



# Syllabus for MATH& 142 - 3521

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## COURSE INFORMATION

Course Title: Pre-Calculus 2

Course Prefix, Number & Section: MATH& 142

Credits: 5

Course Description: Graphical, numerical, and symbolic development of the trigonometric functions and their inverses as defined on the unit circle and right triangles; identities, equations, and applications; complex numbers, polar coordinates, parametric equations, vectors, and conic sections.

Prerequisites: MATH& 141 with a C or better or equivalent placement.

Quarter and Year: Fall 2020

Meeting Location, Times and Days: M-F 9:00 – 9:50 am online

Start Date: September 21<sup>st</sup>, 2020

End Date: June 12<sup>th</sup>, 2020

Last date to drop with a 100% refund: September 27<sup>th</sup>, 2020

Last date to drop with a 50% refund: October 4<sup>th</sup>, 2020

Last date to drop with a 40% refund: October 5<sup>th</sup>, 2020

Last date to withdraw and last day of class: December 7<sup>th</sup>, 2020

## **INSTRUCTOR INFORMATION**

Name: Teresa Adams

E-mail: [teresa.adams@centralia.edu](mailto:teresa.adams@centralia.edu)

Phone: 360 736 9391 ext 8732

Office Location: Online/WSC 216B

Office Hours: MTThF 12:30 – 2 pm or by appointment

## **REQUIRED COURSE MATERIALS**

Textbook: Calculus 2 by Openstax. Download this here:

<https://openstax.org/details/books/precalculus>

Online homework link: [http://webwork.centralia.edu/webwork2/MATH142\\_Fa20\\_3521/](http://webwork.centralia.edu/webwork2/MATH142_Fa20_3521/)

Your login name will be first.lastname all lower case and your password will be your student number.

Calculator: A non-graphing scientific calculator is required for this class. It is recommended you consider using a non-phone/computer calculator when you are completing your homework/quizzes/tests.

## **STANDARD COMPETENCIES**

Upon successful completion students should be able to:

1. Define the trigonometric functions and apply them in the analysis of triangle
2. Demonstrate an understanding of the trigonometric functions as real valued functions, identify and manipulate their graphs, and use them as models for applications with periodic behavior.
3. Use, develop, and verify trigonometric identities.
4. Solve trigonometric equations symbolically, graphically, and numerically.

5. Define and perform operations on vectors.
6. Apply vectors to appropriate story problems.
7. Use complex numbers in rectangular and polar forms.
8. Use complex numbers in rectangular and polar forms.
9. Identify and manipulate the equations of the conic sections.
10. Graph the conic sections from their standard form.
11. Use sequence, factorial, and summation notation to write terms and sums of sequences and series.
12. Recognize, write, and manipulate arithmetic and geometric sequences.
13. Use mathematical induction to prove a statement involving positive integer  $n$ .
14. Write complete solutions that are clear and understandable.

## TOPICAL OUTLINE

- I. Right Triangle definitions of the Trigonometric Functions
  - A. Angle relationships and similar triangles
  - B. Definitions of trigonometric functions
  - C. Evaluating trigonometric functions
  - D. Solving right triangles and applications
- II. Circular definition of the Trigonometric Functions
  - A. Radian measure and applications
  - B. Circular functions and trigonometric functions as real-valued functions
  - C. Graphs of trigonometric functions and translations
- III. Identities and Relations
  - A. Fundamental identities
  - B. Verifying identities
- IV. Inverse Functions and Trigonometric Equations
  - A. Inverse trigonometric functions
  - B. Trigonometric equations
  - C. Equations with inverse functions
- V. Applications and Graphs
  - A. Laws of Trigonometric Functions
  - B. Vectors
  - C. Complex numbers and operations
  - D. Product, Quotient, and DeMoivre's Theorem
  - E. Polar equations and graphs
  - F. Parametric equations and graphs
- VI. Topics in Analytic Geometry – Conic Sections

- A. Equations and applications of conic sections
- B. Rotation of conics

## VII. Sequences and Series

- A. Sequences and series
- B. Arithmetic and Geometric series
- C. Mathematical induction

## **CLASS SPECIFIC RULES**

Minimum technology: reliable internet. Here is a map

<https://www.commerce.wa.gov/building-infrastructure/washington-state-drive-in-wifi-hotspots-location-finder/> with some drive up internet and we do have internet in the parking lots on campus. With the current Covid situation, you can only enter the buildings on campus that you have classes and only during those class times with the exception of TAC (please see your student email, not here in Canvas, for further information). For the tests (if you are taking them through HonorLock) and possibly some of the quizzes, you will need a document scanner. Most phones have apps for this as well computer programs. Some are free and some are not. You will need a non-graphing calculator and if you are using your phone for a calculator then you will need to spend about \$20 for a non-graphing scientific calculator for the tests. Your book is online but you can also download the .pdf so you may need the free software to open this on your computer/laptop/tablet/phone/etc.

### Attendance:

Regular and punctual attendance at all scheduled classes will maximize your learning in this class. If you have circumstances that prevent you from regular and punctual attendance, please talk to me outside of class, or by email so we can find the best way to help you learn. While there are no distinctions between excused and unexcused absences in college, we want to support you in the best way possible.

Attendance will be taken daily at the beginning of class in WebEx. By October 2<sup>nd</sup> you MUST attend class virtually or complete an assignment such as homework or a quiz or you will be dropped for non-attendance.

Flipped Classroom Model: Flipped classroom is a “pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning

environment where the educator guides students as they apply concepts and engage creatively in the subject matter.”

Students take responsibility and ownership for their learning by: watch class videos before class, complete a pre-quiz prior to class, complete a post quiz after class, actively engage with fellow students during class on homework and practice questions provided by the professor,

Your professor is responsible for creating some really engaging and powerful activities to practice those concepts that they have pre-learned outside of class.

Homework: Homework is designed to give you the practice you need to be successful on your exams. If you do every assignment by its due date, and are giving your best effort to learn the material you have a greater chance at success.

In this class, the math builds on itself. Falling behind in one topic means it will be more difficult to understand the next topic. It is highly recommended you complete the homework right after we finish the topic in class. Knowing many of you work and have other outside obligations, homework that we cover each week may be due the following Sundays at 11:59 pm. After the due date, but before the exam, you are welcome to complete the assignment for 50% of the credit. Please note there will be 4 classes completing homework by Sunday nights which means WebWork will slow down Sunday. I will not extend due dates because you worked on your homework late Sunday and was unable to Homework due to slow downs so please plan accordingly. Homework will be completed on line through WebWork

[http://webwork.centralia.edu/webwork2/MATH142\\_Fa20\\_3521/](http://webwork.centralia.edu/webwork2/MATH142_Fa20_3521/)

Quizzes: The purpose of quizzes is to give you an opportunity to show your knowledge and to receive feedback from me before the exam. It will allow you to re-structure your learning and study habits early in the quarter if you need it so that you can be successful.

Every day before class, due no later than 5 am the day we cover a new topic, there will be a pre-quiz. These can be found in the Canvas Classroom. This will give you an opportunity to provide feedback on your understanding of the topic so that any concepts you are struggling with can be addressed during class. None of these will be dropped so please complete these prior to class daily. There are no make-up or retake on these.

Every Sunday by 11:59 pm there will be a one to three question quiz on each of the sections covered the previous week. This can be found in the Canvas Classroom. These will be available at the beginning of each week and it is recommended that you complete

these as you complete the homework for each section. I drop your lowest 5 section quizzes. There are no make-up or retake on these.

Weekly Tests: You will have seven opportunities to show what you have learned in this course. Each of these opportunities (Test) is worth approximately 6% of your overall grade, will be between 3 and 10 questions, and will cover the previous week's topics. See the calendar for the scheduled dates. Further, a student can have their lowest test score (if they have taken all the tests) replaced with the final exam score.

The tests will be proctored on Wednesdays (see class schedule) online through HonorLock or you can come to campus. Each test will be available during our regular class period online through HonorLock or on campus. If you are choosing to use HonorLock, these will also be taken at 9:10 – 10 am and you will need a camera, microphone, fairly high-speed internet, and a room quite room in which there are no other people. More information about HonorLock will be given out as we closer to the tests. If you are unable to take the tests at 9:10 – 10 am (classes need to be staggered on campus), please contact me, with a minimum of 48 hours in advance, about other times on Wednesdays to take the tests. Although the tests can be taken online, you will be expected to submit your work for each problem, or you may not receive full credit. More information and expectations will be given as we get closer to a test. On the Wednesdays we do not have a test, I will be available through WebEx for questions.

Make Up Test: Life can be challenging. When you are facing a sudden life challenge, please contact me immediately. To keep you on schedule in the class, you will need to complete the make-up exam within one week of the scheduled exam.

Retake Tests: Frequently when students are focused on retakes, they fall further behind on the current course material. Therefore, each student will get one attempt at each exam. It is recommended that you seek me for any additional help on any topic that you may have missed on the exam so you are prepared for the Final exam.

Late Work: please see homework/projects/quizzes/retake/make up exams.

## **Grading Scale:**

%	GPA	%	GPA	%	GPA	%	GPA
92	4.0	84	3.2	76	2.4	68	1.6
91	3.9	83	3.1	75	2.3	67	1.5
90	3.8	82	3.0	74	2.2	66	1.4
89	3.7	81	2.9	73	2.1	65	1.3

88	3.6	80	2.8	72	2.0	64	1.2
87	3.5	79	2.7	71	1.9	63	1.1
86	3.4	78	2.6	70	1.8	62	1.0
85	3.3	77	2.5	69	1.7	>62	0.0

- A Superior mastery or achievement.  
 B + Better than average mastery or achievement.  
 C + Acceptable mastery or achievement.  
 D+ Less than acceptable mastery or achievement.  
 F Fails to demonstrate achievement of course objectives.

If you think there was a grading error, you must return it to me within 24 hours, or 72 hours if it is a Friday.

### **ASSIGNMENT WEIGHT:**

Tests	45%
Final Exam	15%
Homework	20%
Pre-Quizzes	10%
Post-Quizzes	10%

### **STUDENT RESOURCES ON-CAMPUS:**

Advising/Counseling Center (TransAlta Commons, Second Floor)  
 Blazer Central (Kirk Library, inside left)  
 Computer Commons (WAH 203)  
 eLearning (LIB 137/139)  
 Food Pantry (TAC 130)  
 I T HelpDesk (WAH 201A)  
 Kirk Library  
 Tutoring Center (WSC 309)  
 Veteran's Center (LIB 103)  
 Writing Center (TAC 301)

### **STUDENT RESOURCES OFF-CAMPUS:**

Timberland Libraries – Wi-Fi, computers available, printing services (up to 100 pgs free each week)  
 The Centralia Salvation Army – clothing, supplies, hygiene center, and laundry services

## **DISABILITY STATEMENT:**

*Students with disabilities may contact the Director of Disability Services to determine their eligibility for reasonable accommodation. Disability Services is located on the 2nd floor of the Transalta Commons. Their telephone number; 360-623-8966*

## **COPYRIGHT NOTICE:**

*Materials used in connection with this course may be subject to copyright protection under Title 17 of the United States Code.*

## **EQUAL OPPORTUNITY STATEMENT:**

*It is the policy of Centralia College to assure equal employment opportunity and non-discrimination on the basis of race or ethnicity, creed, color, national origin, sex, marital status, sexual orientation, age (over 40), religion, the presence of any sensory, mental, or physical disability, or status as a disabled or Vietnam-era veteran.*

*Centralia College does not discriminate in admission or access to, or treatment or employment in, its programs or activities. Designated Title II, VI, VII, IX, Section 504, ADA compliance officer: Julie Huss., Vice President for Human Resources and Legal Affairs, Hanson Hall Room 101, Centralia College, 600 Centralia College Blvd, Centralia WA 98531-4099, (360) 623-8474*

## **EXTENDED ABSENCE:**

*Should an illness or extenuating circumstance necessitate an extended absence from class, please contact your instructor as soon as possible to make arrangements to complete, if possible, the coursework you miss.*

## **INCLEMENT WEATHER:**

*You will not be penalized for being unable to attend class, but you will still be responsible for completing class-related activities and materials covered that day. In the case of exams, you will be expected to complete an exam on the next normal campus operation day (day without a weather alert).*

## **INSTRUCTOR INITIATED WITHDRAWAL:**



*Students are expected to attend all classes for which they enroll. Students who do not attend during the first week of class will be dropped from their classes unless they have received prior approval from the instructor. Students must receive prior approval from the instructor for any absences during the first week of the term.*

*Otherwise, students will not be automatically dropped for any reason. In other words, to withdraw from the course, you must do so yourself.*

*NOTE: THE INSTRUCTOR MUST NOTIFY THE ENROLLMENT SERVICES OFFICE OF THIS WITHDRAWAL BY NOON OF THE SIXTH BUSINESS DAY SINCE THE START OF CLASS. IF A STUDENT HAS ATTENDED BEFORE THE FIRST DAY THAT AN INSTRUCTOR CAN DROP THE STUDENT FOR NONATTENDANCE, THE STUDENT CANNOT BE DROPPED FROM THE CLASS FOR NON-ATTENDANCE.*

### **ACADEMIC MISCONDUCT:**

*Cheating is unacceptable. Any attempt to cheat result in a report to Student Conduct and an "F" for the course. Cheating includes collaborating with others, looking at another student's work, using an unapproved calculator, communication device including smart watches, or unapproved notes during a quiz or exam.*

### **REASONABLE ACCOMMODATIONS FOR RELIGION/CONSCIENCE:**

*Students who will be absent from course activities due to reasons of faith or conscience may seek reasonable accommodations so that grades are not impacted. Such requests must be made within the first two weeks of the quarter and should follow the procedures listed in Policy 4.114: Holidays for Reasons of Faith and Conscience.*

*(<https://www.centralia.edu/about/policies/student.aspx>)*

*Students who have concerns about approval or a grade impact may utilize the student grievance procedure for concerns not directly related to grades, or to the grade appeal process in cases impacting a final grade.*

### **CELL PHONE POLICY:**

As a member of Centralia's learning community, all students have responsibilities to others within the community. When cell phones, pagers, or other electronic devices audibly activate and students respond in class or leave class to respond, it disrupts the class. All such devices must be put in a silent (vibrate) mode and ordinarily should not be taken out during class. However, because these same communication devices are an integral part of Centralia's emergency notification system, an exception to this policy would occur when numerous devices activate simultaneously. Should this occur, students may consult their devices to determine if a campus emergency exists. If that is

not the case, the devices should be immediately returned to silent mode and put away. Other exceptions to this policy may be granted at the discretion of the instructor.

## **CALENDAR/ASSIGNMENTS:** (THIS IS TENTATIVE AND AN OVERVIEW)

Week 1, 9/21-9/27	Introductions, 11.1, 11.2, 11.3
Week 2, 9/28-10/4	11.3, Principles of Mathematical Induction, 11.6
Week 3, 10/5-10/11	5.1, 5.2, <b>Test 1</b> , 5.3, <i>No class on 10/9</i>
Week 4, 10/12-10/18	5.4, 6.1, <b>Test 2</b> , 6.2, 6.3
Week 5, 10/19-10/25	8.1, 8.2, <b>Tests 3</b> , 7.1, <i>No class on 10/25</i>
Week 6, 10/26-11/1	7.2, 7.3, <b>Test 4</b> , 7.4
Week 7, 11/2-11/8	7.5, 7.6, <b>Test 5</b> , 8.3
Week 8, 11/9-11/15	8.4, 8.5, <i>No class on 11/11 in observance of Veteran's Day</i> , 8.6
Week 9, 11/16-11/22	8.7, 8.8, <b>Test 6</b> , 10.1
Week 10, 11/23-11/29	<i>No class on 11/23 (for advising)</i> , 10.2, 10.3, <i>11/26 or 11/27 (for Thanksgiving)</i>
Week 11, 11/30-12/6	10.4, 10.5, <b>Test 7</b> , final exam review
Week 12, 12/7-12/11	Last day of class December 7 <sup>th</sup> , finals week