

GEN ED COURSE OUTLINE TEMPLATE

ESSEX COUNTY COLLEGE
Mathematics and Physics Division
MTH 121 – Calculus with Analytic Geometry I
Course Outline

Course Number & Name: MTH 121 Calculus with Analytic Geometry I

Credit Hours: 4.0 Contact Hours: 4.0 Lecture: 4.0 Lab: N/A Other: N/A

Prerequisites: Grade of "C" or better in MTH 120 or placement

Co-requisites: None Concurrent Courses: None

Course Outline Revision Date: Fall 2010

Course Description: This is the first course... (** taken from or current update from the ECC Catalog)

General Education Goals: MTH 127 is affirmed in the following General Education Foundation Category: **Quantitative Knowledge and Skills.** The corresponding General Education Goal is as follows: Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems. (** select from the following GE Foundation categories/goals as per the Affirmed Gen Ed Courses Table – **Written and Oral Communication:** Students will communicate effectively in both speech and writing. **Quantitative Knowledge and Skills:** Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems. **Scientific Knowledge and Reasoning:** Students will use the scientific method of inquiry through the acquisition of scientific knowledge. **Technological Competency/Information Literacy:** Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals. **Society and Human Behavior:** Students will use social science theories and concepts to analyze human behavior and social and political institutions and to act as responsible citizens. **Humanistic Perspective:** Students will analyze works in the field of art, music, or theater; literature; and philosophy and/or religious studies; and will gain competence in the use of a foreign language. **Historical Perspective:** Students will understand historical events and movements in World, Western, non-Western, or American societies and assess their subsequent significance. **Global and Cultural Awareness of Diversity:** Students will understand the importance of global perspective and culturally diverse peoples. **Ethics:** Students will understand ethical issues and situations.)

Course Goals: Upon successful completion of this course, students should be able to do the following:

1. demonstrate knowledge of the fundamental concepts and theories...; (GEG 2)
2. utilize various problem-solving and critical-thinking techniques to...; (GEG 2)
3. communicate accurate mathematical terminology and notation in written and/or oral form...; (GEG 1, GEG 2) and

4. use appropriate technology as a tool... (GEG 2)

Measurable Course Performance Objectives (MPOs): Upon successful completion of this course, students should specifically be able to do the following:

1. Demonstrate knowledge of the fundamental concepts and theories...(** matches Course Goal 1 above):
 - 1.1 *define limits...*;
 - 1.2 *evaluate limits...*;
 - 1.3 *evaluate derivatives...*;
 - 1.4 *approximate definite integrals...*;
 - 1.5 *apply the derivative...*; and
 - 1.6 *apply differentials...*
2. Utilize various problem-solving and critical-thinking techniques to...(** matches Course Goal 2 above):
 - 2.1 *apply integrals...*; and
 - 2.2 *apply derivatives...*
3. Communicate accurate mathematical terminology and notation in written and/or oral form...(** matches Course Goal 3 above):
 - 3.1 *write and explain solutions...*
4. Use appropriate technology as a tool...(** matches Course Goal 4 above):
 - 4.1 *use a graphing calculator...*; and
 - 4.2 *use mathematical software...*

Methods of Instruction: Instruction will consist of a combination of...

Outcomes Assessment: All test and exam questions are blueprinted...

Course Requirements: All students are required to:

1. Read the textbook...
2. Be an active participant...
3. Complete all...
4. Take exams/quizzes...

Methods of Evaluation: Final course grades will be computed as follows:

Grading Components	% of final course grade
<ul style="list-style-type: none">• Optional assignments e.g., problem sets, research projects, etc., designed to enhance understanding of...	0 – 10%
<ul style="list-style-type: none">• 3 or more Tests (dates specified by the instructor) Tests will show evidence of the extent to which students meet course objectives...	60 – 70%
<ul style="list-style-type: none">• Final Exam The comprehensive final exam will examine the extent to which students...	30 – 35%

NOTE: The instructor will provide specific weights, which lie in the above-given ranges, for each of the grading components at the beginning of the semester. Also, students may use a scientific or graphing calculator or laptop computer...

Academic Integrity: Dishonesty disrupts the search for truth that is inherent in the learning process and so devalues the purpose and the mission of the College. Academic dishonesty includes, but is not limited to, the following:

- plagiarism – the failure to acknowledge another writer’s words or ideas or to give proper credit to sources of information;
- cheating – knowingly obtaining or giving unauthorized information on any test/exam or any other academic assignment;
- interference – any interruption of the academic process that prevents others from the proper engagement in learning or teaching; and
- fraud – any act or instance of willful deceit or trickery.

Violations of academic integrity will be dealt with by imposing appropriate sanctions. Sanctions for acts of academic dishonesty could include the resubmission of an assignment, failure of the test/exam, failure in the course, probation, suspension from the College, and even expulsion from the College.

Student Code of Conduct: All students are expected to conduct themselves as responsible and considerate adults who respect the rights of others. Disruptive behavior will not be tolerated. All students are also expected to attend and be on time all class meetings. No cell phones or similar electronic devices are permitted in class. Please refer to the Essex County College student handbook,

Lifeline, for more specific information about the College's Code of Conduct and attendance requirements.

Course Content Outline: based on the text **Calculus: Early Transcendentals**, 6th edition, by Stewart; published by Cengage/Brooks/Cole, 2008; ISBN #: 0-53878256-0

Class Meeting
(80 minutes)

Chapter/Section

	CHAPTER 2 LIMITS AND DERIVATIVES
1	2.1 The Tangent and Velocity Problems
2	2.2 The Limit of a Function
...	
	CHAPTER 3 DIFFERENTIATION RULES
10	3.1 Derivatives of Polynomials and Exponential Functions
11	3.2 The Product and Quotient Rules
...	
15	Test #1 on Chapter 2 & Sections 3.1 – 3.4
16	3.5 Implicit Differentiation
17	3.6 The Derivatives of Logarithmic Functions
...	
39	6.4 Work
40	6.5 Average Value of a Function
41	Review for Final Exam
42	Comprehensive Final Exam on all course material covered