

CSC407S / 2103S

Software Architecture & Design

Prof. Penny

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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

<i>week</i>	<i>topics</i>
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