

MATH 41 (CRN: 46768) with MATH 231 (CRN: 46769) co-requisite
PRECALC I with ALG SUPPORT

TWR, 01:30pm-3:45pm, through ConferZoom

2020 April 14 - June 23

Instr: Patrick Allmann

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Website: <https://deanza.instructure.com/>

Office Location: through ConferZoom found on Canvas (the course website)

Office Hours: Tuesdays, Thursdays 4-5pm or by appointment

The contents of this syllabus are subject to change.

Course Description: Polynomial, rational, exponential and logarithmic functions, graphs, solving equations, conic sections. A review of the core prerequisite skills, competencies, and concepts needed in when studying polynomial, rational, exponential and logarithmic functions. Intended for majors in business, science, technology, engineering, and mathematics who are concurrently enrolled in Precalculus I.

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.

Credit Hours: 5

(optional) texts:

- *Precalculus with Limits*, 3rd Edition **Author:** Ron Larson 2014; **ISBN:** 978-1-133-94720-2
- OpenStax, Precalculus. OpenStax CNX. Jun 18, 2019 <http://cnx.org/contents/fd53eae1-fa23-47c7-bb1b-972349835c3c@10.129>.

Course Objectives:

Throughout this course, students will at least:

1. Examine the definition of a function and investigate the implications and properties of this concept
2. Explore graphs of functions of the form $f(x) = x^p$
3. Create new functions from existing functions
4. Graph and analyze exponential and logarithmic functions and solve related equations

5. Graph and analyze polynomial functions and solve related equations and inequalities
6. Graph and analyze rational functions and solve related equations and inequalities
7. Graph and analyze conic sections in rectangular coordinates
8. Examine the logic of conditional and bi-conditional statements as they appear in mathematical statements
9. Explore topics related to developing effective learning skills
10. Develop effective skills for modeling and solving real world applications
11. Develop skills needed to graph functions and relations in rectangular coordinates
12. Develop skills needed to synthesize results from the graphs and/or equations of functions and relations
13. Develop skills needed to apply transformations to the graphs of functions and relations.
14. Develop skills needed to recognize the relationship between functions and their inverses graphically and algebraically
15. Develop skills needed to solve and apply equations including linear, quadratic, absolute value, radical, and solve linear and absolute value inequalities
16. Develop skills needed to solve and apply equations including rational, polynomial, exponential, and logarithmic, and solve nonlinear inequalities
17. Develop skills needed to solve systems of equations and inequalities.

Grade Distribution:

Attendance	10%
Group work	30%
Homework	25%
Midterm Exams	20% (10 % each)
Final Exam	15%

Course Policies:

- **Attendance**

- There will be Zoom power point lectures during the second half of the slotted meeting time. Please attend if you have questions. The slides will be posted on Canvas before the lecture begins.
- The lectures will be recorded and subsequently posted on Canvas.
- The use of the discussions tab (on Canvas) as a forum is highly encouraged.
- Office hours will be problem solving sessions with the potential to go through more examples.
- To obtain attendance credit, you must **meet with me individually at least twice this quarter and ask a question regarding the course content**. These meetings must occur on either side of a midterm exam. For example, you might meet with me after the first exam, then after the second exam. Email me to schedule a Zoom appointment.

- **Groupwork**

- Group discussion will occur during the first half of the slotted meeting time, facilitated through 'break-out rooms' on Zoom and/or through the discussion board on Canvas. As a group, decide which medium(s) you wish to use.
- Group sessions will start the second week of the course.
- Groups will be assigned randomly at first, with the possibility of forming your own once the quarter progresses.
- Group work is due every Thursday night at 11:59pm except for midterm weeks.
- Turn in one assignment per group. Group work is, of course, collaborative. Please make sure everyone in your group is doing their part.
- There are many ways to collaborate and share documents online. As mentioned above, the use of the discussion board on Canvas is highly encouraged. To share documents, I recommend using either Google Drive or DropBox.
- You might need to collaborate more often than once per week. This can be through email, the discussion board, Skype, Zoom, or through Google Hangouts.

- **Homework**

- Due every Sunday at 11:59pm.
- Check the course website for each assignment.
- Homework assignments are meant to improve your conceptual understanding of the material and writing skills.
- Students are encouraged to work together during assignments, but are expected to turn in their own work.

- **Exams**

- **Due dates of Midterm exams:** Thursday May 7 (week 4), Thursday June 4 (week 8) at 11:59pm.
- **Due date of Final exam:** Tuesday June 23 at 11:59pm.
- Check the course website for recommended study materials.

- You'll have a week to complete the exams. Exams are 'take-home'. 'open book, open notes'. Do not use internet sources.
- Exams are non-collaborative. You cannot work together in groups or talk to each other about the exam while it's available.
- If a midterm exam is missed, the final absorbs the percentage of it.
- The final exam must be taken in order to pass the class.

2020 Spring Deadlines:

April 25 : Last day to add classes

April 26 : Last day to drop classes for full refund or credit

April 26 : Last day to drop classes without a W

May 8 : Last day to request "Pass/No Pass" for full-length classes

June 5 : Last day to drop classes with a "W"

Academic Dishonesty:

Academic dishonesty will not be tolerated. This includes, but is not limited to, plagiarism.

See https://deanza.edu/policies/academic_integrity.html for more info.

Tentative Course Outline:

The daily coverage might change as it depends on the progress of the class. The sections are from the OpenStax text.

Week	Content
1	Arithmetic of rational and real numbers.
2	Linear functions 2.1-2.4
3	Complex numbers, quadratic and polynomial functions 3.1-3.4
4	More on polynomial functions, rational functions 3.5-3.9 Midterm due May 7
5	Intro to functions 1.1-1.3
6	Composition of functions and inverse functions 1.4, 1.7 Transformations of functions and absolute value functions 1.5-1.6
7	Exponential functions 4.1-4.2
8	Logarithmic functions 4.3-4.5 Midterm due June 4
9	Exponential and logarithmic functions 4.6-4.8
10	Conic sections 10.1-10.3
Finals	Final due Jun 23

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.