COMP 3004
Object-Oriented Software Engineering

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Welcome

- Instructor: Dr. Christine Laurendeau
- Lecture schedule: Tue. and Thu. 4:05 pm - 5:25 pm
- Check your Carleton e-mail least once **every** day

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About the Instructor

- Biography:
  - BCS and MCS at U. Ottawa, graduating in early 1990s
  - worked in high-tech industry for nearly 10 years
    - Bell Canada, SHL Systemhouse, Nortel
  - PhD in Computer Science at Carleton in 2005-2009
    - specialized in wireless network security
  - full-time instructor (teaching professor) in SCS since 2009
    - teaching software engineering and systems programming
- My main goal: **your success** as a software professional
  - beyond this course, to graduation, and into your future

About the Course

- Official course description:
  - “theory and development of software systems”
  - a *system* is a very large piece of software
    - a program with thousands or millions of lines of code
    - development involves dozens or hundreds of developers
  - theory ≉ math
  - in software engineering:
    - theory: how we’re *supposed to* build a software system
    - practice: how we *actually* build it in real life

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Course Topics

- Topics that we'll cover:
  - introduction
    - getting started -- what's this course about?
    - team project
    - UML notation
  - software development life cycle
    - steps for building large software systems
    - design tools like design patterns
  - software management and processes
  - professional ethics

Course Topics (cont.)

- Software development life cycle
  - requirements analysis
    - requirements (functional and non-functional)
    - functional model, dynamic model, analysis object model
  - high-level system design
    - subsystem decomposition
    - system architecture strategies
  - detailed object design
    - detailed object model
    - use of design patterns and contracts

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Course Topics (cont.)

- Software development life cycle
  - implementation
    - mapping associations to collections
    - mapping associations to storage
  - testing
    - unit testing
    - integration testing
    - system testing

Learning Objectives

- Gain experience in:
  - theory and practice of building large software systems
  - teamwork
  - conflict resolution
  - oral and written communications

- Practice working in a professional setting
  - placing work first
  - accepting that all of us can learn new and better ways
    - employers complain that students can’t accept feedback
  - functioning as a team
  - learning tools on your own

Course Page

- Check out the course page in *cuLearn*
  - course outline
  - course notes
  - assignment and deliverable information

- Midterm and final exam cover **everything**
  - in course notes and annotations made during lectures
  - in exercises done in class
  - DO NOT RELY ON LECTURE RECORDINGS

- Course notes are never complete
  - you must attend lectures and take notes

Course Outline

- You must read the course outline *thoroughly*

- It contains:
  - expectations
  - evaluation scheme
  - course policies

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Project

- Five work products to hand in
  - three (3) individual assignments
  - two (2) team-based deliverables
  - all based on the same project description

- Assignments
  - must be completed individually

- Team-based deliverables
  - must be completed in teams of 3-4 students
  - we’ll talk about teamwork in lecture #2 or #3

Project (cont.)

- Development must follow processes discussed in class
  - must use the course VM
    - no exceptions!
  - must be implemented in C++

- Each assignment/deliverable has its own tab in *cuLearn*
  - assignment/deliverable requirements
  - question and answer forum
  - all project questions **must** be posted in *cuLearn*
    - not asked by email

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Project (cont.)

- Instructor role in this course
  - teacher
  - client

- Start thinking about your team
  - members
  - team name
  - team member responsibilities

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Programming Environment

- We will use a virtual machine (VM) for this course
  - use of the VM is **mandatory** for deliverables

- You need to install:
  - VirtualBox
  - the official COMP 3004 virtual machine
    - Ubuntu 18.04
    - Qt framework
    - Dia UML drawing tool

- Details found in *cuLearn*

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Office Hours

- Instructor office hours
  - priority to questions regarding:
    - course material
    - confidential issues, academic advising, issues with your team
    - problems with TAs or other students
  - please be prepared with **specific** questions!
  - please be considerate with in-class time before and after lectures
    - these are **not** office hours
    - instructor availability is very limited at those times
    - for help, please come to office hours instead!

Office Hours (cont.)

- TA office hours
  - priority to questions regarding:
    - completing the assignments and deliverables
    - grading of assignments and deliverables
  - TAs are **not** experts in the course material, or in the requirements
    - always check with instructor on *cuLearn* forum or during office hours

Communication Policy

- Questions about project and deliverables:
  - you **must** post your questions in *cuLearn*
  - this allows all students to learn and benefit from the answer

- Questions about course material
  - please see instructor during office hours
  - besides, it's nice to talk in person

- Emailing the instructor
  - only regarding confidential matters, or team issues
  - never for project questions -- please post in *cuLearn*
  - email is good for short, very simple matters
  - anything complex is best discussed in person

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Ready to Get Started?

- Ask your questions before we move on!

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