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: 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 Lp. 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: Lp 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 unforseen 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 %