



ICE-EM Access Grid Room Project

Subject Information Form

Administration

1. Department and institution

Department of Mathematics
Macquarie University

2. Subject name and code

Analysis

3. Handbook entry URL, subject homepage URL, host honours student hand-out URL

- Handbook entry: www.maths.mq.edu.au/honours/overview.html
- Host Honours student hand-out URL Initially, materials will be sent by e-mails

4. Lecturers

Name: Xuan Duong
Phone: (02) 9850 8948
Email: xuan.duong@mq.edu.au

Name: Adam Sikora
Phone: (02) 9850 8919
Email: adam.sikora@mq.edu.au
Homepage: <http://www.maths.mq.edu.au/staff/sikora.html>

4. **Honours coordinator**

Name: Chris Meaney

Phone: (02) 9850 8922

Email: chris.meaney@mq.edu.au

5. Start date, end date, number of teaching weeks

Start date: 31 July

End date: 27 November

Number of teaching weeks: 13

6. Contact hours per week

2 hours

7. Description of electronic access arrangements for students (for example, WebCT)

Website to be set up later. Details to be e-mailed to the class.

Academic

1. Overview of subject content

This course presupposes a first course in Real and Functional Analysis (at Macquarie university, it is MATH 339 (Real and Functional Analysis)) as the background and aims to give students a solid foundation for further study in Pure and Applied Mathematics. Some topics are treated with certain depth. We will study Lebesgue integration, positive Borel measures, and the all important function spaces L_p . Then we will study the elementary Hilbert space theory and Banach space techniques

2. Detailed syllabus, preferably week by week

The first five chapters of W. Rudin's book "Real and complex analysis":

Chapter 1: Abstract Integration

Chapter 2: Positive Borel measures

Chapter 3: L_p spaces

Chapter 4: Elementary Hilbert space theory

Chapter 5: Examples of Banach space techniques

Each of Chapters 1, 2, 4 and 5 takes an average of 5 hours lecturing, and Chapter 3 takes 4 hours.

The last week is for any unforeseen delay.

3. Detailed breakdown of assumed prerequisite knowledge, including host prerequisite subject URLs

A first course in Real and Functional Analysis at third year level.

Host prerequisite subject: MATH 339 (Real and Functional Analysis)

4. Assessment

(i) Exam/assignment/class work breakdown

Assignment 100% (5 assignments)

(ii) Assignment due dates

5 assignments due at ends of weeks 4, 6, 8, 10 and 12.

(iii) Approximate exam date

No exam

5. Required student resources

- Text/printed notes

Walter Rudin's book "Real and Complex Analysis".

- Software (local access)

Not required.

Institutional Honours Details

1. Weight of subject in total honours assessment at host department

11%

2. Thesis/subject split at host department

35% / 65%

3. Honours grade demarcators at host department

- H1 = 85 %
- H2a = 75 %
- H2b = 65 %
- H3 = 50 %