

Columbus State Community College Mathematics Department Syllabus

Course and Number: MATH 1152 – Calculus II **Credits:** 5 **Class Hours Per Week:** 5
Prerequisites: MATH 1151 with a C or higher

COURSE DESCRIPTION: Continue introduction to integral calculus: integration of exponential, logarithmic, trigonometric, inverse trigonometric functions, volume and surface area of solids of revolution, arc length, and methods of integration. Also includes L'Hopital's Rule and Improper Integrals. Analyze plane curves given parametrically or in polar coordinates, and their differential and integral calculus. Infinite sequences and series, and their sum and/or convergence, conic sections, vectors in the plane and in space. Applications to problems in science and engineering.

COURSE GOALS: Continue to introduce the student to the concepts, methods and applications of differential and integral calculus necessary for further study in calculus, science and engineering; to promote the further development of the student's algebraic, numerical, graphical and communication skills; to develop student's mathematical thinking and problem solving ability; and to facilitate student's progression from a procedural/computational understanding of mathematics to a broader understanding encompassing logical reasoning, generalization, abstraction, and formal proof.

INSTITUTIONAL LEARNING GOALS: Critical Thinking and Quantitative Skills

TEXTBOOK, MANUALS, REFERENCES, AND OTHER REQUIRED MATERIALS:

- Calculus: Early Transcendental Functions, 7th Edition, Larson/Edwards, Cengage Learning, 2019.
- A graphing calculator is recommended. The TI-89, TI-92, TI-Nspire CAS, and other Computer Algebra Systems (CAS) are never allowed during proctored assessments.

UNITS OF INSTRUCTION

- Applications of Integration (Sections 6.1-6.3, 7.1-7.5)
- Integration Techniques (Sections 8.1-8.5, 8.7, 8.8)
- Infinite Series (Sections 9.1-9.10)
- Conics, Parametric Equations, and Polar Coordinates (Sections 10.1-10.5)
- Vectors (Sections 11.1-11.4)

GENERAL INSTRUCTIONAL METHODS: Instructional methods may include face-to-face or video lectures or demonstration, face-to-face or virtual discussion, individual or group activities including the use of visual aids, computers and/or other technologies. Students may be expected to participate in these activities during class and/or outside of class. Instructors may require class participation, collaborative learning, and peer review.

STANDARDS AND METHODS FOR EVALUATION:

The final examination will be weighted between 25% and 33% (inclusive) of the course grade. The remainder of the course grade will be determined by the instructor.

GRADING SCALE:

Letter grades for the course will be awarded using a 90% - 80% - 70% - 60% scale. Grades will NOT be curved, skewed, or otherwise inflated.