

# IM1003 – Programming Design, Spring 2013

## Instructor:

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**Classroom:** Lectures: Room 305, Management Building II.

Labs: The large computing room, Management Building I.

**Meeting time:** Lectures: 2:20-5:20pm, Monday. Labs: 6:30-8:15pm, Wednesday.

**Textbook:** “A First Book of C++” by Gary Bronson, 4th edition. 滄海圖書; (02) 2226-3101.

**References:** “C++ Primer” by S.B. Lippman, J. Lajoie, and B.E. Moo.

“The C++ Programming Language” by B. Stroustrup.

“C++ How to Program” by P. Deitel and H. Deitel.

**On-line:** To check grades: CEIBA.

To download materials: <http://www.ntu.edu.tw/~lckung/courses/PDSp13/>.

To discuss: “NTUIM-lckung” on PTT.

## Course description:

In this course, we will introduce how to write computer programs for general purposes. The programming language we will study is C++, one of the most popular and powerful programming language nowadays. We will start from the procedural programming part of C++, which is quite similar to the programming language C, and then discuss those object-oriented features of C++. While we will spend a lot of time on how to write correct programs, we will also aim to write “good” programs, i.e., those running faster, using less memory, generating friendly user interfaces, being more extendable, having better formats, etc. To enhance the learning efficiency, basic concepts of data structure, computational complexity, and algorithm design will also be discussed. There is no prerequisite for this course.

## Tentative plan:

Overview and foundations (Ch. 1 to 3): about two weeks.

Procedural programming (Ch. 4 to 9 and 15): about five weeks.

Object-oriented programming (Ch. 10 to 16 except Ch. 15): about five weeks.

Additional topics: about four weeks.

## Grading:

Homework 30%

Project 10% (announcement: 5/27; due: 6/14)

Class participation 5%

Three lab exams 30% (10% each; 3/20, 5/8, and 6/19)

Two written exams 25% (midterm 10% and final exam 15%; 5/6 and 6/17)

The final letter grades will be given according to the following conversion rule:

Letter	A+	A	A-	B+	B	B-	C+	C	C-
Range	[90, 100]	[85, 90)	[80, 85)	[77, 80)	[73, 77)	[70, 73)	[67, 70)	[63, 67)	[60, 63)

## Policies:

Office hour: You are welcome to my office hour to ask me any question. You may ask me to clarify some concepts, give you hints for homework problems, or even demonstrate how to run the compiler. Discussions not related to programming are also welcome. Nevertheless, asking me to debug for you is not allowed. If you don't want to come in the designated time, feel free to send me an e-mail to schedule a meeting.

Class participation: We do not require one to attend all the lectures and labs. If you have something more important to do, feel free to drop a class. Nevertheless, as **communication skills** are essential for almost everyone, we encourage class participation and include it in evaluating each student. In other words, class participation is not just sitting in the classroom. During lecture time or office hour, you are more than welcome to **ask or answer questions** and **provide comments**. You are also encouraged to use **the course bulletin board on PTT**. These will not only give you a good grade but also significantly help your learning.

### Homework:

- ◆ Weekly homework will be assigned every Monday or Tuesday and due the following Monday (unless there is an exam). Please upload your C++ source codes (and other files, if required) to the online submission website by 1:00pm on the due date. No submission in class or in lab. No hard copy. No late submission. Each student must turn in her/his own homework.
- ◆ The only way to become a good programmer is to write a lot of programs. For doing homework, you are encouraged to discuss with others by required to program by yourself. If one copies another student's homework, both of them will get -1 (negative one) as the homework grade. Please DO NOT do that!
- ◆ The **lowest two** homework grades will be **dropped** (i.e., you may skip two homework if you want). The TAs may regrade your homework upon request. If you have a regrading request, please contact the TAs directly (e.g., in the labs).

Labs: The TAs will conduct a lab every Wednesday. In the lab, the TAs may review materials covered in lectures, demonstrate programming skills, and give students on-site practices. These practices do not count for any grade. However, attending labs is as important as, if not more important than, attending lectures.

Project: Please form a team with at most three persons. Each team needs to submit its C++ course codes and the document for their program. Each team will also need to do a demonstration of their program to the instructor or TAs. All team members must show up for the demonstration.

Lab exams: For three Wednesday we will have lab exams during the lab time. Students will be asked to write several C++ programs in 100 minutes. Except the desktops in the computer classroom, no other electronic device is allowed. No discussion is allowed. Cheating will result in severe penalty.

Written exams: For two Monday we will have written exams during the lecture time. They will be in-class and open-book. No electronic device is allowed. No discussion is allowed. Cheating will result in severe penalty. Among the five exams, the final exam is the only one that is comprehensive.

## Remark:

Though this course counts for three units officially, I suggest you to treat it as five units and put efforts on it accordingly. If you do not have any programming experience, you do need to spend enough time on programming to really learn something. I know studying programming is definitely not easy, so please do not hesitate to let me know if you need any help.