MA 563: INTRODUCTION TO DIFFERENTIAL GEOMETRY
Fall 2018 Syllabus
CAS 201 MWF 11:15-12:05

Instructor: Siu-Cheong Lau
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Office hour: Thu 10:30-12; 2-3:30

Overview:
Study of local properties of curves and surfaces in the three-dimensional Euclidean space; curvature, torsion, Frenet equations, tangent and normal planes; first and second fundamental form; principal, mean and Gaussian curvature; vector fields, covariant differentiation, geodesics, surfaces of constant curvature.

Three main components:
- Curves
- Surfaces
- Intrinsic geometry of surfaces

Prerequisites:
You should be familiar with multivariable calculus and linear algebra. I will help you to recall the related materials whenever necessary during the class.

Textbook:
Kuhnel - Differential Geometry: Curves - Surfaces – Manifolds

References:
Do Carmo - Differential geometry of curves and surfaces
O'Neill - Elementary Differential Geometry
Do Carmo - Differential Forms & Applications (more advanced)

Homework:
I will post the problem set on the course homepage in the end of every week. You should submit it in the next **Friday class**.

Exam:
There will be one in-class mid-term test and one take-home final exam. The mid-term test will be scheduled on **October 31** (Wednesday).

Grading:

Homework (two lowest homework scores will be dropped)	30%
In-class mid-term test (October 31)	30%
Take-home final exam (End of semester)	40%