Course Description

Department of Mathematics

<table>
<tr><td colspan="2">Nature of the course
☐ required ☑ elective</td><td colspan="4">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</td></tr>
<tr><td colspan="6">Calculus ☐ Calculus A ☐ Calculus B</td></tr>
<tr><td>Course number</td><td></td><td>Section number</td><td>免填</td><td>Number of credits</td><td>3</td></tr>
<tr><td>Course title</td><td colspan="5">課程名稱：黎曼面導論 Introduction to Riemann Surfaces</td></tr>
<tr><td>Instructor</td><td colspan="5">教授： 蔡忠潤</td></tr>
<tr><td colspan="2">開設學期：
☐上學期 ☑下學期 ☐全學年</td><td colspan="2">上課時間：
星期二 ~~56~~ 67、四 ~~56~~ 67
(13:45 ~ 15:00)</td><td colspan="2">開課對象：☐大學生 ☐研究生
☑皆可</td></tr>
</table>

I. ＊**Contents**：

1. elements of elliptic functions.
2. Holomorphic/meromorphic functions/1-forms on Riemann surfaces
3. Riemann—Roch theorm
4. uniformization
5. Abel—Jacobi theorem
6. Torelli theorem

II. **Course prerequisite**：

1. general topology (topological spaces, product topology, quotient topology and quotient maps, continuity, compactness, connectedness, homotopy, etc.)
2. complex analysis

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

1. Farkas and Kra, *Riemann surfaces*. Second edition. Graduate Texts in Mathematics, 71. Springer-Verlag, New York, 1992.
2. Weyl, *The concept of a Riemann surface*. Translated from *Die Idee der Riemannschen Fläche*.
3. Springer, *Introduction to Riemann surfaces*.

IV. ＊**Grading scheme**：

Homework 30%, Midterm 30%, Final 40%

V. ＊**Course Goal**：

This course is a continuation of the course “complex analysis” in the first semester. The main theme of this course is the theory of Riemann surfaces.