

<b>MATH-6-50476-GONG-2022SP (1/10/2022 – 5/20/2022)</b>
<b>Class meets: 100% Online Asynchronous</b>
<b>Office Hours: MW 10:00-11:15 in MAS-138 or by Appointment</b>

<b>Course Materials (No Cost)</b>
<ul style="list-style-type: none"> <li>• <b>Textbook: Contemporary Calculus, Dale Hoffman</b></li> <li>• <b>MyOpenMath</b> – online lecture video, homework, quizzes, and tests.</li> </ul>

<b>5 Units, 5 Lecture Hours</b>	
<b>Prerequisite:</b> Math 5B	<b>Advisories:</b> Eligibility for English 1A or 1AH
<b>Description</b>	
<p>This is the third of three courses in the basic calculus sequence. Topics include solid analytical geometry, three-dimensional vectors, vector valued functions, partial differentiation, multiple integration, line integrals, divergence, Green's, and Stokes' theorems. Calculus III is also known as multi-variable calculus. (A, CSUGE, UC, I) (C-ID MATH 230)</p>	

<b>Expectations / Responsibilities</b>
<p><i>Instructor</i></p> <ul style="list-style-type: none"> <li>• Motivate and inspire student success.</li> <li>• Provide a climate in which the student takes responsibility for learning.</li> <li>• Provide instruction and model the quality of work to be successful in Math 6.</li> <li>• Clearly communicate progress being made in a timely fashion.</li> </ul> <p><i>Student</i></p> <ul style="list-style-type: none"> <li>• Follow the class rule – <i>Be Nice</i>.</li> <li>• Be the kind of student you would want your child to be.</li> <li>• <b>INVEST</b> the necessary time to learn the material and <i>seek additional assistance</i> when necessary.</li> <li>• Promptly <i>communicate</i> any class related issues and <i>follow up as needed</i>.</li> </ul>

<b>You may be dropped if:</b>
<ul style="list-style-type: none"> <li>• You violate the class rule.</li> <li>• You are inactive on Canvas for more than TWO consecutive days.</li> <li>• You have more than two assignments past due.</li> <li>• You do not attempt a test by its due date.</li> </ul>

<b>Grading</b>	<b>A</b> 90-100%	<b>B</b> 80-89%	<b>C</b> 70-79%	<b>D</b> 60-69%
<i>Tests</i> 70%	Tests are <i>not equally</i> weighted. Point values per problem will vary. <i>No test retakes or makeups.</i>			
<i>Homework</i> 30%	Homework is <i>not equally</i> weighted. Point values per problem will vary. <i>No late homework accepted.</i>			
<b>*Grades may be accessed in Canvas.</b>				

<b>Important Dates</b>		
January 10, 2022	MON	First day of class
January 28, 2022	FRI	Second drop deadline - Last day to <b>ADD/DROP</b> a class OR “W”
May 20, 2022	FRI	Last day of semester.

<b>Course Objectives</b>
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*Upon successful completion of the course, students will be able to:*

1. Perform vector operations
2. Determine equations of lines and planes
3. Find the limit of a function at a point
4. Evaluate derivatives
5. Write the equation of a tangent plane at a point
6. Determine differentiability
7. Find local extrema and test for saddle points
8. Solve constraint problems using Lagrange multipliers
9. Compute arc length
10. Find the divergence and curl of a vector field
11. Evaluate two and three dimensional integrals
12. Apply Green's, Stokes', and divergence theorems.

### **Course Content**

1. Vectors and vector operations in two and three dimensions.
2. Vector and parametric equations of lines and planes; rectangular equation of a plane.
3. Dot, cross, and triple products and projections.
4. Differentiability and differentiation including partial derivatives, chain rule, higher-order derivatives, directional derivatives, and the gradient.
5. Arc length and curvature.
6. Tangent, normal, binormal vectors.
7. Vector-valued functions and their derivatives and integrals.
8. Finding velocity and acceleration.
9. Real-valued functions of several variables, level curves and surfaces.
10. Limits, continuity, and properties of limits and continuity.

**Student Learning Outcomes** are statements about what the discipline faculty hope you will be able to do at the end of the course. This is NOT a guarantee: the ultimate responsibility for whether you will be able to do these things lies with you, the student. In addition, the assessment of Student Learning Outcomes is done by the department in order to evaluate the program as a whole, and not to evaluate individual faculty performance.

### **CSLOs**

- **MATH-6 SLO1:** Use vector methods to solve problems in three dimensional analytic geometry and analyze problems involving vector valued-functions.
- **MATH-6 SLO 2:** Determine the extreme value(s) of a multi-dimensional function, the tangent plane to a three dimensional function, the directional derivative and gradient of a function by using partial derivatives.
- **MATH-6 SLO3:** Use double and triple integrals to determine the areas and volumes bounded by curves and surfaces, and to determine the surface area and center of mass of a solid. Use rectangular, polar, cylindrical and spherical coordinates for solving these types of problems.
- **MATH-6 SLO4:** Evaluate line and surface integrals by using Green's Theorem, the Divergence Theorem, and Stokes' Theorem.

### ACADEMIC DISHONESTY

***Cheating*** is the act or attempted act of taking an examination or performing an assigned, evaluated task in a fraudulent or deceptive manner, such as having improper access to answers, in an attempt to gain an unearned academic advantage. Cheating may include, but is not limited to, copying from another's work, supplying one's work to another, giving or receiving copies of examinations without an instructor's permission, using or displaying notes or devices inappropriate to the conditions of the examination, allowing someone other than the officially enrolled student to represent the student, or failing to disclose research results completely.

***Plagiarism*** is a specific form of cheating: the use of another's words or ideas without identifying them as such or giving credit to the source. Plagiarism may include, but is not limited to, failing to provide complete citations and references for all work that draws on the ideas, words, or work of others, failing to identify the contributors to work done in collaboration, submitting duplicate work to be evaluated in different courses without the knowledge and consent of the instructors involved, or failing to observe computer security systems and software copyrights. Incidents of cheating and plagiarism may result in any of a variety of sanctions and penalties, which may range from a failing grade on the particular examination, paper, project, or assignment in question to a failing grade in the course, at the discretion of the instructor and depending on the severity and frequency of the incidents.

***NOTE:*** *If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act or section 504 of the Rehabilitation act please contact me as soon as possible.*

*Please refer to the [Reedley College Catalog](#) and [SCCCD Trustee Policies & Regulations](#) for guidance on all matters relating to this course.*