



College of Business, Engineering, Computer Science and Mathematics  
Math140 Precalculus for STEM (4,0)

Fall 2026  
4 Credits

**Prerequisites:** Satisfactory score on Math Placement Rubric, ACT, SAT or Placement Exam.

**Instructor(s):** George Voutsadakis  
CAS 206E  
906-635-2667  
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**Office Hours:**

Monday	Tuesday	Wednesday	Thursday	Friday
1:00-1:50	1:00-1:50	8:00-8:50	1:00-1:50	1:00-1:50

**Required Text(s):** Precalculus 2e (Freely available [here](#))

**Course Description:** Precalculus provides a rigorous foundation in functions and analytic geometry needed for success in STEM-oriented calculus courses. Emphasis is placed on understanding functions through multiple representations, including symbolic, graphical, numerical, and verbal models. Topics include polynomial, rational, exponential, logarithmic, trigonometric, and inverse functions, as well as complex numbers, elementary vector operations, and conic sections.

**Course Learning Outcomes:** At the conclusion of MATH 140, a student will be able to:

1. Analyze and create graphs of polynomial, rational, exponential, logarithmic, and trigonometric functions including the effects of transformations;
2. Solve equations involving polynomial, rational, exponential, logarithmic, and trigonometric functions;
3. Analyze models based on polynomial, rational, exponential, logarithmic, and trigonometric functions;
4. Use properties of logarithmic, exponential, and trigonometric functions, including common trigonometric identities, to perform operations and simplify expressions;
5. Apply complex number and vector operations to solve problems that connect complex arithmetic, trigonometric identities, and vector algebra;
6. Classify and graph conic sections.

**General Education Objective:**

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:**

**Sample Point Values:**

Exams	(4x50)	200 points
Final Exam		100 points
Quizzes		100 points
		<u>Total 400 points</u>

**Sample Grading Scale:**

98%-100%	A+	70%-77%	C
92%-97%	A	68%-69%	C-
90%-91%	A-	66%-67%	D+
88%-89%	B+	62%-65%	D
82%-87%	B	60%-61%	D-
80%-81%	B-	0%-59%	F
78%-79%	C+		

**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.

**Course Policies:**

- 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.
- 2. Purpose of the 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 unless otherwise noted. Any form of cheating or plagiarism, including unauthorized use of AI, will be handled in accordance with the University policy on Academic Integrity:  
<https://www.lssu.edu/provost/faculty-resources/>
6. **Testing:** **Use of head phones, cell phones and hats during exams is prohibited.**
7. **AI Policy:** The **use of artificial intelligence (AI) tools is not permitted in this course.** All assignments, projects, examinations, discussions, and written work must be completed solely through the student's own efforts. The use of AI-generated content, including text, images, code, problem solutions, summaries, translations, or other materials, constitutes unauthorized assistance. Students who use AI tools in violation of this policy will be subject to academic integrity procedures and disciplinary action in accordance with University policies.
8. **Snow Day / University Closure Policy:** In the event that the University closes due to inclement weather or an emergency, students are expected to check their university email and/or the course Moodle site for instructions regarding course activities. Students are responsible for monitoring course communications and completing any assigned work by the deadlines provided. If weather related circumstances, such as limited or unavailable internet access, may prevent a student from participating, they should communicate this to the instructor at the beginning of the semester.

### **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, Library #233, (906) 635-2355, [accessibility@lssu.edu](mailto:accessibility@lssu.edu) to discuss your request further. Once you have



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registered with Accessibility Services, students should contact their instructor as early as possible for assistance with classroom accommodations.

### **Medically Excused Absence Approval**

In the event that a student is absent due to serious illness, injury, or medical procedures, the student may be asked to provide a Medically Excused Absence Approval memorandum from the Provost's Office. This memorandum will specify the duration and conditions of the student's absence from classes, while keeping their personal information confidential. For more information, please refer to the Medically Approved Absences section of the [Excused and Required Absence Policy & Procedure](#).

### **Academic Success Center**

To support you on your academic path, the Academic Success Center (ASC) provides free tutoring 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, some classes offer supplemental instruction, which are group sessions tailored to your course content. Contact the ASC at [academicsuccess@lssu.edu](mailto:academicsuccess@lssu.edu) or 906-635-2849 to set up an appointment or ask questions.

### **Laker Success**

The Laker Success program is designed to ensure your continued progress, inside and outside the classroom. Our committed staff offer individualized attention and group programs that empower you to identify your goals and determine ways to achieve them. Laker Success can also help you overcome obstacles by fine-tuning your learning skills, study habits, sharing proven procrastination-busters, and encouraging your personal power. Contact Laker Success by emailing [lakersuccess@lssu.edu](mailto:lakersuccess@lssu.edu) or by visiting the Student Engagement Center in Cisler Center, Room 100. Laker Success staff may contact you if an instructor, advisor, or peer asks them to check-in with you, follow up on a recent grade, or to invite you to an event. Take every opportunity to benefit from the many Laker Success services and resources, and remember: Success is personal, not perfect.

### **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/>



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## Tentative Course Outline

Date of Monday	Monday	Tuesday	Thursday	Friday
24-Aug	Linear Functions (2.1-2.2)	Linear Functions (2.3)	Quadratic Functions (3.2)	Quadratic Functions (3.2)
31-Aug	Quadratic Functions (3.2)	Complex Numbers (3.1)	Complex Numbers (3.1)	Polynomial Functions (3.3)
7-Sep	<b>Labor Day</b>	Polynomial Functions (3.4)	Polynomial Functions (3.4)	<b>EXAM 1</b>
14-Sep	Division (3.5)	Rational Functions (3.7)	Rational Functions (3.7)	Radical Functions (3.8)
21-Sep	Inverse Functions (3.8)	Extra Room	Exponential Functions (4.1)	Exponential Functions (4.2)
28-Sep	Exponential Functions (4.2)	Logarithmic Functions (4.3)	Logarithmic Functions (4.3)	Logarithmic Functions (4.4)
5-Oct	Logarithmic Functions (4.5)	Exp and Log Equations (4.6)	Extra Room	<b>EXAM 2</b>
12-Oct	<b>Indigenous People's Day</b>	Angles (5.1)	The Unit Circle (5.2)	Sine and Cosine (5.2 & 6.1)
19-Oct	Sine and Cosine (5.2 & 6.1)	Tangent, cotangent, secant, and cosecant (5.3 & 6.2)	Tangent, cotangent, secant, and cosecant (5.3 & 6.2)	Angle sum and difference (7.2)
26-Oct	Angle sum and difference (7.2)	Double-Angle & Half-Angle (7.3)	Extra Room	<b>EXAM 3</b>
2-Nov	Complex Numbers (8.3)	Complex Numbers (8.3)	The Law of Sines (8.1)	The Law of Sines (8.1)
9-Nov	The Law of Cosines (8.2)	The Law of Cosines (8.2)	Vectors in Two Dimensions (8.8)	Vector Dot Product (8.8)
16-Nov	Ellipses (10.1)	Hyperbolas (10.2)	Conic Sections (10.3)	Extra Room
23-Nov	Extra Room	<b>EXAM 4</b>	<b>Thanksgiving</b>	
30-Nov	Extra Room	Extra Room	Course Review and Recap	Course Review and Recap
7-Dec	<i>Final Exam Week</i>			



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## Suggested Practice Problems

**STUDY 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	Problems
2.1	3, 5, 10, 11, 15, 17, 25, 27, 31, 33, 37, 39, 43, 47, 51, 63, 65, 69, 73
2.2	9, 11, 13, 15, 18, 21, 25, 27, 45, 49, 67, 74, 75
2.3	5, 7, 9, 10, 19-24, 35-38, 49, 57
3.1	5, 7, 11, 13, 15, 17, 21, 27, 29, 35, 37, 42, 43, 53, 55
3.2	7, 11, 15, 19, 23, 25, 27, 29, 31, 33, 41, 47, 49, 53, 55, 59, 61, 87, 89, 93
3.3	13, 15, 17, 19, 21, 23, 25, 29, 31, 33, 67, 69
3.4	9, 12, 15, 32, 33, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61
3.5	7, 11, 13, 15, 19, 31, 33, 39, 41, 47, 65, 69
3.7	7, 9, 13, 15, 19, 21, 23, 27, 29, 47, 49, 51, 53, 55, 57, 59, 63
3.8	7, 9, 13, 15, 19, 21, 27, 33, 37, 43, 45
4.1	5, 7, 15, 17, 19, 21, 31, 35, 42, 43, 61, 63, 65
4.2	25, 27, 31, 39, 41
4.3	6-53 (These are short and will sharpen your understanding of logarithms)
4.4	7, 9, 13, 15, 17, 19, 21, 38-40, 44, 45, 47, 49
4.5	9-14, 15, 17, 21, 23, 30, 31, 38, 39
4.6	5, 7, 13, 15, 17, 21, 23, 27, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 57, 59
5.1	6, 7, 9, 11, 13, 17, 19, 24, 25, 27, 29, 33, 35, 41, 43, 47, 48, 51, 55, 59, 61
5.2	7, 9, 11-21, 23, 25, 29, 31, 35, 37, 43, 45, 47, 51, 53, 55, 57, 61, 63, 69, 75
5.3	6, 11, 17, 18, 23, 27, 30, 31, 37, 39, 41, 43, 49, 51
6.1	9, 11, 15, 19, 21, 23, 25, 27, 31-37
6.2	6-9, 10, 11, 13, 15, 19, 20, 21, 37, 39, 41, 42
6.3	9, 11, 13, 23, 25, 27, 29, 33
7.2	5, 7, 9, 11, 13, 17, 19, 21, 23, 25, 31
7.3	5, 7, 11, 13, 15, 17, 21, 23, 25, 27, 31, 33, 39, 41
8.1	7, 9, 11, 13, 15, 17, 25, 27, 31, 33, 39, 45, 47
8.2	7, 9, 15, 17, 19, 21, 27, 29, 35, 39, 43, 47
8.3	7, 9, 11, 13, 17, 21, 23, 29, 31, 37, 41, 43, 45, 49, 51, 57, 59, 61, 63, 65, 67
8.8	7, 8, 9, 13, 17, 19, 21, 23, 25, 29, 33, 35, 37, 39, 45, 47, 49
10.1	7, 9, 11, 13, 15, 19, 27, 31, 33, 37, 39, 43, 47, 49, 53, 55
10.2	7, 9, 11, 15, 19, 25, 27, 29, 31, 35, 39, 45, 47, 51, 53, 55
10.3	7, 9, 11, 17, 21, 23, 27, 31, 35, 39, 41, 45, 47, 51, 53, 55