

MATH 4030: Differential Geometry

- (1) **TEXT BOOK:** *Do Carmo, Differential geometry of curves and surfaces;*
- (2) **REFERENCES:**
Klingenberg, A course in Differential Geometry;
Spivak, A comprehensive introduction to Differential Geometry, Vol. 2
- (3) **SYLLABUS:** Regular curves in \mathbb{R}^2 and \mathbb{R}^3 , Frenet formulas, fundamental theorem of the local theory of curves, global theorems on plane curves, regular surface in \mathbb{R}^3 , change of local parameters, tangent plane and differential of maps, first fundamental form, Gauss map, second fundamental form, Gaussian curvature, ruled surfaces, mean curvature, minimal surfaces, Gauss theorema egregium, Gauss equations and Codazzi equations, Gauss-Bonnet theorem.
- (4) **ASSESSMENT SCHEME:**
Homework 10%; Midterm 30%, Final Exam 60%.
- (5) **Instructor:**
TAM Luen Fai, 714 AB1, tel: 39438066
email: lftam@math.cuhk.edu.hk
- (6) **Tutor:**
WANG Gaoming, 222A, LSB; tel: 3943 3575
emails: gmwang@math.cuhk.edu.hk, 1155118705@link.cuhk.edu.hk
- (7) **Precautionary Measures to be Adopted because of the pandemic:**
 - Maintaining social distancing
 - Wearing of masks throughout the lessons
 - Checking body temperature
 - No eating and drinking in classrooms Performing hand hygiene frequently (washing hands or using 70 to 80 per cent alcohol-based handrub if needed).