LAKE SUPERIOR STATE UNIVERSITY

College of Innovations and Solutions   **Fall 2022**
MATH 131 – College Trigonometry (3,0)   **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) Half a 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

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
12:00 - 2:50	8:00-8:500 & 12:00-12:50		12:00-12:50	12:00-12:50

Required Text: Open source book available at: https://openstax.org/details/books/algebra-and-trigonometry-2e

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: At the conclusion of MATH 131 successful students will be able to:
1. Solve equations and inequalities.
2. Describe the basic construction of the trigonometric functions, both in terms of functions on angles of 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.

College of Innovations and Solutions   **Fall 2022**
MATH 131 – College Trigonometry (3,0)   **3 Credits**
This course contributes to LSSU's Institutional Learning Outcomes by addressing:

1. Formal Communication: Students will develop and clearly express complex ideas in written and oral presentations.
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.
4   Professional Responsibility: Students will demonstrate the ability to apply professional ethics and intercultural competence when answering a question, solving a problem, or achieving a goal.

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.

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:

Online and Blended Course Attendance Policy

Students in online or blended classes are required to log in to the Course Management System (Moodle) and complete at least one "Academic Related Activity" within the Add/Drop period.

The Americans with Disabilities Act & Accommodations

Lake Superior State University is committed to following the requirements of the Americans with Disabilities Act Amendments Act and Section 504 of the Rehabilitation Act. This university is also dedicated to providing equal opportunity for participation in all programs, services and activities. If you are a student with a disability or think you may have a disability, please contact Accessibility Services, KJS Library #233, (906) 635-2355, accessibility@lssu.edu to discuss your request further. Once you have registered with Accessibility Services, students should contact their instructor as early as possible for assistance with classroom accommodations.

Academic Success Center

To support you on your academic path, the Academic Success Center (ASC) is free for all students and is located on the main floor of the library. The ASC offers walk in sessions for the math center, consultations with the writing center, and tutoring sessions by appointment. In addition, many classes offer supplemental instruction, which are group sessions tailored to your course content. Contact the Academic Success Center at academicsuccess@lssu.edu to set up an appointment

Laker Success

The Laker Success program is designed to help you gain control over your learning through proactive communication and goal setting, through the development of learning skills and study habits, and through personal accountability. The Laker Success staff is committed to working with students to develop an individualized plan to achieve academic and personal goals. Students can initiate contact with Laker Success on their own via email at lakersuccess@lssu.edu or by visiting the Student Engagement Center in Cisler Center, Room 100. Students may be also directed to Laker Success by their advisor, by an

instructor, by the Scholastic Standards / Financial Appeals Committees, or by the Provost's Office. If at mid-term your grades reflect that you may not attain a passing grade in one, some, or all of your classes, a Laker Success staff member will contact you. You may email lakersuccess@lssu.edu if you want to sign up early in the semester or if you have questions or concerns.

Add/Drop Policy

Courses can be added or dropped through Anchor Access until the sixth day of the semester (fourth day for the Summer semester). After this date, students need the instructor's permission to add a course. For additional details about add/drop or withdrawal, go to:
https://www.lssu.edu/registrar/scheduling/adddrop-courses-withdrawal-information/

   Related dates for this semester can be viewed at: https://www.lssu.edu/registrar/important-dates/

Tentative Course Outline

Week	Dates	Tuesday	Thursday
1	08/22	7.1	7.2
2	08/29	7.3	7.4
3	09/05	8.1	8.2
4	09/12	8.3	Exam 1
5	09/19	9.1	9.2
6	09/26	9.3	9.4
7	10/03	9.5	Exam 2
8	10/10	BREAK	10.1
9	10/17	10.2	10.3
10	10/24	10.4	10.5
11	10/31	10.6	Exam 3
12	11/07	10.7	10.8
13	11/14	12.1	12.2
14	11/21	Exam 4	BREAK
15	04/28	12.3	12.5

College of Innovations and Solutions   **Fall 2022**
MATH 131 – College Trigonometry (3,0)   **3 Credits**

Suggested Practice

WORK 1-2 HOURS EVERY DAY! DO NOT LET UNDONE HOMEWORK ACCUMULATE!
IF YOU HAVE ANY QUESTIONS, BRING THEM IN TO CLASS OR VISIT ME AT THE OFFICE!!

SECTION	SUGGESTED PROBLEMS
7.1	6,11,13,14,17,20,22-25,27,31,33,35,39,41,43,47,51,53,55,57,59,61
7.2	7,9,11,13,15,17-22,29,35,39,43,47,53,55
7.3	10,11,15,17,19,21,23,25,27,29,31,33,35,37,43,47,51,53,55,57,61,63,65,73,91,93,95
7.4	7,9,11,15,19,23,27,33,35,39,41,43,45,49,51,63,65
8.1	7,11,13,15,21,22,23,25,29,38-42
8.2	6-9,10,11,13,15,19,21,25,29,41,42,43,45
8.3	1,2,9,11,13,23,25,27,29,31,35,37,39,43,45,53,55,57,59
9.1	5,7,11,13,15,17,19,23,25,27,29,31,33,35,37,39,41
9.2	5,7,11,13,15,17,18,19,21,23,25,27,31,43,45,47,49
9.3	5,7,9,11,13,15,17,21,23,25,27,29,31,33,35,37,53,57,59
9.4	5,7,9,11,12,14,15,17,18,19,23,25,27,28,29,33,35,37,57,59,61
9.5	5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,41,43,45,47,51,53,55,57,59,61,65
10.1	7,9,11,13,15,17,19,25,27,29,31,35,37,39,41,43,45,59,61,63
10.2	7,9,11,17,19,21,23,27,29,35,37,43,45,47,51,59,60,63,65,69
10.3	7,8,9,11,13,15,16,17,18,21,23,25,29,31,33,35,37,39,41,42,43,45,47,49
10.4	7,9,11,13,17,19,21,23,27,33,35,37,39,41,43,65,67
10.5	7,9,11,13,15,17,19,21,23,27,31,33,35,37,41,43,47,50,55
10.6	7,9,11,13,15,17,19,21,27,29,31,33,35,37,39
10.7	7,9,11,13,15,17,19,23,25,29,31,53,55
10.8	9,11,17,19,21,23,25,29,33,35,39,41,43,45,61,67,71,79
12.1	6,7,10,11,13,15,17,21,23,27,29,31,33,35,39,47,49,53,55
12.2	7,9,10,11,15,19,21,25,27,29,31,33,35,39,45,47,51,55
12.3	7,9,11,13,15,17,19,21,23,25,27,31,35,37,39,45,47,51,53,54,55,59
12.5	7,9,11,13,19,21,23,25,31,33,35,37,43,45,47,49