

Winter 2005

# CEG 461/661-01: Object-Oriented Programming and Design

Thomas C. Hartrum

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# CEG461/661 Object-Oriented programming and Design

Winter Quarter 2005

Wright State University

## Course Description

Study of object-oriented design and programming. Programming topics emphasize the core concepts of encapsulation, inheritance, polymorphism, and dynamic binding. Additional topics include class organization, software maintenance, and design of reusable components. There is a project to be implemented in a modern object-oriented language such as Java or C++.

This course will introduce the essential aspects of software engineering from an object-oriented point of view. There will be considerable emphasis on analysis and design in addition to programming. We will use Unified Modeling Language (UML) for the analysis and design work.

Programming topics will emphasize the core concepts of encapsulation, inheritance, polymorphism, and dynamic binding. We will examine the realization of these concepts in the Java and C++ programming languages.

## Professor

Dr. Thomas C. Hartrum

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Office Hours: M, W 1:00-3:00; T, Th 1:00-2:00; or by appointment.

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Class Hours: M, W 6:05 – 7:20, Oelman Hall, Room 302

## Text

Page-Jones, *Fundamentals of Object-Oriented Design in UML*, Addison Wesley, 2000.

Dattatri, *C++: Effective Object-Oriented Software Construction*, 2<sup>nd</sup> ed., Prentice Hall, 2000.

## Prerequisites

CS 400 or CS 600

CEG 460 or CEG 660

## Grading

Grading will be as follows:

Homework & programming exercises	10
Project	40
Midterm Exam	25
Final Exam	25

Course grades will be based on the total score as follows. A: 90-100, B: 80-89, C:70-79, D: 60-69, F: below 60. Grades may be further curved if appropriate.

## Grading (cont'd)

- You may work with others on homework assignments, but you must turn in your own individual work. Homework that has obviously been copied will result in a grade of zero for both parties and will be reported to the Office of Judicial Affairs, as will any other form of cheating.
- Ten percent will be deducted for unexcused late homework.
- The project will be worked in teams. You may pick your partner(s) or I will pick them. More detail on the project will be handed out later.

## Tentative Schedule

	Topic	Page-Jones	Dattatri
1	M(1/03) Intro to Object-Oriented W(1/05) Review of OOA and UML	Ch 1, 2 Ch 3-7	Ch 1, Ch2(pp.27-54) Ch 2(pp.61-76), skim
2	M(1/10) Object-Oriented with C++ W(1/12) C++ Inheritance		Ch 3 Ch 5 (pp. 171-197)
3	M(1/17) HOLIDAY W(1/19) Encapsulation & Connascence	Ch 8	
4	M(1/24) Assoc, Domains & Encumbrance W(1/26) Encumbrance & Cohesion	Ch 9+notes Ch 9	Ch 11
5	M(1/31) Mastering Data Abstraction W(2/02) Catch up, review		Ch 11
6	M(2/07) In class midterm W(2/09) Inheritance & Polymorphism (notes)	Ch 1-9	Ch 1-3, 11
7	M(2/14) State-Space & Behavior W(2/16) Type Conformance	Ch 10 Ch 11	Ch 2(57-60)
8	M(2/21) C++ Polymorphism W(2/23) Perils of Polymorphism	Ch 12	Ch 5, Ch 12(617-645) Ch 5(238-255)
9	M(2/28) Advanced topics (TBD) W(3/02) Advanced topics (TBD)		
10	M(3/07) Advanced topics (TBD) W(3/09) Catch up, review	All	All
F	W(3/16) 8:00 PM to 10:00 PM Final Exam-All		All

NOTE: There will be *no* early final exam – plan your travel accordingly. In case of a legitimate conflict, a makeup final can be arranged.

**Note:** M = Monday, W = Wednesday.