

Computers in Engineering
COMP 208

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Fall 2007

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Why Am I Here?

- It's a requirement
- You don't know it's a requirement and want to learn Fortran?
- C's awesome!
- To Have Fun

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What are we Going to Study?

- The 3 Components to the Course:
 - Fortran
 - C
 - Algorithms
- We will spend ~4 weeks on each topic

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FORTRAN

- One of the 1st High Level Languages
- Designed for Scientific Applications
- Updated Several Times
- Important Still to Engineering Community
- Simpler Syntax

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C

- Developed in the 1970's
- Powerful and Optimized
- Widely Used Today
 - Scientific Community
 - Engineering Community
 - Business
 - Games
- Platform to learn other Languages

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Algorithms

- Fundamental "Building Blocks"
 - Sorting Data
 - Searching Data
 - Mathematical Functions
 - Numerical Integration
 - Finding Roots
 - Solving Ordinary Differential Equations
 - Solving Systems of Linear Equations

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Why is this Important?

- Computers Integrated into our Lives
- Gives you a Tool to Solve Problems
- Allows you to Extend or Recreate other programs with Limitations
- Can Understand other People's Code Better for Project Collaboration

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What if I never Program Again?

- Programming is about Problem Solving
- Know how tools you use work
- Understand and Analysis Results better
- Learn about Limitations of Software
- Tools for science and math applications
- That just won't happen...

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Course Staff

- Taught by team
 - Coordinator/lecturer
 - Other Section Lecturers
 - Number of Teach Assistants
- Lecturers will
 - Present Course Material
 - Be Available During Office Hours
- Teaching Assistants will
 - Run Tutorials
 - Be Available During Office Hours
 - Grade Assignments

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Instructors

- Nathan Friedman (course coordinator)
 - friedman@cs.mcgill.ca
 - MC325, (514) 398-7076
- Michael A. Hawker (lecturer)
 - michael.hawker@mail.mcgill.ca
 - MC322, <http://www.cs.mcgill.ca/~mhawke1/>
- Jun Wang (lecturer)
 - jwang90@cs.mcgill.ca
 - <http://www.cs.mcgill.ca/~jwang90/>

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Teaching Assistants

- TBD Soon...

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Timetable

- Sections Held Tuesday & Thursday
- 2:30PM – 4:00PM (1430 – 1600)
 - Section 1: Prof. Friedman ENGTR0100
 - Section 2: Prof. Wang ENGMD 276
 - Section 3: Prof. Hawker MAASS 10
- Free to attend whichever lecture (mine)
- Assignments and Tests are the same

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Tutorials

- Tutorial Times will be arranged
 - Fill in Survey on WebCT
 - Accommodate as many as possible
- Given by the TA's
- Not Required but is Highly Recommended
- Tutorials will Cover
 - Supplementary Material on Programming
 - Ideas for Approaching the Assignments
 - Reviewing Material for the Exams

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Computing Facilities

- Faculty of Engineering Computers have all software required for the course
- Main Facilities are in
 - FDA 1
 - MDHAR G15
- Software can be downloaded from WebCT

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- Please see the course description and outline that is available (in pdf format) on WebCT (at www.mcgill.ca/webct/)
- That document was prepared by Jean-Francois Bastien, a former TA for the course.
- It will be an invaluable tool for you to use throughout the course.

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Resources

- Textbook
 - FORTRAN, C and Algorithms by G. Ratzer and J. Vybihal
- WebCT resources include
 - Lecture notes
 - Code for algorithms studied in class
 - Previous midterm and final examinations
 - Solutions for previous assignments
- My Website
 - <http://www.cs.mcgill.ca/~mhawke1/>

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Grading

- Assignments
 - 3 assignments in Fortran
 - 3 assignments in C
 - 20% of final grade
- Midterm
 - 90 Minutes During Class
 - 30% of final grade
- Final
 - 3 Hours at End of Term
 - 50% of final grade

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Academic Integrity

- You are encouraged to attend tutorials to get ideas for solving the assignments
- You can discuss approaches to solving the problems
- BUT: You must code the programs yourselves and not copy from anyone else
- Copying all or portions of a program can be detected by software
- If you copy an assignment, you will receive a zero on it
- Please read the McGill Code of Student Conduct at www.mcgill.ca/integrity for the University policy on cheating and plagiarism and disciplinary procedures

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How can I do well?

- Prepare for Lectures
 - Available online
 - Ask Questions!
- Attend Tutorials
 - See Examples
 - Get Pointers
 - Benefit from TA's Experience
- Go to Office Hours (I won't bite...much)

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What else can I do?

- E-mail Professors or TAs
- Do Assignments on Your Own
- Look at Old Midterms, Finals, and Sample Programs

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Questions So Far...

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