	Review	Exam 4
14	04/19	7.3	7.4	7.4

Suggested Practice

Section	Problems
2.1	1, 7, 9, 11, 13, 17, 35, 37, 39, 47, 49, 51, 57, 59, 61, 63, 65, 67, 71, 73, 77, 79, 81, 83, 89
2.2	3, 7, 11, 13, 14, 15, 19, 20, 21, 27, 29, 31, 37, 39, 43, 51, 52, 56, 57, 59, 61, 65
2.3	3, 5, 9, 13, 17, 19, 21, 23, 25, 27, 30, 31, 35, 37, 39, 43, 51, 53, 57, 65, 69, 73, 75, 77, 79
2.4	13, 15, 16, 21, 27, 32, 33, 35, 37, 39, 49, 51, 53, 55, 59, 61, 63, 67, 71, 81, 83, 91
2.5	1, 3, 7, 11, 13, 19, 21, 25, 29, 35, 37, 41, 45, 57, 59, 63
2.6	1, 3, 5, 7, 13, 18, 21, 23, 27, 33, 35, 42, 43, 45, 47, 61
2.7	1, 7, 9, 13, 19, 21, 39, 43
2.8	1, 3 , 7, 9, 11, 13, 17, 15, 19, 23, 25 , 27
3.1	1, 5, 11, 15, 19, 25
3.2	1, 3, 5, 11, 15, 19, 23, 25, 31, 35, 37
3.3	1, 3, 7 , 9, 11, 19, 25, 27, 37, 39
3.4	1, 5, 9, 13, 17, 21, 51, 59, 67, 77
3.5	1, 3, 5, 13, 15, 19, 20, 23, 25, 27, 29, 59
3.6	1, 3, 5, 7, 23, 25, 61, 65, 93
4.1	1, 3, 5, 7, 15, 17, 19, 30, 33, 35, 37, 41
4.2	1, 3, 5, 9, 11, 15, 17, 25, 27, 29, 31, 33, 35, 41, 46, 49, 51, 57
4.3	1, 3, 7, 11, 15, 17, 19, 21, 23, 27, 29, 31, 35, 37, 39, 41, 43, 45, 47, 49, 51, 55, 57, 59, 61, 63, 67, 71, 75, 77, 79, 81
5.1	1, 3, 7, 11, 13, 17, 25, 31, 33, 37, 39, 43, 47, 55, 57, 59, 63, 73, 77
5.2	1, 3, 5, 9, 11, 17, 21, 23, 29, 35, 39, 41, 43, 47, 49, 51, 55, 57, 59
5.3	1, 5, 11, 15, 17, 21, 23, 29, 35, 41
6.1	1, 2, 3, 5, 7, 9, 19, 21, 25, 29, 31, 35, 39, 41, 46
6.2	1, 2, 3, 5, 11, 13, 19, 21, 25, 27, 35, 37, 41, 43, 57 (assume the sun is on focus), 59
6.3	1, 2, 3, 5, 11, 13, 17, 25, 27, 29, 35, 37, 41, 43, 45, 55, 58, 61, 63, 65, 67
7.1	1, 3, 5, 7, 9, 11, 13, 15, 17, 21, 25, 27, 39, 41, 48, 49, 54
7.2	1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 47, 51, 59, 73, 85, 91
7.3	5, 11, 15, 17, 19, 23, 27, 33, 39, 63, 53, 57, 63, 65, 77, 79, 81
7.4	1, 5, 7, 13, 19, 23, 27, 31, 33, 35, 39, 45, 49, 55, 59, 61, 63, 71, 73