

# Syllabus: MATH-191-0641: Pre-Calculus, Fall 2020.

## **Instructor Information Including Contact Information.**

Instructor Name: Kit Newton.

Email: [knewton@dvc.edu](mailto:knewton@dvc.edu)

Office: MA-128

Phone: 925-969-2674

Office Hours and Location: Monday 11:15 AM – 12:30 PM

Tuesday 10:00 AM – 11:15 AM

Wednesday 2:00 PM – 3:15 PM

Thursday 10:45 AM – 12:00 PM

All office hours will be held online through Zoom.

## **General Course Information.**

Course #: 191

Section: 0641

Days/Times: Tuesday, 12:45 PM – 2:00 PM

Thursday, 12:45 PM – 2:00 PM

Location/Instruction Mode: Off Campus/Online

Units: 5

Semester: Fall

Year: 2020

## **Textbook/Materials/Supplies Required.**

Textbook: Zero-Cost OpenStax [Precalculus textbook](#), by Jay Abramson. Reading will be assigned from the book. Homework assignments will be distributed through Canvas, no WebAssign or WebWork is required. Calculators are not required or recommended. We will use the CAS “[SageMath](#)” available free, as needed.

Technology: your computer needs to support synchronously joining our class over Zoom. Ideally, you have a webcam, microphone, and strong enough internet connection that we can video chat. However, if this isn't feasible for you, please email me and we can figure out how you can participate in the class.

## **Course Description.**

This course is an in-depth treatment of functions and their graphs, including polynomial, rational, logarithmic, exponential and trigonometric functions. Conic sections, nonlinear systems, vectors and complex numbers are also covered. Use of a graphing calculator or a computer algebra system is required.

## **Course Outline.**

1. Functions including linear, polynomial, rational, radical, exponential, absolute value, logarithmic, trigonometric; definitions, evaluation, domain and range;
2. Inverses of functions;
3. Algebra of functions;
4. Graphs of functions including asymptotic behavior, intercepts, and vertices;
5. Transformations of quadratic, absolute value, radical, rational, logarithmic, exponential functions;
6. Equations including rational, linear, radical, polynomial, exponential, trigonometric, logarithmic, and absolute value;
7. Linear, nonlinear, and absolute value inequalities;
8. Systems of equations and inequalities;
9. Characterization of real and complex zeros of polynomials;
10. Unit circle and right triangle trigonometry;
11. Trigonometric and inverse trigonometric identities and formulas;
12. Graphing trigonometric functions: period, amplitude, phase shift, inverse trigonometric functions; and
13. Polar coordinates

## **Prerequisites.**

Placement into MATH-191; or MATH-121; or assessment process. Or equivalent.

## **Attendance Policy.**

We have synchronous class meetings online at the scheduled meeting time for our class. We will do graded activities during class that will be counted towards “Participation”. If you must miss a class, please email me as soon as possible. We may be able to work out other arrangements for you to complete the graded activity.

## **Communication Plan for Faculty and Students.**

I aim to respond to email within 24 hours. This excludes weekends, except in case of emergency. Course related announcements will be posted on the Announcement Page on Canvas and sent to the class email list. Although I will try to make the same announcements during our class time, it will still be important for you to check your student email account and Canvas regularly to make sure you’re not missing anything.

## **Homework and Late Submission Policies**

I plan to have 3 midterm exams, homework, quizzes based on the homework, and a final exam. We will do graded activities during the scheduled class time that will be counted towards “Participation”. If you have school or career obligations on scheduled test days, email me at least

a week ahead of time for possible accommodations. If you have an emergency and must miss a test, email me as soon as possible. I plan to have one-on-one oral components to each exam.

In case of emergency, extensions on assignments may be possible. You must contact me about an extension **before** the due date/time. I will let you know if an extension has been granted and provide you with the updated due date/time. Assignments submitted after the due date/time without prior approval will receive zero credit.

## **Submission of Assignments**

Assignments will be turned in on Canvas.

## **Student Learning Outcomes.**

Students will be able to:

- A. Graph functions and relations in rectangular and polar coordinates.
- B. Synthesize results from the graphs and/or equations of functions and relations.
- C. Apply transformations to the graphs of functions and relations.
- D. Recognize the relationship between functions and their inverses graphically and algebraic
- E. Solve and apply equations including rational, linear, polynomial, exponential, absolute value, radical, and logarithmic, and solve linear, nonlinear, and absolute value inequalities.
- F. Solve systems of equations and inequalities.
- G. Apply functions to model real world applications.  
Identify special triangles and their related angle and side measures.
- H. Evaluate the trigonometric function of an angle given in degree and radian measure.
- I. Manipulate and simplify a trigonometric expression.
- J. Solve trigonometric equations, triangles, and applications.
- K. Graph the basic trigonometric functions and apply changes in period, phase, and amplitude to generate new graphs.
- L. Prove trigonometric identities.

## **Support and Resources.**

- [MathLab](#) (available remotely, see [video](#) for instructions!)
- [Online Learning at DVC](#)
- [Counseling](#) (available remotely)
- [Disability Support Services](#) (for students seeking accommodations)
- [Library](#)
- [Multicultural Center](#)
- [Financial Aid](#) (including COVID assistance)
- [Basic Needs](#) (food, shelter, health services)

## Evaluation Criteria and Grading Standards.

Assignment	Percentage of Final Grade
Homework	15
Quizzes	10
Participation	10
Exam 1	15
Exam 2	15
Exam 3	15
Final Exam	20
<b>Total</b>	100

Grading Scale:

Grade	A	B	C	D
Score	90-100	80-89	60-79	50-59

Final grades are recorded as A=4.0, B=3.0, C=2.0, D=1.0, F=0

## Syllabus Changes.

I may modify the syllabus or schedule with reasonable notice to you. Look for an Announcement in Canvas and an email.

## ADA.

Diablo Valley College has Disability Support Services available. For information about accommodations for this and other courses, please visit the [DSS](#) page at the DVC website. If approved for accommodations, DSS will provide you with an accommodation plan. Please share your accommodation plan with me and discuss your approved accommodations as early in my class as possible. If your accommodation needs are not being met, please inform me and Disability Support Services as soon as possible.

## Equity and Inclusion.

This class aims to be a safe and affirming learning space for all students, regardless of age, race, ethnicity, citizen status, gender, sex, sexual orientation, parental status, religion, ability, or socioeconomic status. As an instructor, I pledge to respect all students based upon these factors, including the use of preferred names and pronouns, and I encourage open communication. Students are welcome and encouraged to share any/all viewpoints relevant to course material.

## Academic Integrity.

Academic dishonesty, including cheating and plagiarism, is a violation of the DVC Student Code of Conduct and will not be tolerated. This includes giving or receiving assistance on any assignment, quiz, or exam unless specifically authorized by your instructor. These actions are grounds for academic consequences, such as receiving no credit for the assignment or a reduced grade in the class, and disciplinary consequences from the college. If you have any questions about academic dishonesty or plagiarism, please see the [DVC Academic Integrity Policy](#). Unless otherwise specified, your work in this class is individual work; helping or being helped on assessments is cheating; the penalty is up to a zero on the test for one offense, and an F in the class for a second offense.

## Tentative Schedule.

Generally, we will be following our book listed above.

<b>Week:</b>	<b>Topic:</b>	<b>Reading:</b>
8/24 – 8/28	Intro to functions, domain, range, graphs	Chapter 1
8/31 – 9/4	Composition, transformation, algebra	Chapter 1
9/7 – 9/11	Inverse functions	Chapter 1
9/14 – 9/18	Linear and polynomial functions, zeros	Chapter 2
9/21 – 9/25	<b>Exam 1 probably this week</b>	
9/28 – 10/2	Polynomial and rational functions	Chapter 2-3
10/5 – 10/9	Exponential functions & operations	Chapter 3-4
10/12 – 10/16	Logarithms & logarithmic functions	Chapter 3-4
10/19 – 10/23	Applications	Chapter 3-4
10/26 – 10/30	<b>Exam 2 probably this week</b>	
11/2 – 11/6	Trigonometric functions, unit circle	Chapter 5
11/9 – 11/13	Graphs of trig functions	Chapter 6
11/16 – 11/20	Trig identities and equations	Chapter 7
11/23 – 11/27	Polar coordinates, applications	Chapter 8
11/30 – 12/4	<b>Exam 3 probably this week</b>	
12/7 – 12/11	Review – <b>Final: last day of class</b>	