# Math 138 A (Introduction to Differential Geometry, Winter 2019)

**Instructor:   BUN WONG**

**Office: Surge 244**

**Email: [wong@math.ucr.edu](mailto:wong@math.ucr.edu)**

**TA: Ryan Ta (Discussion, T 7:10-8:00 pm, INTS 1132)**

**Lectures:  MWF 3:10-4:00 pm, INTS 1121**

**Office hours:  MWF 4:00-5:00 pm (or by appointment)**

**Grading policies:  One midterm (30% of the grade, date to be determined), one final (70% of the grade)**

**Homework: There will be about 6-7 assignments.  Students are encouraged to go through the problems carefully, which will be related to the some of the exam problems. The TA will help the students for the solutions of some of the problems in the discussion sections.**

**Text: Manfredo P. Do Carmo, "Differential Geometry of Curves and Surfaces ". The pdf version of this book is available online.**

**Course Outline:  This course will mainly covers the material in Chapters 1, 2, 3 of Do Carmo.**

(1)  Chapter 1: Regular Curves, Curvature, Torsion, Frenet's formulas and the fundamental theorem for the local theory of regular curves, Isoperimetric Inequality of the plane curves.

(2)  Chapter 2: Regular Surfaces, First Fundamental Form.

(3)  Chapter 3: Gauss Map and Second Fundamental Form, Gaussian Curvature, Mean Curvature, Minimal Surfaces.

(4)  The fundamental theorem for the local theory of regular surfaces (P.236, Do Carmo)