

Wheeler High School ECE Math 1132

Teacher: Mrs. Reyes	Classroom: 205
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Term: Spring 2018	Meeting: 1 st period each day

This course is given in cooperation with the Early College Experience Program at the University of Connecticut, ece@uconn.edu, 860-486-1045.

Course Overview

This course will meet the requirements of the University of Connecticut Math 1132 (Calculus II). The main objective of this course is to enable students to utilize their prior knowledge to appreciate and understand calculus conceptually and **provide them a college experience** with its methods and applications. The course emphasizes a multi-representational approach to calculus; with concepts, results and problems being expressed graphically, numerically, analytically and verbally. The topics studied in this course will include integrals, application of integration, differential equations, and sequences and series. The emphasis of instruction is to balance teaching the skills, understanding the concepts to make connections and the use of technology to explore, discover and reinforce the concepts of calculus.

The first semester is the University of Connecticut course Math 1132 (Calculus II). The Early College Experience will help ease the transition to college math courses. The students are held to the same standards of rigor and pace as those taking the class at the University of Connecticut. Students that earn a C or higher will receive UConn credit for this course and any grade of a C- or lower will be converted to an audit only.

Prerequisites

Before studying Calculus II, all students should complete Calculus I in which the following topics are studied: functions, limits, continuity, differentiation, and antidifferentiation with applications in the natural and social sciences.

Students should have successfully completed Calculus I with a B- or above.

Class/ Behavior Expectations

- Be respectful, responsible, honest, and safe to self, others, and all property.
- Be on time and prepared for class.
- Be active and involved in learning.
- All school rules and policies as stated in the Wheeler handbook apply.
- The use of technology (iPods, phones, laptops) is prohibited in this classroom unless directed by the instructor. All technology should be kept in lockers or backpacks. If used without permission, the technology will be confiscated and kept until the end of the period. Multiple offenses will result in teacher detentions and/or office blue slips.

Homework

Homework will be given daily in this class. Homework may be to watch a short video while taking notes or completing a practice assignment of a set of problems. You must watch all videos and

complete the problem sets to be successful in this course. There will also be graded homework assignments (GHA's) given that will be collected and graded.

Notebook

Students are required to have a binder or a section of a binder for this class. Students should keep all assignments to help prepare for the midterm and AP exam.

Teaching Strategies

Students are taught that ideas can be investigated analytically, graphically and numerically. Students are expected to relate the various representations to each other. Students are encouraged to explore and discover whenever possible and work with each other.

The first semester will follow a flipped classroom model. Students will watch short videos outside the classroom as homework and take notes on them. Students will use class time to complete the practice assignments after watching the videos. Students are encouraged to actively participate by asking questions and working with each other.

Technology

Students will use both the TI-83/84 and the TI-89 calculators. They will be issued an TI-89 and a TI-83/84 if needed. Students will not use the TI-89 calculator on class tests or quizzes but may use it for the AP exam. Calculators are used to explore, discover and reinforce the concepts of calculus throughout the course.

Extra help

Seek help immediately. I will be available for students whenever possible for extra help. Students need to make arrangements to see me for extra help in advance.

Topics

5 weeks	6.2	Volumes
	6.3	Volumes by Cylindrical Shells
	6.4	Work
	6.5	Average Value of a Function
		Unit 6 Test
3 weeks	7.1	Integration by Parts
	7.2	Trigonometric Integrals
	7.3	Trigonometric Substitution
	7.4	Integration of Rational Functions by Partial Fractions
	7.5	Strategy for Integration
	7.7	Approximate Integration
	7.8	Improper Integrals
		Unit 7 Test
	8.1	Arc Length
	8.2	Area of a Surface of Revolution
	8.3	Applications
	8.4	Applications

		Unit 8 Test
1 week	9.1	Modeling with Differential Equations
	9.2	Direction Fields and Euler's Method
	9.3	Separable Equations
	9.4	Models for Population Growth
		Unit 9 Test
4.5 weeks	11.1	Sequences
	11.2	Series
	11.3	The Integral Test and Estimate of Sums
	11.4	Comparison Test
	11.5	Alternating Series
	11.6	Absolute Convergence and the Ration and Root Tests
	11.7	Strategies for Testing Series
	11.8	Power Series
	11.9	Representations of Functions as Power Series
	11.10	Taylor and Maclaurin Series
	11.11	Applications of Taylor Polynomials
		Unit 11 Test
	10.1	Curves Defined by Parametric Equations
	10.2	Calculus with Parametric Curves
	10.3	Polar Coordinates
	10.4	Areas and Lengths in Polar Coordinates
		Unit 10 Test
		Final Exam

Grading Policy

Students will receive an ECE Math 1132 grade for the second semester only since it is a semester course. The ECE Math 1132 quarter grades will be calculated using percentages from quiz grades, test grades, and other small assignments. The ECE semester grade will be computed from the first and second quarter grades and the midterm exam grade but must be within one letter grade of the midterm exam grade. The midterm exam is made up using some of the exact problems from the exam given at UConn (65%) and problems that are added (35%).

	ECE Math 1132 (1 st and 2 nd quarter)
Tests	70%
Quizzes	20%
Homework/In-class assignments	10%

Wheeler High School Academic Expectations:

- Literacy
- **Analysis (assessed in this course)**
- Collaboration
- Communication

Major Text

Stewart, James. *Single Variable Calculus Early Transcendentals*: 7th ed. Belmont, CA: Brooks/Cole
2012.