

SDSU MATH 141: *Pre-Calculus*

Fall, 2016

Description of the course

From Catalog: Prerequisite: Satisfaction of the Entry-Level Mathematics requirement. Real numbers, inequalities; polynomials; rational, trigonometric, exponential and logarithmic functions; conic sections. Not open to students with credit in Mathematics 105, 121, 124, or 150.

Current Semester: This course is specifically designed for students majoring in the STEM careers (Science, Technology, Engineering, Mathematics). The goal of this semester is to increase students' procedural fluency and conceptual understanding of the basic concepts that they will see when they take calculus. We will do this by eliminating one of the lecture hours with a small, break out session limited to 27 students. The goal of these sessions is to engage students in using the mathematical functions (linear, quadratic, exponential, logarithmic and trigonometric) to model phenomena from the contexts of engineering, biology, physics, and geometry.

Course Organization

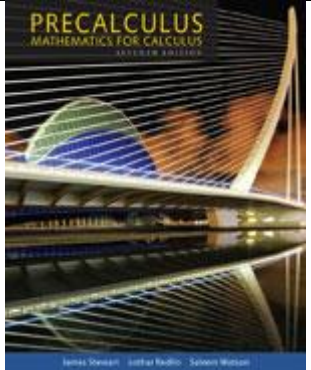
Course Coordinator: Dr. Janet Bowers, JBowers@mail.sdsu.edu

Sections	Lecture Time	Lecture Days	Instructor	Instructor Email Address
1-10	11:00am-12:20pm	T/TH	C. Manchester	coreymanchester@hotmail.com
11-14	2:00pm-3:20pm	M/W	R. Thompson	rthompson@mail.sdsu.edu
15-18	11:00am-11:50am	M/W/F	K. Gutstein	khg7.kg@gmail.com
19-23	12:00pm-12:50pm	M/W/F	K. Gutstein	khg7.kg@gmail.com
24-27	1:00pm-1:50pm	M/W/F	R. Thompson	rthompson@mail.sdsu.edu
28-30	5:30pm-6:20pm	T/Th	R. Thompson	rthompson@mail.sdsu.edu
31-32	9:00am-9:50am	M/W/f	K. Gutstein	khg7.kg@gmail.com

Student Learning Outcome Statements

- Students will be able to **identify different types of functions** by their graphical and algebraic representations, and make inferences about properties such as behavior toward infinity, asymptotes, discontinuities, and inverses.
- Develop **conceptual understanding and procedural proficiency** regarding the introductory ideas of measuring rates of change, graphing elementary functions (linear, quadratic, rational, exponential, logarithmic and trigonometric).
- By the end of the course students will be able to **explain** geometric, algebraic, graphical and real-life interpretations of these functions using appropriate terminology.
- Students will develop proficiency using **appropriate graphing tools** to explore families of phenomena.

Text & Software

	<h3>Precalculus: Mathematics for Calculus, 7th Edition</h3>
	<p>James Stewart McMaster University</p>
	<p>Lothar Redlin Pennsylvania State University, Abington Campus</p>
	<p>Saleem Watson California State University, Long Beach</p>
	<p>ISBN-10: 1305071751 ISBN-13: 9781305071759</p>
	<p>1088 Pages © 2016 Published</p>
<p>Software: WebAssign for Cengage</p>	

Choice 1: Bundle package –paper text and WebAssign access code \$105.99

Choice 2: Online access to WebAssign and e-text \$94.49

NOTE: You MUST purchase WebAssign because we will be using that software for online quizzes and homework.

LAB MANUAL: You will also be required to purchase a lab manual containing all of the handouts and data collection templates. This will be available at the bookstore during the first week of school and will cost under \$10.

If you have an internet-enabled cell phone, tablet, or laptop, please bring it to class as we will be using a free, interactive voting system to take attendance and gauge student engagement.

Tentative Class Schedule (Fall, 2016)

Week	Dates	Sections	Topics	Labs
1	8/29 - 9/2	2.1 - 2.3	Ch. 1 review	1. Ice breaker
2	9/5 - 9/9	2.4 - 2.6	Average rate, linear model, transformations of linear functions	2.Ch. 1 Bingo review
3	9/12 - 9/16	2.7 - 2.8, 3.1	Combining functions, one-to-one functions, quadratic functions and models	3.Transformations
4	9/19 - 9/23	3.2 - 3.4	Polynomials, dividing polynomials, real zeros	4.Ball roll
5	9/26 - 9/30	3.5 - 3.7	Complex zeros, rational functions, polynomials/rational inequalities	5.Box folding with multiplicity HW
6	10/3 - 10/7	4.1 - 4.2, test review F	Exponential functions, natural exponential function	Cancel labs (test 1)
Test 1: 10/4				
7	10/10 - 10/14	Test review M, 4.3 - 4.4	Logarithms, laws of logarithms	6. Virus Lab
8	10/17 - 10/21	4.5 - 4.7	Exponential & logarithmic equations, modeling exponential functions, logarithmic scales	7. pH scale BINGO logs
9	10/24 - 10/28	6.1 - 6.3	Angle measures, trig of right triangles, trig functions	Review for test 2
10	10/31 - 11/4	6.4, 5.1- 5.2	Inverse trig functions, unit circle, trig functions of real numbers	Cancel labs (test 2)
Test 2: 11/1				
11	11/7 - 11/11	5.3 - 5.4	Trig graphs	8. Trig Tracer Lab
12	11/14 - 11/18	Review, 5.5 - 5.6	Graph inverse trig, modeling harmonic functions	9. Modeling with harmonics
13	11/21 - 11/25	Holiday	Eating turkey/ watching football	Cancel labs (Holiday)
14	11/28 - 12/2	7.1 - 7.3	Trig identities, addition/subtraction formulas, double-angle, half-angle, product formulas	Cancel labs (test 3)
Test 3: 11/29				
15	12/5 - 12/9	7.4 - 7.5, review	Trig equations	Review for final
16	12/12 - 12/16	review	Review, Final: 12/17	Cancel labs (final exam)

Assessment and grading

Final grades will be determined using the following percentage distribution:

- 15% - Homework
- 10% - Test 1
- 10% - Test 2
- 10% - Test 3
- 20% - Labs
- 10% - Quizzes (online using the WebAssign system)
- 20% - Final
- 5% - Participation & effort to seek help (if needed)

93% – 100%	A	72% – 76%	C
90% – 92%	A-	70% – 71%	C-
87% – 89%	B+	67% – 69%	D+
84% – 86%	B	64% – 66%	D
80% – 83%	B-	60% – 63%	D-
77% – 79%	C+	59% or lower	F

Note that it is very difficult to get a C-. This is because a C- is not considered a passing grade. Students wishing to take Calc I must earn a C or higher. However, historical data has shown that students receiving a low passing grade do not do well in Calculus. Hence, your preparation and effort in pre-calculus has a **DIRECT AND SIGNIFICANT** influence on your future success in math courses at SDSU.

Testing

All midterm tests will be given on Tuesday evenings from 7 – 9 pm. Attendance is *mandatory*. Make sure that employers are notified that you will not be able to work on the evenings specified below. *The only excuse is another scheduled class, or a religious holiday. You MUST clear your absence with the professor and make other arrangements.*

Dates of Tests:

- Test 1: Chapters 1-3Tuesday, 10/4; 7pm – 9pm (Location TBD)
- Test 2: Chapters 4, 6Tuesday, 11/1; 7pm – 9pm (Location TBD)
- Test 3: Chapters 5,7Tuesday, 11/29; 6pm – 8pm (Location TBD)
- Final Exam:Saturday,12/17; Location: TBD

- **Lectures:** Regular class sections led by instructor. Attendance may be taken via the use of a cell phone app such as Socrative. These classes will be used to orient, preview, and review topics.

- **Labs:** The break-out sections will be run by at least one ISA (Instructional Student Assistant). These are undergraduates who have been thoroughly informed about intent and goals of lab sessions. These students do NOT have access to student grades or input in final grades. However, they do issue weekly attendance and performance grades for student lab engagement.

- **Homework & Online Quizzes:** All homework and quizzes will be completed using the online WebAssign system. This is due to the fact that we cannot grade large volumes of work, but research shows that doing homework improves understanding and overall success (duh!). You will be given multiple opportunities to input the correct answer, and only docked partial credit if you check “show final answer”.

Getting help: Students are also encouraged to make use of outside resources including:

- Math tutoring center (in Love Library, Room 328)
- Instructor Office hours
- ISA office hours
- Online videos such as those on YouTube and iTunesU.
- Private tutors (see a list posted on the Math Learning Center website)

Overview of venue/media

All lecture classes will be held in large lecture classes which have recently been updated to include modern display systems. All course information and assignments will be posted on the Blackboard website or accessible via the WebAssign media associated with this class.

Accommodations for students with disabilities

The coordinator of this course enthusiastically supports the work of Disabled Student Services in providing authorized accommodations for eligible students. Therefore, students who receive DSS accommodations are encouraged to identify themselves to the instructor. It is critical that all students understand that the instructor will respect and accommodate a student's particular needs and work to protect all students' confidentiality regarding disability or other personal hardship issues.

Student privacy and intellectual property

Federal Law (FERPA) imposes important obligations on instructors to ensure the confidentiality of student grades and other evaluation of student work. The instructor of this course will not distribute or post grades in a way that allows anyone other than the individual student to access them. In addition, university policy grants to students intellectual property rights to work products they create as part of a course unless they are formally notified otherwise.

If this course will be part of an organized data collection, students will be notified at the time of an assignment if copies of students work will be retained beyond the end of the semester and/or used as examples for future students or the wider public.

Expected behavior, performance, and attendance

Expectations for the instructors and ISAs include, but are not limited to:

- Tests will be designed to align with homework.
- Tests will be given on Wednesday evenings as scheduled. Make up tests will be given the Friday after the test. Reservations for the make-up tests must be made at least one week prior to a test.
- Grading rubrics for lab assignments will be made public; substantiations for all grades will be given
- Assignments will be graded in a timely manner
- Grades will be calculated mathematically; no change of grades or extra credit will be given

Expectations for students include, but are not limited to:

- Students will respect one another, the instructor, the TAs and ISAs. Angry, resentful, or disrespectful comments spoken in class diminish class morale and weaken the enjoyment of the class.
- Email should be used for effective communication. "Flaming" or misuse of whole-class email system will be subject to university sanctions.
- Cell phone use during lectures and breakout sessions will be limited to answering tech-enabled questions only.
- Attendance will be taken in lectures and breakout sessions. Attendance is mandatory. Email the instructor if you have a conflict and cannot attend.

- No cheating of any kind will be tolerated. This includes plagiarism in written assignments, copying others' work during exams (both in-class and take-home), and passing others' work as one's own. Sanctions that align with University policy will be assigned based on infraction.
- Technology will NOT be permitted when taking tests. If a student is caught even holding a cell phone, the test will be immediately revoked and students will receive an F. Second offenses are automatically reported to administrative channels.