

**Yuba Community College District
Yuba College Course Outline Form**

STATIC ID #

~~3954860~~

1000001962

DATE EFFECTIVE: FALL 2009COURSE DEPARTMENT/NUMBER MATH 1ATITLE FIRST YEAR CALCULUSDIVISION ATMESH TOTAL HOURS 90 LECTURE HRS. 90 LAB. HRS. 0 UNITS 5

IF MULTIPLE UNIT OPTION COURSE, ENTER APPLICABLE DATA BELOW:

TOTAL HOURS	_____	LECTURE HRS.	_____	LAB. HRS.	_____	UNITS	_____
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ABBREVIATED TITLE (MAX. OF 20 INCL. SPACES) FIRST YEAR CALCULUSNEW COURSE [] REVISED COURSE [] TECHNICAL REVISION [] DISTRIBUTIVE ED. [](If Distributive Education, complete Distributive Education section *of the outline.*)(If revised, indicate sections changed: dept/no [] hours/units [] description [] other [])DEGREE CREDIT [] NON-DEGREE [] NON-CREDIT []GRADING METHOD: LETTER [] PASS/NO PASS [] CORE COURSE [] ELECTIVE []CROSS LISTED [] List dept(s) & #(s): _____CO-REQUISITE [] LISTPRE-REQUISITE [] LIST MATH 21 OR EQUIVALENTIs there a significant change in pre-requisite *or is this a new pre-requisite?* Yes [] No []

If yes, validate with a new prerequisite content form. Submit to Office of Instruction.

REPEATABLE NO [] R1 [] R2 [] R3 [] IF REPEATABLE, COMPLETE REPEATABLE SECTION BELOW.SKILL RECOMMENDATIONS: LANGUAGE [] MATHEMATICS [] OTHER []**Catalog/Class Schedule Description**

Introduction to differential and integral calculus with applications. (LM) (Can Math 18)

Course ContentCourse Objectives At the conclusion of this course, the student will be able to:

1. Describe the principles of coordinate systems, slopes and equations of lines; derivative of a function, slope of a tangent to a curve at a point, velocity, rates; and properties of limits.
2. Differentiate polynomial functions, rational functions, trigonometric functions, and implicit functions.
3. Apply the chain rule, use differentials, and apply the concepts of continuity.
4. Apply calculus principles to curve sketching, related rates, maxima, and minima.

5. Describe the theory and application of the basic principles of the definite integral.
6. Apply the definite integral to problems of area, arc length, work, volume, surface area, and centroids.
7. Apply numerical methods to problems of equation solving and integration.

Course Topical Outline

1. Variables, functions, and limits
 - a. Functions and their graphs
 - b. Operations on functions.
 - c. Trigonometric functions
 - d. Limit Theorems
 - e. Continuity of functions.
2. The Derivative
 - a. Definition and Properties
 - b. Techniques
 - c. Applications
3. The Integral
 - a. Definition and Properties
 - b. Techniques
 - c. Applications

Course Student Learning Outcomes

Computation: use appropriate mathematical concepts and methods to understand, analyze, and communicate issues in quantitative terms.

Critical Thinking: analyze data/information in addressing and evaluating problems and issues in making decisions.

SLO Assessment [] Rubric [X] Assignment Test [X] Other []

Describe: Problem solving assignments and tests will be used to assess both SLOs.

Critical Thinking Copy objectives from Course Objectives that require critical thinking: Activities that require critical thinking include:

1. Apply the chain rule, use differentials, and apply the concepts of continuity.
2. Apply calculus principles to curve sketching, related rates, maxima, and minima.
3. Describe the theory and application of the basic principles of the definite integral.
4. Apply the definite integral to problems of area, arc length, work, volume, surface area, and centroids.

General Methods of Instruction Indicate all appropriate methods of instruction:

Lecture [X] Discussion [X] Laboratory/Activity [] Distributive Education []

Other []

Methods of Assessment Indicate all methods of assessment:

Quizzes [X] Essay Tests [] Objective Tests [X] Oral Test []

Homework/Assignments [X] Laboratory Assignments [] Class Performance []

Performance Exams [] Attendance [] Research Paper/Final Project []

Other []

Assignments for Degree Applicable CoursesReading Reading from textbookWriting HomeworkWork Outside Classroom Reading textbook and completion of homework assignments.**Materials of Instruction**Textbook(s)Varberg and Purcell, Calculus with Analytical Geometry, Prentice Hall, 9th edition, or equivalent.Other Materials or Required Course Supplies**Distributive Education Section**

[] Online [] Telelecture [] Telepackage [] Enhanced Telepackage

Course Content and Evaluation

The following will be utilized to replace the traditional face-to-face instruction. For instance, a three-unit lecture class meets students three hours per week. Check the appropriate areas that are comparable.

E-mail []

Calendar []

Web-searches []

Quizzes []

Bulletin Board []

Chat []

Assignments []

Reading Lectures []

Watching Lectures []

Web-browsing []

Textbook []

How will On-Line and ITV techniques be used to accomplish the grading method indicated in the course outline?

Student-Instructor Contact

What methods will the instructor use to keep in contact with students?

E-mail [] Message/Bulletin Board [] Telephone [] Mail [] Other []

How will students with disabilities be accommodated?

Both state and federal law require community colleges to operate all programs and activities in a manner, which is accessible to students with disabilities. Accordingly, as the Yuba Community College District develops its capacity for creation of technology based instructional resources and the delivery of distance education, it must proceed with the needs of all students in mind, including the unique needs of students with disabilities.

Title 5, Code of Regulations, Section 55370 et seq. expressly states that the Requirements of the Americans with Disabilities Act are applicable to Distance Education courses. Accordingly, as the Yuba Community College District develops its capacity for creation of technology base instructional resources and the delivery of distance education; it must proceed with the needs of all students in mind, including unique needs of students with disabilities.

How will students have access to course materials?**Repeatable Course Section**

(This section is to be completed for courses with an R.)

1. Title V of the California Education Code allows for college courses to be repeated. For a Yuba Community College District course to be repeated it must meet one or more of the criteria listed below. Place a checkmark by the criteria met:
 - The course is progressive in nature and provides an expanded educational experience when repeated.
 - Technology changes are such that students need to repeat the course to maintain employment skills.
 - Continuing education is required for licensure and. *students need to take so many hours of ongoing instruction to maintain their license*
 - Students need* to take the course to improve their skills to a high enough level to succeed at the next course level.
 - The course is a laboratory course that supports or is required by other courses.
 - The course needs to be repeated to allow students to complete the minimum hours required for licensure.
2. The number of course *repetitions* allowed is dependent on the course being progressive in nature and providing an expanded educational experience when repeated. Indicate below how many *repetitions* should be allowed:
 - R1 (The class can be repeated once.)
 - R2 (The class can be repeated twice.)
 - R3 (The class can be repeated three times.)

Briefly explain the rationale for the number of *repetitions* requested:

Articulation: This course is intended to be (respond to all that apply):

General education at: CSU [X] UC [X] Yuba [X] (petition filed?)

Transferable to: CSU [X] UC [X] Other

Required in transfer major Yes [X] No [] If yes, in what major? Math, Engineering, Science

To what school? All

What is the title of that school's equivalent course? Calculus (1st semester)

Approvals:

California Education Code (Title V) requirements are met by this course.

Teaching Discipline(s)

Signatures

Author: Laura E. Sula Date: 4 January 2009

Dean: [Signature] Date: 6 January 2009

VPI: _____ Date: _____

Curriculum Approval Date: _____

Co-chairs: [Signature] Date: 1/20/09
 _____ Date: _____

Articulation Officer's Recommendation: _____
 Transferable to CSU and UC

Articulation: [Signature] Date: 2/18/09

Board Approval Date: _____

For Office Use	
Colleague Entry By	<u>TL 2/17/09</u>
Catalog Entry By	_____
YCCD Equate Code	<u>MATH-1A*1</u>
TOPS CODE	<u>1761, 00</u>
SAM CODE	<u>E</u>
Crs. Classification	<u>A</u>
Transfer Code	<u>D</u>
UC Trnsfr Code(s)	<u>YES</u>
Unit Limitation	<u>YES</u>
CSU Trnsfr Code(s)	<u>YES</u>
Course CAN Code	<u>-</u>
Course TCSU Code	<u>-</u>
<u>ce</u>	