Math 211

Algebraic Methods

Fall/Winter 2006/2007

Time: Mon 15:30-16:30, Wed 14:30-15:30, Thu 16:30-17:30
Place: Fall: Rooms 101 (Mo/Wed) and 102 (Thurs), Jeffrey Hall
Winter: Room 110, Jeffrey Hall

Instructor: Dr. Ernst Kani
Room 211, Jeffrey Hall
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Email: kani@mast.queensu.ca

Office hours: one hour after each class (except Thursdays):
Mon 16:30 - 17:30
Wed 15:30 - 16:30
Thu 15:30 - 16:20

Teaching Ass't: Sarah Kriger
Tuesdays 11:30-12:30, Thursdays 12:00-1:00
Maths Help Centre (Room 201, Jeffrey Hall)

Marking scheme:
Assignments 15.0%
October Mid-term test 7.5%
Christmas exam 30.0%
February Mid-term test 7.5%
Final exam 40.0%

Assignments: Due Thursdays at 16:30
MAPLE Lab: 21 September, 2006, 16:30-17:30, Room 157 JEF
Mid-term tests:
11 October, 2006, 14:30-15:30 (in Room 101)
12 February, 2007, 3:30-4:30

Christmas exam: 20 December 2006, 9:00-11:00 in Stirling Hall, Room 412B

Final exam: Thurs, 26 April 2007, 9:00-12:00 Dunning Hall


PC software: MAPLE - installed on PC's in Jefflab (JEF 157)

Course Outline

Integers:
- Greatest common divisor (gcd), Euclidean algorithm (ch. 1)
- Linear Diophantine equations (ch. 1)
- Modular arithmetic (ch. 2)
- Public key cryptography (ch. 2)

Polynomials:
- Review of complex numbers (ch. 3)
- Gcd, Euclidean algorithm (ch. 3)

Approximation:
- Data fitting: Lagrange interpolation formula, Least square approximation (ch. 4)

Matrices:
- Matrix polynomials, discrete linear systems (ch. 5)
- Applications of Jordan canonical form (ch. 6,7)
- Powers of matrices, stochastic matrices (ch. 7)

Groups:
- Permutation groups, cycles, Burnside's theorem, application to colouring problems (ch. 8)

Detailed Course Outline (Table of Contents of Textbook)

Page Last Updated: September, 2006