Mathematics 41-21247
Pre-Calculus I
Theory of Functions
Fall Quarter 2015
De Anza College

Instructor: Robert Ramsey

Phone: (408)864-8620(Office)
(510)479-4234(Cell.)

E-Mail: Ramseyrobert@FHDA.edu

Office Hours: Monday thru Thursday, 1:30 pm to 2:30 pm
De Anza PSME Building
Room S33

Lecture: Monday thru Friday; 12:30 pm to 1:20 pm
De Anza College, Main Campus
Room S16

Text: **Precalculus with Limits, 3rd e/**
Author: Ron Larson
ISBN-13: 9781439049099
Publisher: Cengage
Copyright: 2012

Prerequisites: Mathematics 114 or equivalent with a grade of C or better; or a qualifying score on the Intermediate Algebra Placement Test within the past twelve months.

Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.

About the Course: Math 41 is the first course in a three part pre-calculus series designed to give students a solid understanding in the fundamental concepts necessary to succeed in differential and integral calculus. Topics covered in the three part precalculus series include the theory of functions, trigonometric functions and advanced topics in precalculus, which include series, sequences, analytic geometry and other topics. The first course in this series, Math 41, focuses on the theory of functions. Four broad concepts will be emphasized in Math 41, they are:

a.) A review of the fundamental concepts of Algebra
b.) The Cartesian Coordinate System and Graphs of Functions
c.) Polynomials and Rational Functions
d.) Exponential and Logarithmic Functions.

At De Anza beginning in Fall, 2015 we are phasing out **Larson, *Precalculus with Limits*, 2nd edition** and phasing in **Larson, *Precalculus with Limits*, 3rd edition.**

We will cover the following sections from the Larson, Precalculus with Limits, 3rd edition, textbook:

- Appendix **A5** & **A6** (Solving polynomial equations and absolute value inequalities as in the course outline)
- **§1.2 – 1.10**
- **§2.1 – 2.3** and **2.5 – 2.7**
- **§3.1 – 3.5**
- **§10.2 – 10.4**

In addition, in this course, we make use of graphical and numeric techniques to understand the concepts necessary to succeed in Calculus.

Student Learning Outcome Statements (SLO)

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

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 $y = x^p$ and $f(x) = x^p$

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 state

Study Group Information: Every student is encouraged to form a study group of two to four students. These groups will work together to complete their homework and other course assignments.

Projects: The purpose of the group projects is to place an emphasis on critical thinking, problem solving, and to expand every students understanding beyond the mere mechanical aspects of mathematics. The projects will place an emphasis on expository writing, and making logical connections between topics while understanding the connection between algebraic, formulaic, tabular and graphical presentations of statistical concepts.

Tests: We will cover chapters one through three and chapter ten of the Larson, Precalculus with Limits, 3rd edition textbook. There will be three exams this quarter, near the end of chapters 1, 2 and 3. The exams will be composed of both computational and concept based questions. Each exam will last approximately one hour. The questions on the exam will require the student to demonstrate his or her ability in integrating the methods, ideas and techniques learned in class. Many, but not all, questions will require the student to communicate ideas and conclusions in short essay format.

Finally, there will be no make-up exams unless arrangements are made prior to the date of said exam, and said exam is taken before the regular exam is scheduled. Should any exam be missed, without prior arrangement, that exam will count as zero.

Homework: Homework is intended as a means of increasing every students understanding, and as a means of mastering the course material. Every student is required to register at www.webassign.net with the use of the course key **deanza 2120 7367**. Homework will be evaluated for accuracy and completion in order to assess every student's comprehension of material covered in lecture and to provide feedback to students on their progress. All homework is assigned and completed online.

Successful completion of every homework assignment should not be interpreted, in and of itself, as sufficient effort to pass Math 41. In addition, handouts passed out in class, and any in-class assignments not completed, should be considered additional home work.

Quizzes: Quizzes will be completed in class. Quizzes will be both announced and unannounced, i.e. pop-quizzes. There will be approximately twelve quizzes this quarter with the ten highest quizzes used to calculate your average quiz score.

The quizzes completed in class are mandatory, and are used to determine your quiz score and indirectly used to complete your class participation grade. The quizzes in class will emphasis information covered during lecture.

Class Participation: Attendance during lecture is mandatory and leaving early is highly discouraged. Students are responsible for all announcements made in class, whether they are present or not. Successful performance in this course requires classroom attendance, completion of all in-class assignments, as well as homework online, and serious effort on the exams, in-class quizzes, and the final.

Final: There will be a two hour comprehensive final exam which will contain material from all chapters covered thru the course of this quarter. The date of the final exam is **Tuesday, December 8, 2015** from 11:30 am to 1:30 pm in Room S-16.

Grading:	3 exams (3 @ 15% each)	45 %
	Homework	20 %
	Class Participation	10 %
	Quizzes (Announced and Unannounced)	10 %
	Final	15 %
TOTAL		100 %

Grades will be as follows:

A	=	90.00 to 100.00 %
B	=	80.00 to 89.99 %
C	=	70.00 to 79.99 %
D	=	55.00 to 69.99 %
F	=	less than 55.00 %

Academic Integrity: Any credible accusation of academic dishonesty, no matter how minor, will be investigated, and if found to be meritorious, will be dealt with severely. Students caught cheating will receive an F for that assignment and notice of the offense will be forwarded to the chairman of the department of mathematics and the Vice President for Academic Affairs for further punitive action.

Disruptive Behavior: Unruly or disruptive behavior to include incessant talking, rude, profane, or vulgar language, threatening or violent behavior, and\or any form of disrespect, directed at the instructor or fellow classmates will not be tolerated. Such behavior will result in the immediate and permanent removal of the offending individual from this course. In addition, students are expected to refrain from sending text messages during class.

Important Dates:

Monday, Sept. 21 :: First day of Fall Quarter 2015

Saturday, Oct. 3 :: Last day to add quarter-length classes. *Add date is enforced.*

Sunday, Oct. 4 :: Last day to drop for a full refund or credit (for 12-weeks, quarter-length classes). Last day to drop for a refund/credit for all other classes is listed inside MyPortal, on the Students Tab under 'View Your Class Schedule.' *Drop date is enforced.*

Sunday, Oct. 4 :: Last day to drop a class with no record of grade. *Drop date is enforced.*

Friday, Oct. 16 :: Last day to request pass/no pass grade. *Request date is enforced.*

Friday, Nov. 13 :: Last day to drop with a "W." *Withdraw date is enforced.*

Monday, Nov. 9 :: Veterans Day (classes will be held on Nov. 7)

Thursday - Sunday, Nov. 26 - 29 :: Thanksgiving Holiday Recess (college closed)

Saturday, Dec. 5 - Friday, Dec. 11 :: Final exams

Friday, Dec. 11 :: Last day to file for a fall degree or certificate**.**

Friday, Dec. 11 :: Last day of Fall 2015 Quarter

Monday, Jan. 4 :: First day of Winter 2016 Quarter

	Monday	Tuesday	Wednesday	Thursday	Friday
0	Rosh Hashanah 14 at sunset., no evening exams	Rosh Hashanah 15 continues no exams	16	17	18
1	21 Introduction, Chapter One Section One Rectangular Coordinates	Yom Kippur begins 22 at sunset, no evening exams Chapter One Section Two Graphs of Equations	Yom Kippur ends 23 at sunset, no exams Chapter One Section Two Graphs of Equations	24 Chapter One Section Three Linear Equations in Two Variables	25 Chapter One Section Three Linear Equations in Two Variables
2	28 Chapter One Section Four Intro. to Functions	29 Chapter One Section Five Analyzing Graphs	30 Chapter One Section Six A Library of Functions	October 1 Chapter One Section Seven Transformations	2 Oct. 3 - Last day to Add Oct 4 - Last day to drop w/ refund Oct. 4 – Last day to drop w/ no record Make Up day
3	5 Appendix Section A2 Exponents and Radicals Quiz	6 Appendix Section A3 Polynomials and Factoring	7 Appendix Section A5 Equations and Solutions	8 Appendix Section A6 Linear Inequalities in One Variable	9 Review for Midterm One
4	12 Midterm #1 (Appendix & Chapter One)	13 Chapter One Section Eight Composite Functions	14 Chapter One Section Eight Composite Functions	15 Chapter One Section Nine Inverse Functions	16 Chapter One Section Nine Inverse Functions
5	19 Quiz Chapter One Section Ten Modeling and Variation	20 Chapter One Section Ten Modeling and Variation	21 Chapter Two Section One Quadratics and Modeling	22 Chapter Two Section Two Polynomial Functions	23 Chapter Two Section Two Polynomial Functions

6	26 Chapter Two Section Three Polynomials and Division	27 Chapter Two Section Three Polynomials and Division	Quiz 28 Chapter Two Section Four Complex Numbers	29 Chapter Two Section Four Complex Numbers	30 Chapter Two Section Five Zeroes of Polynomials
7	November 2 Review for Midterm 2	3 Midterm Two (2nd half of Chap. One & 1st half of Chap. Two)	4 Chapter Two Section Six Rational Functions	5 Chapter Two Section Six Rational Functions	6 Chapter Two Section Seven Nonlinear Inequalities
8	Veteran's 9 Day Holiday	10 Chapter Two Section Seven Nonlinear Inequalities	11 Chapter Three Section One Exponential Functions	12 Chapter Three Section One Exponential Functions	13 Chapter Three Section Two Logarithmic Functions
9	16 Chapter Three Section Two Logarithmic Functions	17 Chapter Three Section Three Properties of Logarithms	18 Chapter Three Section Three Properties of Logarithms	19 Make up Day	Last Day 20 to Drop with "W" Chapter Three Section Four Exponential & Logarithmic Equations
10	23 Chapter Three Section Four Exponential & Logarithmic Equations	24 Chapter Three Section Five Exponential & Logarithmic Models	25 Chapter Three Section Five Exponential & Logarithmic Models	Thanksgiving 26 Holiday Campus Closed	27 No Sat. Classes →
11	30 Midterm Three	December 1 Chapter Ten Section Two and Three Parabolas & Ellipses	2 Chapter Ten Section Four Hyperbolas	3 Review for Final Exam (Appendix & Chapter One)	4 Review for Final Exam (Chapter Two & Three)

1 2	Mon-Thu Finals Begin 7	Final Exam 8 11:30 am to 1:30 pm	Finals 9	Finals 10	11 Sat Finals on the 5th
1 3	14	15	16	17	18