#### MATH 8B Course Outline as of Fall 1999

## **CATALOG INFORMATION**

Dept and Nbr: MATH 8B Title: BRIEF CALCULUS II

Full Title: Brief Calculus II Last Reviewed: 3/29/2010

Units		Course Hours per Week		Nbr of Weeks	<b>Course Hours Total</b>	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	17.5	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00 Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

### **Catalog Description:**

Continuation of Math 8A. Probability and calculus; differential equations; partial derivatives; maximization with constraints; double integrals; applications; series and Taylor polynomials. Students will not receive credit for both Math 8B and Math 1B.

## **Prerequisites/Corequisites:**

Math 8A.

## **Recommended Preparation:**

#### **Limits on Enrollment:**

#### **Schedule of Classes Information:**

Description: Continuation of Math 8A. Calculus of the trigonometric functions: probability and calculus, differential equations, partial derivatives, maximization with constraints, double integrals, application, series, Taylor polynomials. (Grade Only)

Prerequisites/Corequisites: Math 8A.

Recommended:

Limits on Enrollment:

Transfer Credit: CSU;UC. (CAN MATH32)(MATH 8A+MATH 8B=MATH SEQ D)

Repeatability: Two Repeats if Grade was D, F, NC, or NP

# **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

**AS Degree:** Area Effective: Inactive:

B Communication and Analytical Spring 1992 Fall 2013

Thinking

MC Math Competency

**CSU GE:** Transfer Area Effective: Inactive:

B4 Math/Quantitative Reasoning Fall 1992 Fall 2013

**IGETC:** Transfer Area Effective: Inactive:

2A Mathematical Concepts & Spring 2007 Fall 2013

Quantitative Reasoning

**CSU Transfer:** Transferable Effective: Spring 1992 Inactive: Fall 2013

**UC Transfer:** Transferable Effective: Spring 1992 Inactive: Fall 2013

#### CID:

## **Certificate/Major Applicable:**

Not Certificate/Major Applicable

## **COURSE CONTENT**

## **Outcomes and Objectives:**

To be successful, students should be able to:

- 1. Apply methods of integration, including integration by parts, partial fractions, and use of tables or a computer algebra system.
- 2. Use numerical integration to approximate definite integrals.
- 3. Solve elementary differential equations, including separable and linear differential equations.
- 4. Determine partial derivatives of multivariable functions.
- 5. Apply convergence tests to series with constant terms.
- 6. Compute and use Taylor polynomials and Taylor series for elementary functions.
- 6. Apply integration and differentiation concepts to variance and probability density functions.

# **Topics and Scope:**

**Descrete Topics** 

Sequences, Sigma notation, Binomial Theorem, Factorial notation, Combination notation, Pascal's Triangle.

Calculus and Probability

Discrete and continuous random variables; variance and probability density functions.

Multivariable Calculus

Analytic geometry in 3-D; functions of several variables; partial differentiation; constrained optimization; double integrals.

Sequences and Series

Convergence, p-series; ratio test; power series and Taylor's theorem Taylor polynomials; Newton's method.

**Differential Equations** 

Solutions to differential equations; separation of variables; first-order linear differential equations; applications.

## **Assignment:**

- 1. The student will have daily outside reading, problem set assignments from required text (s), or instructor chosen supplementary materials.
- 2. Instructional methodology may include, but is not limited to: lecture, demonstrations, oral recitation, discussion, supervised practice, independent study, outside project or other assignments.

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Writing 0 - 0%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, Exams

Problem solving 25 - 50%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Performance exams

Skill Demonstrations 30 - 70%

**Exams:** All forms of formal testing, other than skill performance exams.

Multiple choice

Exams 5 - 25%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

WRITING ASSIGNMENTS

Other Category 0 - 10%

## **Representative Textbooks and Materials:**

Text (s) required of each student will be selected by the department, a committee of the department, or the responsible instructor from the

books currently available. Among the choices could be: BRIEF CALCULUS WITH APPLICATIONS, 6th Ed. Larson/Hostetler, Heath, 1998 Calculus with Applications and Sequences and Series, 6th Edition by Lial/Miller/Greenwell, Harper Collins, 1998.