TROY UNIVERSITY

CS 360 Concepts of Object Oriented Programming

COURSE SYLLABUS

Autumn 2024

PRE-REQUISITES:
CS255

INSTRUCTOR INFORMATION:
Tuan-Dung CAO, Ph.D
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INSTRUCTOR EDUCATION:
Ph.D. in Computer Science, 2006, Nice-Sophia Antipolis University, France
M.S. in Computer Science, 2002, IFI, Vietnam
B.sc(Engg) Hanoi University of Technology, B.S., Computer Science

CATALOG DESCRIPTION:

Provides students the opportunity to gain experience and training in an additional high level language. This course focuses on fundamental object oriented programming concepts and principles including classes, objects, data abstraction, encapsulation, inheritance, polymophism. It also introduces advanced topics such as exception handling, template, interfaces, applications, multithreading, graphics, files.

Prerequisite: CS 255

STUDENT OUTCOMES
Having completed the course the student will be able to:

- Solve problems by OOP.
- Gain the basic, factual material on Object Oriented Programming such as class, object, data members and member functions, access limit
- Understand friends of classes, assignment operators, copy constructors.
- Understand operator overloading, inheritance, polymorphism and virtual function.
- Understand exceptions, templates, STL.
- Implement object-oriented programs in C++ and Java using IDE.
- Use standard library functions

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- Write clear, elementary C++/Java programs and demonstrate some advanced skills in C++/Java.

GRADING
Attendance - 5%
Midterm Exam - 30%
Final Exam - 35%
Programming Projects - 30%

GRADING SCALE:

Grades will be assigned according to the following scale:
A 90 - 100
B 80 - 89
C 70 – 79
D 60 – 69
F below 60

TEXTBOOK
1. Tony Gaddis, Starting out with C++, Six Edition, Pearson, 2009, ISBN: 978-0321545886
A C++ compiler is needed. Dev C++ are recommended for the course. You can download them free online as the instructions provided. "Computer problems" are not an acceptable excuse if you cannot turn in homework by the deadlines.

2. Tony Gaddis, Starting Out with Java: From Control Structures through Objects (6th Edition), Pearson, 2016, ISBN 978-0133957051.

3. Bruce Eckel. 2005. *Thinking in Java (4th Edition)*. Prentice Hall PTR, Upper Saddle River, NJ, USA.

4. Bruce Eckel , Bruce Eckel, Thinking in C++, Second Edition, vols. 1 & 2, Prentice Hall, 2000. Available for free in electronic form on-line at http://www.mindview.net/Books/TICPP/ThinkingInCPP2e.html.

5. Deitel, C++ How to program 8th edition. ISBN 978-0132662369

METHODS OF INSTRUCTION: In-Classroom Lectures, Labs, Tests, Handouts/Homework, Class Participation and Reading assignments.

HONESTY AND PLAGIARISM

*Plagiarism is defined as submitting anything for credit in one course that has already been submitted for credit in another course, or copying any part of someone else's intellectual work – their ideas and/or words – published or unpublished, including that of other students, and portraying it as one's ownAll students are required to read the material presented at: http://troy.troy.edu/writingcenter/research.html

All material submitted for grade must be the student's own work.

Anyone found cheating and/or copying will receive an automatic 0 for that assignment or exam or dismissal from the course. This goes for the person who copies as well as the person who allows their work to be copied. Serious penalty (e.g: one lower letter grade) will be given for cheating and plagiarism and students will be required to retake a course if they get D or worse for that course.

OTHER POLICY

There will be no make up test. A missed test or exam will result in 0 points. Contact me in advance in case of emergency such as illness. An original letter address to me on a letterhead paper from a physician or hospital stating that you could not take the test or exam as scheduled is necessary for me to consider your case.

PROJECTS

Students are required to submit their source code file(s) as email attachments prior to the project deadline. In the event you are unable to complete a project or make it work correctly, be sure to email your latest source code to receive partial credit. Students failing to submit projects within the allotted time will receive a project grade of zero and will not be allowed to make late submissions. Exceptions will be made ONLY under extenuating circumstances and ONLY with prior approval by the instructor. To receive full credit, projects must be submitted on or before the due date.

COURSE SCHEDULE

Lecture 1	Introduction to Object Technology and Object Oriented Programming Introduction to Java language	Lecture Slides, Eckel 1-2 Gaddis 1, Chapter 13
Lecture 2	Concepts of Class and Object Java Fundamental	Gaddis 2, Chapter 2,3,4,5 Project 1
Lecture 3	Building Classes and Creating Objects with C++	Gaddis 1, Chapter 13
Lecture 4	Building Classes and Creating Objects with Java	Gaddis 2, Chapter 6
Lecture 5	Encapsulation in C++ and Java Public Private	Gaddis 1, Chapter 13 Project 2
Lecture 6	Constructor and Destructor in C++ Constructor in Java	Gaddis 1, Chapter 13, Gaddis 2, Chapter 6
Lecture 7	Method overloading Static Class	Gaddis 1, Chapter 14

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	Friend functions	
Lecture 8	Midterm exam	
Lecture 9	Operator Overloading in C++	Gaddis, Chapter 14 Project 3
Lecture 10	Aggregation	Gaddis, Chapter 15
Lecture 11	Inheritance Protected, single and multi inheritance	Gaddis, Chapter 15 Project 4
Lecture 12	Polymorphism, Static Dynamic Binding Virtual function	Gaddis, Chapter 15
Lecture 13	Exception Handling	Gaddis, Chapter 16 Project 5
Lecture 14	Reviews - Project Presentation	
Lecture 15	Final exam	