CSC407S / 2103S

Software Architecture & Design

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Office hours: Wednesdays 10:00 – 11:00
(or by appointment)

Important Information for Graduate Students in CSC2103

- Starting this term, this course is moved to Area Ia (Programming: Languages and Methodology)
  - It was previously in Area Ib (Systems: Hardware and Software)

My Qualifications

- B.Sc. / M.Sc. / Ph.D. in CS (UofT)
  - Specializing in Software Engineering
    - Visual Architecture Description Languages
  - Major projects: MiniTunis, OOT, Polyx, CE 68000 Kernel, PUMA robot arm controller
- Industry Experience
  - 2 years architecting C++ at IBM Toronto Labs
    - C++ development environment
    - C++ & OODB across groups in Toronto, Texas, & Tokyo
  - 5 years architecting C++ at Algorithmics
    - >1MLoc C++ program, CORBA, RDBMS, Java, Web, …
    - 10 related products, multiple releases of each
    - VP, Software Dev., managing team of >100, revenues >$80M/yr.
  - Ongoing Consulting

Learning to Design/Architect Software

- Formal (book) knowledge (20%)
- Experience (80%)
  - Characteristics:
    - Large system (> 300 KLoc)
    - Arms-length folk trying to get work done using it
    - Associated revenue stream
    - Maintenance of multiple releases over several years
      - Understand the mistakes that are made and try to fix them

Grades

- Term (60%)
  - Assignment 1 (20%)
    - OOA (10%)
    - OOD + OOP (Java) (10%)
    - doc + UML + working Java
  - Assignment 2 (20%)
    - OOD + OOP (Java) w/ patterns
  - Assignment 3 (20%)
    - Systems architecture
    - Diagrams and written English
- Final Exam (40%)
  - open book (but it won't help)
- Final Grade

```
rawGrade = exam * 0.4 + term * 0.6;
return (exam < 40% ? min(49%,rawGrade):rawGrade);
```

Late policy: see info sheet

Work alone

Texts

- Design Patterns
  - Gamma, Helm, Johnson, & Vlissides
- Acquire some book on
  - Object Oriented Analysis
  - UML for OOA and OOD
  - See recommendations on course info sheet

Resources

- Home page
  - http://www.cs.toronto.edu/~penny/teaching/csc407
  - Handouts, lecture notes, links
- Newsgroup
  - ut.cdf.csc407h
- Office hours

Tutorials

- Each Friday, starting Jan.17
  - Assignments to rooms/groups will be posted
- Worked-out examples
- Group discussion
- Discussion of assignments
- Individual TAs will mark your assignments

Computing

- Assignments require
  - Written documentation
  - Printed Java code
  - UML diagrams
  - Other diagrams
- Any computer w/ Java (any jdk)
  - I use Microsoft Visio for UML and other diagrams, and Word for docs. Use what you want.

Topics

week	***topics***
1	Overview of design and architecture
2-3	OOA/D/P overview, UML for OOA, example
4	OOP, UML for OOD
5-10	Design Patterns
10-13	Systems Architecture