MATH 8B Course Outline as of Fall 2006

CATALOG INFORMATION

Dept and Nbr: MATH 8B   Title: BRIEF CALCULUS 2
Full Title: Brief Calculus 2
Last Reviewed: 3/29/2010

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
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. Techniques of integration; probability and density functions; differential equations; partial derivatives; optimization with constraints; double integrals; applications; series and Taylor polynomials. The 8A/8B sequence constitutes a complete Brief Calculus course and is intended for students majoring in the life sciences or social sciences. Students will not receive credit for both Math 8B and Math 1B.

Prerequisites/Corequisites:
Completion of MATH 8A or higher (VF)

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Continuation of Math 8A. Techniques of integration; probability and density functions; differential equations; partial derivatives; optimization with constraints; double integrals; applications; series and Taylor polynomials. For life or social science majors. Students will not receive credit for both Math 8B and Math 1B. (Grade Only)

Prerequisites/Corequisites: Completion of MATH 8A or higher (VF)
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 Thinking	Spring 1992	Fall 2013
	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 & Quantitative Reasoning	Spring 2007	Fall 2013

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

CID:

Certificate/Major Applicable:
Major Applicable Course

COURSE CONTENT

Outcomes and Objectives:
Upon successful completion of the course, students will be able to:
1. Evaluate integrals using various methods of integration, including integration by parts, partial fractions and the use of tables or a computer algebra system.
2. Approximate definite integrals using numerical integration.
3. Compute variance and analyze probability density functions using integration and differentiation.
4. Determine partial derivatives of multivariable functions.
5. Analyze series with constant terms using convergence tests.
6. Compute and use Taylor polynomials and Taylor series for elementary functions.
7. Solve elementary differential equations, including separable and linear differential equations.

Topics and Scope:

Instructional methodology may include, but is not limited to: lecture, demonstrations, oral recitation, discussion, supervised practice, independent study, outside project or other assignments.
I. L'Hopital's Rule
II. The Integral

A. Techniques of Integration for Algebraic and Trigonometric Functions
   1. Substitution
   2. Parts
   3. Tables
   4. Numerical Methods
B. Improper Integrals
C. Applications
   1. Area and Volume
   2. Average Value
   3. Present Value

III. Probability and Density Functions
  A. Continuous Random Variables
  B. Expected Value
  C. Variance
  D. Probability Density Functions

IV. Multivariable Calculus
  A. Analytical Geometry in 3-D
  B. Functions of Several Variables
  C. Level Curves
  D. Partial Differentiation
  E. Optimization and Constrained Optimization
  F. Double Integrals
  G. Applications

V. Sequences and Series
  A. Convergence and Tests
   1. P-series
   2. Ratio Test
  B. Power Series
   1. Taylor's Theorem
   2. Taylor Polynomials
  C. Newton's Method

VI. Differential Equations
  A. Solutions to Differential Equations
  B. Separation of Variables
  C. First-order Linear Differential Equations
  D. Applications

Assignment:

1. Daily reading outside of class (approximately 0-50 pages per week).
2. Problem set assignments from required text(s) or supplementary materials chosen by the instructor.
3. Exams and quizzes.
4. Projects.

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 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

Problem solving
5 - 20%

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

None

Skill Demonstrations
0 - 0%

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

Multiple choice, Projects (eg, computer explor. or game analysis)

Exams
70 - 95%

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

Projects

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, Ron; Hostetler, Robert; Edwards, Bruce. Houghton-Mifflin: 2003.