

COURSE INFORMATION SHEET  
WINTER 2008

- Course:** APPLIED MATHEMATICS 415 -- Mathematical Methods  
**Lecture/Time:** Lec 1: MWF 10:00am, ST126; Tut 1,2,3: R 10:00am, MS515, MS521, MS571  
**Instructor:** Dr. Michael Lamoureux  
**Office/Phone/Email:** MS514 220-8214 mikel@ucalgary.ca
- Prerequisites:** One of AMAT 311, AMAT 307, MATH 331, MATH 353, AMAT 309.  
**NOTE:** The Faculty of Science policy on pre- and co-requisite checking is outlined in the current University Calendar (see [www.ucalgary.ca/pubs/calendar](http://www.ucalgary.ca/pubs/calendar)) *Faculty of Science, section 5C*. **It is the students' responsibility to ensure that they have the pre- and co-requisites for the course, and if they do not they will be withdrawn from the course without notice.**
- Fee policy:** After the last day to drop/add courses, there will be no refund of tuition fees if a student withdraws from a course, courses or the session.
- Academic Accommodations:** It is the student's responsibility to request academic accommodations. A student with a documented disability who may require academic accommodation must register with the Disability Resource Centre to be eligible for formal academic accommodation. DRC registered students are required to discuss their needs with the instructor no later than fourteen (14) days after the start of this course.
- The University policy on grading and related matters** is described in the current University Calendar, *Academic Standings*. In determining the overall grade in the course, the following weights will be used:

<i>Assignments</i>	[ 3 - 4 ]	40 %
<i>Midterm Test</i>	[ 1 ]	20 %
<i>Final Exam</i>		40 %

A passing grade on any particular component of the course is essential to passing the course as a whole. There will be a final examination scheduled by the Registrar's Office. \*\*\* The use of aids such as open book, calculator, etc IS NOT permitted.

- Missed Components of Term Work.** The regulations of the Faculty of Science pertaining to this matter are outlined in the current University Calendar, *Faculty of Science, section 6A*. It is the student's responsibility to familiarize herself/himself with these regulations.
- Academic misconduct** (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the current University Calendar. See: <http://www.ucalgary.ca/honesty/>
- \*\* THERE WILL BE NO OUT-OF-CLASS-TIME ACTIVITY. \*\***

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME ACTIVITY. If you have a conflict with this out of class time activity, please inform your instructor at least one week in advance of the activity so that other arrangements may be made for you.

9. **Text.** The first part of the course, on complex analysis, has no recommended text; any basic text in complex analysis can be used as a reference, such as J. Marsden's *Basic Complex Analysis*, Wunsch's *Complex Variables with Applications*, or the Schaum series entitled *Complex Variables*. The second part of the course will follow closely the book by John H. Karl, *An Introduction to Digital Signal Processing*, a required text that is available in the UC bookstore.
10. **Assignments.** There will be up to four assignments in the course. Please note the department policies on the preparation of assignments, including presentation, neatness, stapling, lateness, and plagiarism.
11. **Labs.** There will be a lab every week, except in the first week of classes. Students will have access to the MATLAB programming language in the labs, in order to experiment with some of the numerical implementations of Fourier transforms, filters, and other mathematical ideas presented in class. If desired, any student may purchase an inexpensive, student version of MATLAB at the UC Microstore.

## 12. CALENDAR (approximate)

Week	Date	Topics	Notes
1	January 14 – 18	Complex numbers, analytic functions, series	No Lab.
2	January 21 – 25	Real and complex integrals, Cauchy Integral Theorem, Formula	
3	January 28 –Feb. 01	Integration by residues	Assignment #1 due (Friday)
4	February 04 – 08	Chaps 1,2: Karl	
5	February 11 – 15	Chaps 3,4: Karl	
6	February 18 – 22	Reading Week	No Lectures, No Lab.
7	February 25 – 29	Chap 5, Karl	Assignment #2 due (Friday)
8	March 03 –07	Chap 6, Karl	Midterm
9	March 10 – 14	Chap 7, Karl	
10	March 17 – 20	Chap 7, Karl	
11	March 24 – 28	Chap 8 or 12, Karl	Assignment #3 due (Friday)
12	March 1 – Apr.04	Chap 8 or 12, Karl	
13	April 7 – 11	Laplace transforms	
14	April 14 – 18	Wavelet transforms	Assignment #4 due (Friday)