

MA1221 Pure Mathematics at Work 2006/07

Convenor: Prof. Dietrich Notbohm.

My office is **F33** in the building of the School of Computer Science and Mathematics . I am available for consultation during my **office hours** in my office (**Monday 11.30 to 12.30** and **Wednesday 11.30 to 12.30**) or by arrangement. You can also just knock at my office door and either I have time for you or we make an appointment.

Feedback is very much welcomed and encouraged during the module as well as at the end through the formal questionnaires.

The aim of this course is to introduce and study various aspects of Pure Mathematics which are used in real life situations, to introduce some new ways of using the mathematics learned elsewhere and to enhance the understanding of that mathematics. A number of different teaching and assessment methods will be used in this course.

Prerequisites:

MA1101 Proof and Logical Structures and MA1102 Algebraic Structures and Number Systems are desirable.

Teaching Arrangements:

Monday, 14:30 - 16:30, GP LRC

Tuesday, 12:30 - 13:30, CW 801

Thursday, 11:30 - 12:30, Ben LT3

The Tuesday and Thursday slots will be used for lectures and the Monday slots for workshops, problem classes or lectures.

Syllabus:

- Fibonacci series - population growth and mathematical biology.
- Graph theory - the Königsberg bridge problem traveling salesperson problem.
- paper folding - constructing regular polygons.
- Secret codes - codes for the secure transmission of information, Public key Encryption Codes.

Because of time constraint, I may not be able to address all of these topics.

Reading List

N.L. Biggs, Discrete Mathematics, Oxford University Press.

P. Hilton, D. Holton and J. Pedersen, Mathematical Reflections: In a room with many mirrors, Springer Verlag.

I. Stewart, The Problems of Mathematics, Oxford University Press.

R.J. Wilson and J.J. Watkins, Graphs (an Introductory Approach), Wiley.

Assessment

The course is entirely assessed by continuous assessment; there is no examination. Thus, it is important that you attend all lectures, workshops and problem classes. The assessment scheme is as follows:

- Project 35%.

This will be set on Thursday, 16 Nov, and collected on Tuesday, 12 Dec, at the 12:30 class.

- Group work 15%

Work shop session Monday, 20 Nov.

- 2 Question sheets, each 15%

Q1: set Thursday, 23 Nov, collected Thursday, 30 Nov.

Q2 set Thursday, 30 Nov, collected on Thursday, 7 Dec. class.

- Class test 20%

Thursday, 14 Dec.