

Multivariable Calculus, Summer 2020
Instructor: Sara Gharahbeigi

Class Sessions: MTWR 1:00-3:40 pm in St Mary's 126

Office Hours: TBA or by appointment

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Course Goals : goals are for students to develop:

- Vectors (the Euclidean space, scalar product, vector product, matrices, quadric surfaces).
- Differential calculus functions of several variables (graphs, limits, continuity, partial derivatives, differentiability, chain rule, directional derivatives, mean value theorem, inverse function theorem, implicit function theorem).
- Vector valued functions (parametrized curves, velocity, acceleration, curvature, vector fields, divergence and curl).
- Optimization (Taylor's formula, second derivative for unconstrained extrema, Lagrange multiplier for constrained extrema)
- Multiple integrals (definition of double and triple integrals, Fubini's theorem, computation of integrals by means of iterated integrals with variable limits, transformation formula for double and triple integrals, transformation to polar coordinates, cylindrical coordinates, and spherical coordinates)
- Line integrals and Green's theorem (conservative vector fields, simply connected regions).
- The theorems by Gauss and Stokes (parametric surfaces, surface integrals and surface area).

Exams and Grading: 20% homework, 20% for each midterms (total of two midterms), 40% final.

There will be no make-up exam except in the case of a true emergency (true family emergency, extreme illness) in which case you need to talk (not email) to the instructor in advance to arrange the make up exam. Grading Scale: 90-92 (A-), 93-100(A), 80-82 (B-), 83-89 (B) 70-72 (C-), 73-79 (C), 60-69 (D), 0-59 (F). **NO CLASS ON NOV 21.** Final exam date TBA.

Textbook, TBA (most likely will use calculus by James Stewart)

****Cell phones and electronic devices should be turned off during class.****