



# Math 211

## Algebraic Methods

Fall/Winter 2006/2007

[List of Assignments](#)

[List of Overheads](#)

[List of Handouts](#)

[List of MAPLE Solutions](#)

[Further Reading](#)

[News](#)

**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  
 Telephone: 533-2435  
 Email: [kani@mast.queensu.ca](mailto: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)

<b>Marking scheme:</b>	Assignments	15.0%
	October Mid-term test	7.5%
	Christmas exam	30.0%
	February Mid-term test	7.5%
	Final exam	40.0%
		100.0%

**Assignments:** Due Thursdays at 16:30

**MAPLE Lab:** 21 September, 2006, 16:30-17:30, Room 157 JEF

<b>Mid-term tests:</b>	11 October, 2006, 14:30-15:30 (in Room 101) 12 February, 2007, 3:30-4:30
<b>Christmas exam:</b>	20 December 2006, 9:00-11:00 in Stirling Hall, Room 412B
<b>Final exam:</b>	Thurs, 26 April 2007, 9:00-12:00 Dunning Hall
<b>Textbook:</b>	E. Kani, N. J. Pullman, N. M. Rice, Algebraic Methods, Queen's University, 2006.
<b>PC software:</b>	MAPLE - installed on PC's in Jefflab (JEF 157)

### Course Outline

<b>Integers:</b>	- Greatest common divisor (gcd), Euclidean algorithm (ch. 1) - Linear Diophantine equations (ch. 1) - Modular arithmetic (ch. 2) - Public key cryptography (ch. 2)
<b>Polynomials:</b>	- Review of complex numbers (ch. 3) - Gcd, Euclidean algorithm (ch. 3)
<b>Approximation:</b>	- Data fitting: Lagrange interpolation formula, Least square approximation (ch. 4)
<b>Matrices:</b>	- Matrix polynomials, discrete linear systems (ch. 5) - Applications of Jordan canonical form (ch. 6,7) - Powers of matrices, stochastic matrices (ch. 7)
<b>Groups:</b>	- Permutation groups, cycles, Burnside's theorem, application to colouring problems (ch. 8)

[Detailed Course Outline \(Table of Contents of Textbook\)](#)