Welcome!

- **Object Oriented Programming for Engineers**
- Course Web Site:
  
  http://research.cs.queensu.ca/home/cmpe212
- Lecture outlines and other stuff will be (and is) posted.

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**CMPE212 Introductions**

- Me: Prof. Alan McLeod
  - alan.mcleod@queensu.ca
  - GOO542
  - Office hours: Tuesdays, Noon to 1:15pm. Starting next week.
- TAs: Taher Ghaleb and Akib Anwar
- Lab in Jeffrey Hall Basement (JEFF155 and JEFF157)
- No lab this week -- start next week.

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Today

- Administrivia. Graded components to the course.
- Resources.
- What the course is about.

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Snow Drill…

- If you look outside and the roads do not look great (or you cannot see the road because there is too much snow!), check your E-mail and/or the course web site in case the lecture has been cancelled. Typically a "virtual lecture" will be supplied instead.

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Purpose of CMPE212

- To teach you a modern, relatively safe and popular OOP language.
- To teach you how to write good code!
- How much Java experience do you have?
- How about C?

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Grading

- Grading scheme:
  - 24% - three quizzes, (weeks 4, 8 and 11)
  - 25% - five assignments, (due weeks 3, 5, 7, 10 and 12)
  - 51% - one final exam
Quizzes

• Must be written in the lab on a lab machine.
• In onQ – no aids.
• T/F, read and write Java code.

Assignments

• Long!
• Electronic submission to onQ.
• Web site describes policy of diminishing returns for late submission.
• One submission per person, please!
• You can get help in the lab and I will discuss them in lecture – time permitting.
• TAs will mark assignments.

Assignments, Cont.

• Not posted, yet. But:
  • Assn 1: An easy console game, built with mainly procedural code.
  • Assn 2: A less easy procedural program solving an ODE system, with file outputs of the path of a firework (a “star”).
  • Assn 3: An encapsulation of the description of a firework.
  • Assn 4: A hierarchy of firework types.
  • Assn 5: A GUI showing an animation of the path of some fireworks using particle physics.

Assignment Rules

• Assignments are graded out of 20 – your marks and comments will be uploaded to onQ by your TA.
• Late submission:
  – You can submit up to five days after the deadline, but:
  – Your mark will be reduced by 2 marks per day late, unless you can prove extenuating circumstances, such as a serious illness or a Queen’s activity.
  – Minimum of 2 marks removed.
  – Don’t leave your assignment to the night before!!!

Assignment Rules, Cont.

• “Group Efforts”:
  – I encourage you to discuss your difficulties with your peers, myself and your TAs.
  – You may look at other people’s code.
  – You cannot copy other people’s code! Includes code from the internet (like stackoverflow.com)
  – Submissions may be electronically and physically checked for code duplication.
  – If you are caught with duplicated code – all parties with such code will get zero on the assignment, and you may get prosecuted for a failure of academic integrity.
  – You will not learn anything if you copy someone else’s code!

Exercises

• Nothing to hand in.
• But don’t ignore them – you need to practice writing code and these exercises are designed to prepare you for the graded portions of the course.
• Besides, some topics in the exercises will not be dealt with in lecture.
• You can work on Exercise 1 now.
Final Exam

- Three hours long.
- On paper – no aids.
- Read and write Java code.
- Short answer as well.
- An exam prep page including an exact list of examinable topics and old exams will be provided near the end of the course.

Labs

- Only one lab time will be used: Thursdays at 8:30am. We have both rooms booked – JEFF155 and JEFF157.
- Get help from your TA on lecture material, assignment work, quiz prep, exam prep, etc.
- You will also write your quizzes in the lab.
- No lab this week.

What’s Where

Course Web Site (public)
- Resources.
- Lecture topics.
- Lecture notes and sample code.
- Assignment statements and sample solutions.
- Exercises.
- Grading scheme.
- Non-urgent notices.

onQ (login)
- Lecture videos.
- Email Broadcast of Urgent Notices.
- Assignment submission.
- Quizzes to write.
- Quiz and assignment grades.
- Assignment feedback.

onQ...

- Please Check your onQ login – if the course does not show up for you, let me know.
  - A course “add” can take a day to update in onQ.
  - Submit assignments to onQ.
  - View grades.

onQ...

- Update your profile in onQ – upload your picture! And modify your “notifications”.

CMPE212 Introduction, Cont.

- Resources
  - Recommended Textbook:
    - Fifth edition also OK.

Eclipse IDE

- Multiplatform, open source, free.
- Available from www.eclipse.org
- See the Resources web page.
- Also see instructions for installing and using JavaFX and SceneBuilder.
Other IDEs

- What does "IDE" stand for anyways?
- Netbeans or IntelliJ for example.
- Others are listed or linked off the Resources page.
- Your TA will not (and should not) know what tool was used to aid the development and testing of your code.

Eclipse – Normal Working View

SceneBuilder In Eclipse

Java, Version “13”

- The JDK or ‘Java Development Kit’ is available from oracle.com
- The JDK and Eclipse are available in Jeff lab (and many other labs, in Goodwin and WLH).
- Install the JDK first and then Eclipse.
- See the Resources page.
- You might also wish to download the API docs.

Purpose of CMPE212

- What the course is about. Or:
  
  Why are you here?

  ✓ To learn how to program in Java.
  ✓ To increase your programming proficiency.
  ✓ To learn OOP principles with a modern, object oriented programming language.
  ✓ To transition to another language.
  ✓ To improve your programming style.
  ✓ To practice modular program design.
  ✓ To explore GUI programming.

Why Java?

✓ Not Vendor - Specific.
✓ Platform independent.
✓ Most fundamentally sound application of OOP principles.
✓ Huge community support base.
✓ Many free, mature development tools.

• Once you have learned Java, you will find it easy to pick up any other OOP language (like C++ or C#).
Compared to Other Languages

• In terms of web-visible activity, see the Tiobe Index:
  http://www.tiobe.com/index.php/content/paperinfo/tpci/index.html

For Sure Course Topics

• Fundamental Java – expressions, loops, conditionals, methods, console and file I/O.
• JUnit testing. Coverage testing.
• OOP in Java – encapsulation, inheritance, polymorphism. Interfaces and generic classes.
• GUI Programming using JavaFX – tools, nodes, animation, image manipulation, ...

Possible Course Topics

• Multi-threading and Multi-processor Control
• Deployment
• Networking
• Relational Database Access - Local and Remote

What You Need to Do Next

• Review course web site.
• Check onQ login. Add photo, if needed.
• Install the JDK, then Eclipse, if you want to use this IDE – see the Resources page.
• Start Exercise 1.

First Example – “Hello World” in Java

• Let us have a quick look at Eclipse, create an empty project and add a program that displays “Hello World” to the console window.

```java
public class TestHello {
    public static void main(String[] args) {
        System.out.println("Hello");
    }
}
```