

MATH 1B Course Outline as of Fall 1999**CATALOG INFORMATION**

Dept and Nbr: MATH 1B Title: CALCULUS 2

Full Title: Calculus, Second Course

Last Reviewed: 9/14/2020

| Units | | Course Hours per Week | | Nbr of Weeks | Course Hours Total | |
|---------|------|-----------------------|------|--------------|--------------------|-------|
| Maximum | 5.00 | Lecture Scheduled | 5.00 | 17.5 | Lecture Scheduled | 87.50 |
| Minimum | 5.00 | Lab Scheduled | 0 | 17.5 | Lab Scheduled | 0 |
| | | Contact DHR | 0 | | Contact DHR | 0 |
| | | Contact Total | 5.00 | | Contact Total | 87.50 |
| | | Non-contact DHR | 0 | | Non-contact DHR | 0 |

Total Out of Class Hours: 175.00

Total Student Learning Hours: 262.50

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:

Topics include indeterminate forms, conic sections, polar coordinates, infinite series, parametric equations, solid analytic geometry, and vectors.

Prerequisites/Corequisites:

MATH 1A.

Recommended Preparation:**Limits on Enrollment:****Schedule of Classes Information:**

Description: Indeterminate forms, conic sections, polar coordinates, infinite series, parametric equations, solid analytic geometry, vectors. (Grade Only)

Prerequisites/Corequisites: MATH 1A.

Recommended:

Limits on Enrollment:

Transfer Credit: CSU;UC. (CAN MATH20)(MATH 1A+MATH 1B=MATH SEQ B)(MATH 2A+MATH 1A+MATH 1B=MATH SEQ C)

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 | Fall 1981 | |
| CSU GE: | MC | Math Competency | | |
| | Transfer Area | | Effective: | Inactive: |
| | B4 | Math/Quantitative Reasoning | Fall 1981 | |
| IGETC: | Transfer Area | | Effective: | Inactive: |
| | 2A | Mathematical Concepts & Quantitative Reasoning | Fall 1981 | |
| CSU Transfer: | Transferable | Effective: | Fall 1981 | Inactive: |
| UC Transfer: | Transferable | Effective: | Fall 1981 | Inactive: |

CID:

| | |
|----------------------------|-----------------------------------|
| CID Descriptor: MATH 900S | Single Variable Calculus Sequence |
| SRJC Equivalent Course(s): | MATH1A AND MATH1B |
| CID Descriptor: MATH 230 | Multivariable Calculus |
| SRJC Equivalent Course(s): | MATH1B AND MATH1C |

Certificate/Major Applicable:

Not Certificate/Major Applicable

COURSE CONTENT

Outcomes and Objectives:

To be successful, students should be able to:

1. Use limits to evaluate indeterminate forms.
2. Apply convergence tests to series with constant terms.
3. Define and discuss conic sections as equations, as geometric intersections and as loci.
4. Compute and use Taylor polynomials and Taylor series for elementary functions.
5. Apply differentiation and integration to parametric representations of graphs, including polar graphs.
6. Use rectangular, cylindrical, and spherical coordinates in coordinate space.
7. Compute and use determinates, dot products, cross products, and projections.
8. Determine lines and planes in space.
9. Describe velocity and acceleration of particles in the plane and in space using vector functions.

Topics and Scope:

INTEGRATION AND LIMITS

Indeterminate forms, L'Hopital's rule and improper integrals.

TOPICS FROM PLANE ANALYTIC GEOMETRY

Conic sections, Polar coordinates and graphs.

INFINITE SERIES

Sequences and series, Convergence tests, Taylor polynomials and approximations, Power series, Taylor and Maclaurin series.

PARAMETRIC EQUATIONS

Tangents, arc length and areas, Tangents and area for polar graphs

TOPICS FROM SOLID ANALYTIC GEOMETRY

Rectangular, cylindrical and spherical coordinate systems, Quadratic surfaces.

VECTORS

Vectors in the plane and in space, Determinants, Dot and cross products, Projections, Lines and planes in space, Differentiation and integration of vector values functions, Velocity and acceleration, Tangent and normal vectors, curvature.

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 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
1 - 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. Choices could include:

CALCULUS WITH ANALYTIC GEOMETRY (5TH) Larson/Hostetler D.C. Heath, 1997
CALCULUS, Ostabe, Zorn, Saunders, 1996