Course Description

Department of Mathematics

Nature of the course ☐ required ☑ elective		Area 麻煩老師勾選類別，或直接填寫＿＿＿＿＿＿＿＿＿＿。 ☐代數與數論 ☐分析 ☑幾何與拓樸 ☐計算與應用數學 ☐機率 ☐統計 ☐離散數學 ☐其他 ☐論文研討、獨立研究			
Calculus ☐ Calculus A ☐ Calculus B					
Course number		Section number	免填	Number of credits	3
Course title	課程名稱：辛幾何導論 Introduction to Symplectic Geometry				
Instructor	教授：蔡忠潤				

I. ＊**Contents**：

1. Linear symplectic algebra.
2. Symplectic manifolds.
3. Normal form theorems.
4. Symplectic group actions, moment maps and symplectic reductions.
5. Atiyah--Guillemin--Sternberg convexity theorem.
6. Symplectic capacities.
7. Constructions of symplectic manifolds.
8. Some contact geometry.

II. **Course prerequisite**：

1. General Topology (topological spaces, product topology, quotient topology and quotient maps, continuity, compactness, connectedness).
2. Differentiable manifolds (tangent spaces, differential maps, differential forms).

III. ＊**Reference material** (**textbook**(**s**))：

1. Dusa McDuff and Dietmar Salamon, Introduction to symplectic topology.
2. Ana Cannas da Silva, Lectures on symplectic geometry.
3. Hansjörg Geiges, An introduction to contact topology.

IV. ＊**Grading scheme**：請填寫各項計分之百分比，例如：期中 30% 期末 40% 作業 10% 報告 20%，總計 100%

1. Homework 30%.
2. Midterm 30%.
3. Final exam/report 40%.

V. ＊**Course Goal**：

Symplectic geometry is one of the main branch in geometry over the past 20 years. This course aims to give an introduction on symplectic manifold.