Math 41: Pre-Calculus I: Theory of Functions
Spring 2019, CRN 46167, Section 63, 5 Units
Tuesday and Thursday 6:30 PM to 8:45 PM
Classroom Location: Media Learning Center, 113

Instructor Information

Instructor:	Andrew Jianyu YU
Email:	yujian@fhda.edu
Office Location:	E37 (E Quad, Room 37)
Office Hours:	Tuesday and Thursday 3:00 PM to 4:00 PM

Course Description

Polynomial, rational, exponential and logarithmic functions, graphs, solving equations, conic sections.

Prerequisite

MATH 114 or equivalent (with a grade of C or better); or a satisfactory score on the College Level Math Placement Test within the last calendar year.

Advisory

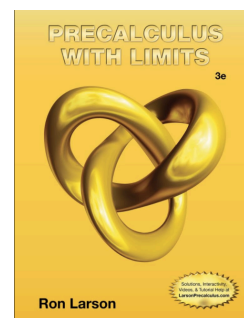EWRT 211 and READ 211 (or LART 211), or ESL 272 and 273.

Textbook

Larson, "Precalculus with Limits", 3rd edition. Boston: Cengage, 2014

ISBN-10: 1133947204; ISBN-13: 978-1133947202

This textbook is used for the entire pre-calculus sequence (Math 41, 42, and 43) at De Anza college.

Do not purchase the older editions because the problems do not match.

Calculator

Graphing calculator is recommended for the course. You may rent a TI-83 Plus in the bookstore for about $20 per semester/quarter. You are required to bring a physical calculator to the exam, and

TI-83 Plus   TI-84 Plus   TI-84 Plus CE   TI-Nspire

sharing calculator is considered as cheating incident. Using the calculator apps on your phone is strictly prohibited on the exam. Do not purchase the TI-Nspire Graphing Calculator (around $150) because it is too advanced for this course. Instructions will not be provided for TI-Nspire.

Technical Requirements

- **Your Email:** Please check your email regularly. If possible, connect your email with an app in your smartphone. I will send the homework, lecture notes, and announcement through email. Note that these materials will also be posted on Canvas. You are welcome to ask me any questions related to lecture, homework, or personal emergency through email.
  Subject of my emails "Math 41: _____"
  Please keep a record of all the email with the subject above until the semester/quarter is officially finished. You are required to use the same subject time when you send me an email because I have more than 100 students every semester/quarter.
- **Canvas:** All the lecture notes, homework, solutions, and announcements will be posted on Canvas under the "File" tab.

Lectures and Expected Preparation

Lecture notes will be posted on Canvas before the lecture. You may either read the notes on your electronic device or carry a hard copy of the notes to class. You should plan to spend a minimum of two hours outside of class for each hour spent in class to learn and make satisfactory progress in the class.

Attendance

Attendance will be taken each day using a sign in sheet. The instructor may drop a student who accrues 3 or more absences without notice.

Homework, 20% of the Course Grade

Problems will be assigned to each section. There is no online homework in this class. You are expected to fully demonstrate all your work on paper. Homework will be assigned and collected in a weekly basis. It reflects everything you learned in a week. Scores for homework assignment will be based on completeness, clarity, promptness, and accuracy. The lowest homework grade will be dropped at the end of the course.

Quiz/Pop Quiz, 20% of the Course Grade

A quiz will be given in class at the due date on every homework assignment. You are expected to get 2 to 3 short problems on the quiz. Quiz questions are based on the homework due on that day. For example, if the first homework contains 4 sections, the quiz problems are based on those 4 sections. If the first homework is due next Thursday, then first quiz will be held on the next Thursday. Quiz is closed book and closed notes, but calculator is allowed. Pop quiz will be given if the attendance is low. Since this is a time-sensitive assignment, no make up pop quizzes are allowed, no exceptions.

Exams, 35% of the Course Grade (Three Exams in this Course)

There are three exams in this course. The exam date will be announced at least one week prior the exam. Review problems will be provided, discussed, and solved in class. Exam problems are similar to the review problems. Although exams are closed book and closed notes, your instructor will provide a formula sheet during the exam. The formula sheet will be sent along with the review problems. You are not allowed to modify the content of the formula sheet. Sharing calculator during the exam is considered at cheating. Your exam will not be graded if cheating incident is found. Your lowest exam score will <u>not</u> be dropped. All the exams are individual assignments.

Final Exam, 25% of the Course Grade

The final exam will be comprehensive. The Final Exam is an individual assignment. Exam topics will be announced in advanced. A formula sheet will be provided during the review session. The same formula sheet will be provided during the exam date. You are not allowed to modify the content of the formula sheet. Please bring your own calculator to the exam. Sharing calculator, using a smartphone or tablet with internet access, looking at your neighbor's exam, or communicating with your neighbor are considered as cheating incident, which will not be tolerated. Assistant seeker will receive a zero on the exam, and assistant provider will be reported to the college.

Grading Rubrics

Your course grade will be assigned in the following standard:

A: 100% to 92%	A-: 91% to 90%	
B+: 89% to 86%	B: 85% to 82%	B-: 81% to 80%
C+: 79% to 74%	C: 73% to 70%	
D: 69% to 60%	F: below 60%	

Extra Credit Assignment

There are no extra credit assignments in this course to improve your grade. Please do not ask for any.

Academic Integrity

Academic dishonesty will not be tolerated. Any student attempting to defraud the instructor on a quiz, exam, final exam, or any other assessment item designated as an individual assignment will receive a zero on that assignment. This score is irreplaceable. If a cheating incident is detected on your work, the rest of your works in the course will be closely monitored and examined.

Available Support Services

The Math Tutorial Center in S43 has free tutoring for this course. If you need help in studying the class materials, please seek for a math tutor in the learning center immediately. Do not wait until the last minute to seek for help.

Academic Adjustments for Students with Disabilities

Please see instructor during office hours to discuss your situation confidentially if you have accommodations; see the instructor during the first week of class or as soon as you receive approval from the appropriate support service. For information about eligibility, support services or accommodations due to physical or learning disability see:

- Disability Support Service (DSS): www.deanza.edu/dss Location: SCS-141 (408) 864-8753; TTY (408) 864-8748
- Educational Diagnostic Center (EDC): www.deanza.edu/edc Location: LCW 110; (408) 864-8839
- Special Education Division:; www.deanza.edu/specialed (408) 864-8407

Course Content
The following topics will be covered in this course
Chapter 1: Functions and Their Graphs
Section 1.1: Rectangular Coordinates
Section 1.2: Graphs of Equations
Section 1.3: Linear Equations in Two Variables
Section 1.4: Functions
Section 1.5: Analyzing Graphs of Functions
Section 1.6: A Library of Parent Functions
Section 1.7: Transformations of Functions
Section 1.8: Combinations of Functions: Composite Functions
Section 1.9: Inverse Functions
Section 1.10: Mathematical Modeling and Variation

Chapter 2: Polynomial and Rational Functions
Section 2.1: Quadratic Functions and Models
Section 2.2: Polynomial Functions and Higher Degree
Section 2.3: Polynomial and Synthetic Division
Section 2.4: Complex Numbers
Section 2.5: Zeros of Polynomial Functions
Section 2.6: Rational Functions
Section 2.7: Nonlinear Inequalities

Chapter 3: Exponential and Logarithmic Functions
Section 3.1: Exponential Functions and Their Graphs
Section 3.2: Logarithmic Functions and Their Graphs
Section 3.3: Properties of Logarithms
Section 3.4: Exponential and Logarithmic Equations
Section 3.5: Exponential and Logarithmic Models

Chapter 10: Topics in Analytic Geometry
Section 10.1: Lines
Section 10.2: Introduction to Conics: Parabolas
Section 10.3: Ellipses
Section 10.4: Hyperbolas

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Course Objectives

A. Examine the definition of a function and investigate the implications and properties of this concept

B. Explore graphs of functions of the form $y = f(x) = x^p$

C. Create new functions from existing functions

D. Graph and analyze exponential and logarithmic functions and solve related equations

E. Graph and analyze polynomial functions and solve related equations and inequalities

F. Graph and analyze rational functions and solve related equations and inequalities

G. Graph and analyze conic sections in rectangular coordinates

H. Examine the logic of conditional and bi-conditional statements as they appear in mathematical statements

Important Dates to Remember

Monday, April 8	First day of Winter Quarter
Saturday, April 20	Last day to add classes for spring quarter
Sunday, April 21	Last day to drop classes for full refund or credit Last day to drop classes with no record of "W"
Friday, May 3	Last day to request "Pass/No Pass" for spring classes
Saturday to Monday May 25 to 27	Memorial Day Weekend – Campus Closed
Friday, May 31	Last day to drop classes with a "W"
Monday to Friday June 24 to 28	Final Exam's Week
Friday, June 28	Last day of spring quarter

College Policy: If the student chooses not to complete the class, it is the STUDENT'S RESPONSIBILITY to drop or withdraw by the college deadlines. If you stop attending but do not withdraw or drop you may fail with a grade of F. *The professor reserves the right to make changes to the syllabus, including project due dates and test dates (excluding the officially scheduled final examination), when unforeseen circumstances occur. These changes will be announced as early as possible so that students can adjust their schedules.*

Student Learning Outcome(s):

*Investigate, evaluate, and differentiate between algebraic and transcendental functions in their graphic, formulaic, and tabular representations.
*Synthesize, model, and communicate real-life applications and phenomena using algebraic and transcendental functions.