Columbus State Community College
Mathematics Department Syllabus

Course and Number: MATH 2153 – Calculus III **Credits:** 5 **Class Hours Per Week:** 5
Prerequisites: A grade of "C" or higher in MATH 1152

DESCRIPTION OF COURSE (AS IT APPEARS IN THE COLLEGE CATALOG):
A continuation of the calculus sequence, this course provides an introduction to multivariable calculus: Vector valued functions and motion in the plane and in space, functions of several variables, partial derivatives, directional derivatives, gradients, extrema, multiple integrals, line integrals, Green's theorem, parametric surfaces, divergence theorem, and Stokes theorem. Applications to problems in science and engineering.

GOALS OF THE COURSE: To develop mathematical thinking and communication skills and learn to apply precise, logical reasoning to problem solving. To experience geometric as well as algebraic viewpoints and approximate as well as exact solutions. Students will use computer technology to support problem solving and to promote understanding. To facilitate the mathematical development of students as they progress from a procedural/computational understanding of mathematics to a broad understanding encompassing logical reasoning, generalization, abstraction, and formal proof and become skilled at conveying their mathematical knowledge in a variety of settings, both orally and in writing

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:
- Vectors and the Geometry of Space ((Review: Ch. 11.1 – 11.4) Ch. 11.5 – 11.7)
- Vector Valued Functions (Ch. 12.1 – 12.5)
- Functions of Several Variables (Ch. 13.1 – 13.10)
- Multiple Integration (Ch. 14.1 – 14.8)
- Vector Analysis (Ch. 15.1 – 15.8)

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 35% (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.