# Course Description

Department of Mathematics

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| Nature of the course<br>☐ required　　X elective | | Area 麻煩老師勾選類別，或直接填寫＿＿＿＿＿＿＿＿。<br>☐代數與數論　☐分析　X幾何與拓樸　☐計算與應用數學<br>☐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 | |
| Course title | 課程名稱： 微分拓樸 | | | | |
| Instructor | 教授： 翁秉仁 | | | | |

I. ＊**Contents**：

CW-complex, Fundamental Groups, Covering Spaces, Homology and Cohomology Groups, Poincare Duality, Basic Homotopy Theory. Degree of Map, Frame Cobordism, Transversality, Morse Theory, Bundle Theory, Characteritic Classes, Thom Isomorphism, Concept of Genus.

If everybody is not exausted, we'll discuss topics on index theory or low dimensional topology.

II. **Course prerequisite**：

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

There is no definite textbook for this course. We will discuss materials which are covered in the following book list:

Bott/Tu, Differential Forms in Algebraic Topology

Hatcher, Algebraic Topology

Hirsch, Differential Topology

Milnor, Topology from Differetial Viewpoint

Milnor, Morse Theory

Milnor/Stasheff, Characteristic Classes

Munkres, Elements of Algebraic 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%

Seminar report

V. ＊**Course Goal**：

Introduce the basic concepts, methods and results on the topology of smooth manifold. This will include the general machinery of Algebraic Topology.

1. ＊號為必填欄位
2. 大綱內容字數英文最少 200 字以上