

CES1017, Division of Media, Culture, and Design Technology

Programming Fundamentals

Week 1: Course Introduction

Instructor: Eunil Park (pa1324@hanyang.ac.kr)



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Programming

➤ Why do you know programming?

To solve problems?

To make new products and services?

Because it reflects your thinking and perceptions!

Goal and Course Info

➤ Goal

- Understanding programming basic
- Hands-on experience on Python programming
- Writing your own programs!

➤ Course information

- No prerequisite knowledge is required
- Problem based learning (PBL)



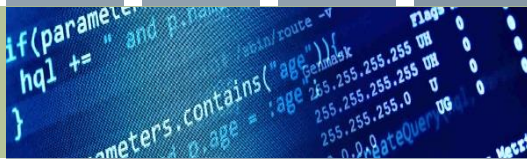
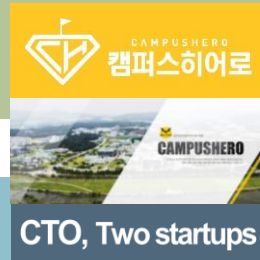




01. Overview



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Eunil Park, Ph. D.

- Assistant Professor in Division of Media, Culture, and Design Technology
- Data Scientists for User eXperience

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Engineering & Technology					SKKU, B. Sc. in Computer Science			SKKU, M. Sc. in Interaction Science (w/ Researcher, SKKU)					
Entertainment & Contents													
Industry & Management													
					Developer, ASTA Inc.,			KAIST, Ph. D. in Innovation & Tech. Management*			Research Specialist		
*including a period of a visiting researcher in University Jaume-I, Spain													
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*including a period of a visiting researcher in University Jaume-I, Spain

Course Structure

▶ Lecture (Monday 11:00 – 13:00 / 15:00 – 17:00)

- ERICA 클러스터교육지원센터 멀티미디어강의실5 (305호)
- ERICA 클러스터교육지원센터 멀티미디어강의실3 (302호)

▶ Lab (Monday 13:00 – 15:00 / 17:00 – 19:00)

- 제 3공학관 318호 컴퓨터보안실습실 / 제4공학관 PC1실
- You can leave as soon as you solve all the given problems
- TA (Teaching Assistant): 전상일, 강지원 조교

I will try my best to sharply start lecture/lab at 11:00 and 15:00, respectively.

Course Structure

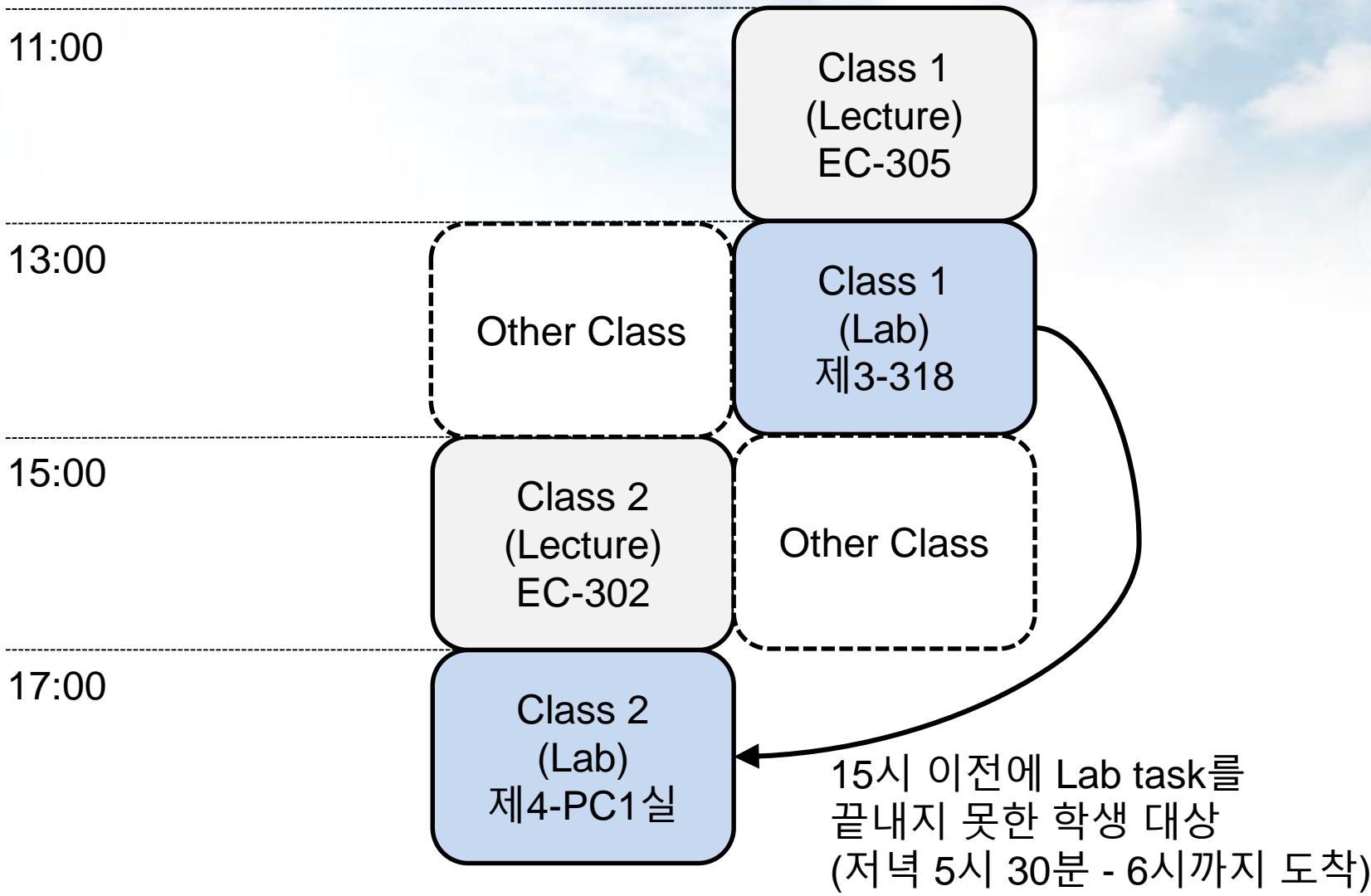
There is
no homework!

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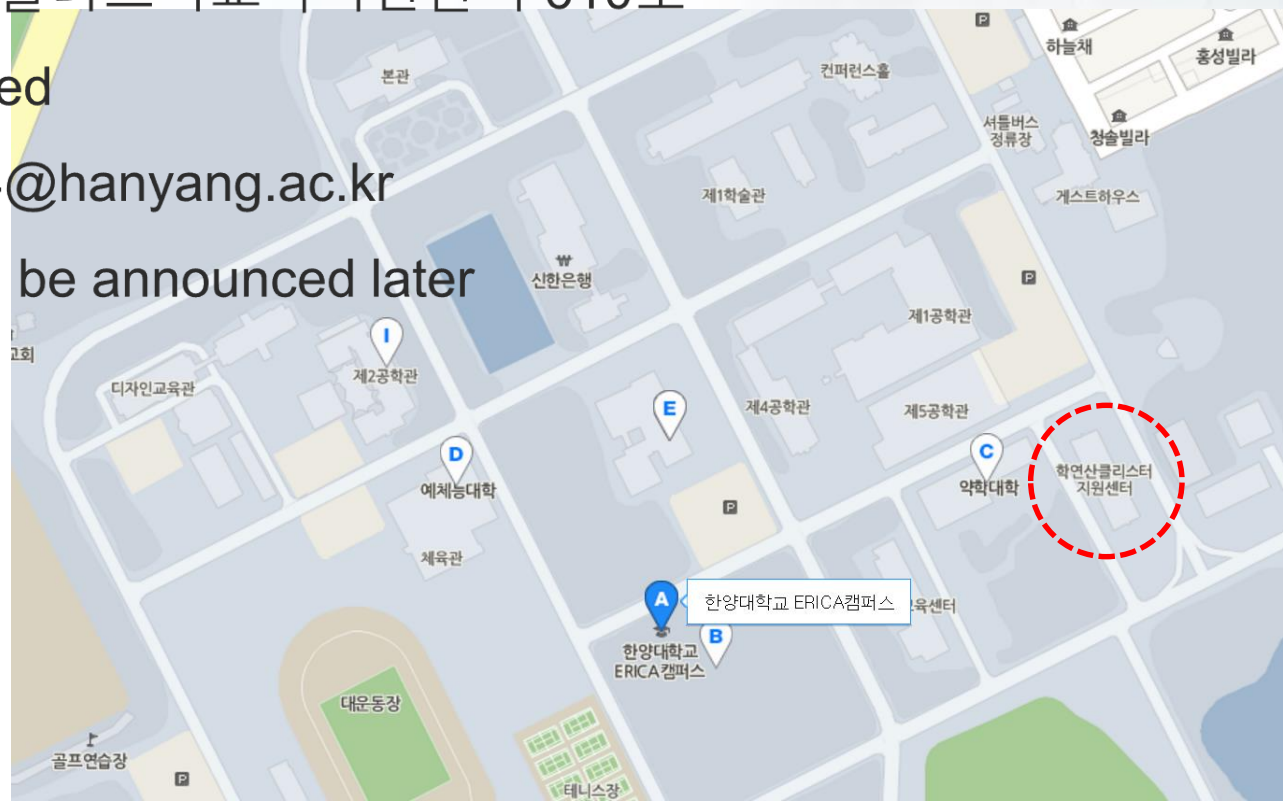
Course Structure



Office Hour

▶ Office hour information

- Time: Monday 10:00 am – 11:00 am
- Location: ERICA 클러스터교육지원센터 610호
- Appointment-based
 - Email: pa1324@hanyang.ac.kr
- TA office hour will be announced later



Grading Policy

➤ Relative evaluation

- Scores break (total 100)
 - Lecture attendance and attitude (10)
 - 2/3 attendances of classes are required
 - Lab attendance/exercise (2points * 12days = 24)
 - Project (16)
 - Midterm/Final (50)
 - Live coding exam

No Cheating

- No submission is better than cheating
 - Zero Tolerance Cheating Policy
 - Definition of cheating in this class
 - **Knowingly** or **unknowingly** participating in the submission of **unoriginal** work for any test (e.g., lab exercise, project)
 - Answer to roll-call instead of another student is also regarded as cheating
 - Penalty
 - Assign a fail grade

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Course schedule

수업일	내용	비고
3/ 5	수업 소개	
3/12	코딩, 첫 걸음	
3/19	함수 만들기	
3/26	안전코딩	Project 팀 구성 (3인)
4/ 2	재귀와 반복 - 셸	
4/ 9	재귀와 반복 - 정렬	
4/16	재귀와 반복 - 검색	
4/23	중간시험 (재귀와 반복 - 동적계획법)	Project 계획서 제출 (5 slides)
4/30	객체지향 프로그래밍 - 객체와 클래스	Project 계획서 발표
5/ 7	No Class	어린이날 대체공휴일
5/14	객체지향 프로그래밍 - MVC 구조기반 설계 및 구현	
5/21	객체지향 프로그래밍 - GUI 활용	
5/28	객체지향 프로그래밍 - 사례 학습	
6/ 4	기말고사 (일정 제공지)	
6/11	프로젝트 시연(일정 제공지)	Project presentation (7mins)

Project

▶ Team project guideline

- Team formation
 - 3 students can be one team
- Deliverables
 - Project plan (5 pages ppt) by 4/23 night,
Project presentation (7 mins, strict) on June 11
 - Motivation, problem definition
 - Role of each student
 - Demonstration

Available Resources

- MacBook Air 대여 신청 사이트
 - <http://cse.hanyang.ac.kr/boards/notices/?uid=1281&mod=document>
 - 이번 주 안에 신청!!!
- 추천 도서
 - 교양서
 - 이광근 지음, 컴퓨터과학이 여는 세계, 2015
 - 역사서
 - [역서] 월터 아이작슨 지음, 아노베이터 : 창의적인 삶으로 나아간 천재들의 비밀, 오픈하우스, 2015년 2월
 - [원서] Walter Issacson, The Innovators - How a Group of Hackers, Geniuses, and Geeks Created the Digital Revolution, 2014
- Other resources will be available in the Goorm.
 - Linux 기본 명령어
 - 비디오 material

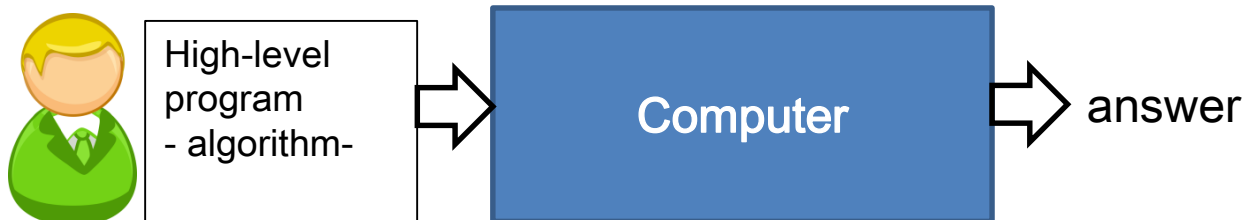
Class Materials

- We will use Python idle and PyCharm for Lab exercises
- All material files will be uploaded to our course webpage
- All exercise files should be uploaded to our course webpage, after the TAs' confirmations

Python programming

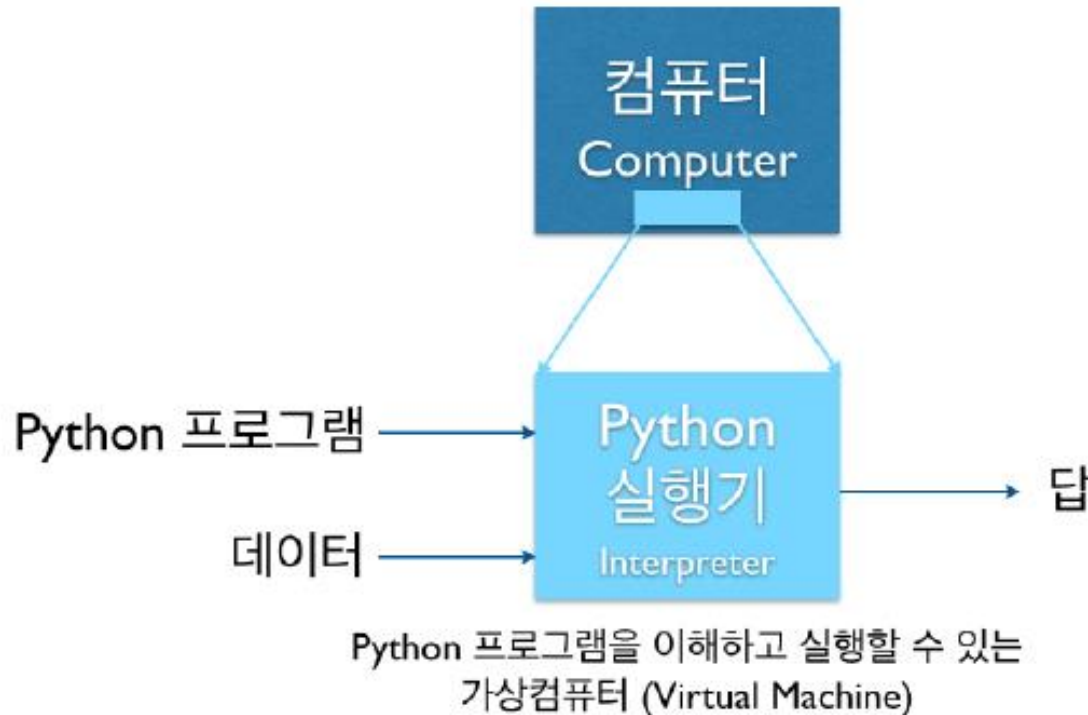
Computer & Program

- Computer = machine solving problems
 - Hardware: physical components (e.g., CPU, memory)
 - Software: instruction to solve a problem
- Program = language for interacting with computer
 - Low-level programming language: machine-understandable/friendly language (e.g., machine codes, assembly)
 - High-level programming language: Human-understandable/friendly language (e.g., C, JAVA, **Python**)
- Algorithm = a sequence of actions to solve a problem



Python Interpreter

- Python Interpreter = 실행기
 - A virtual machine that can understand and run python programs
 - Python 2.x, **Python 3.x (now 3.6)**



Characteristics of Python

- Easy
- Simple
 - Simple is better!
- Free, open source
- Good compatibility
- Extensibility
- Many packages
- Widely used today

● Java:

```
// Hello World in Java
class HelloWorld {
    static public void main(String args[]) {
        System.out.println("Hello World!");
    } }
```

● C++:

```
// Hello World in C++
#include <iostream.h>
Main() {
    cout << "Hello World!" << endl;
    return 0;
}
```

● Python:

```
# Hello World in Python
print 'Hello World!'
```

Python 3.6 Installation

- Python 3.6
 - <https://www.python.org/>
- Installation packages
 - Anaconda 4.3.0 (Python 3.6)
 - Co-install many good packages
 - <https://www.continuum.io/downloads>

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Python 3.6 Installation

- <https://www.python.org/>

Python

PSF

Docs

PyPI

Jobs

Community



GO

Socialize

Sign In

About

Downloads

Documentation

Community

Success Stories

News

Events

```
# Python 3: List comprehensions
>>> fruits = ['apple', 'banana', 'cherry']
>>> loud_fruits = [fruit.upper() for fruit in fruits]
>>> print(loud_fruits)
['APPLE', 'BANANA', 'CHERRY']

# List and the enumerate function
>>> list(enumerate(fruits))
[(0, 'apple'), (1, 'banana'), (2, 'cherry')]
```

All releases

Source code

Windows

Mac OS X

Other Platforms

License

Alternative Implementations

Download for Windows

Python 3.6.0

Python 2.7.13

Note that Python 3.5+ cannot be used on Windows XP or earlier.

Not the OS you are looking for? Python can be used on many operating systems and environments.

[View the full list of downloads.](#)

Python is a programming language that lets you work quickly and integrate systems more effectively. >>> [Learn More](#)

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Python 3.6 Installation

- <https://www.continuum.io/downloads>

The screenshot shows the Anaconda website's download page. At the top, there are three tabs: "Download for Windows", "Download for OSX", and "Download for Linux". The "Download for Windows" tab is selected. Below the tabs, the page is divided into two main sections: "Python 3.6 version" and "Python 2.7 version". The "Python 3.6 version" section is highlighted with a red dashed box. It contains two buttons: a green "64-BIT INSTALLER (422M)" button and a blue "32-BIT INSTALLER (348M)" button. The "Python 2.7 version" section contains two buttons: a blue "64-BIT INSTALLER (413M)" button and a blue "32-BIT INSTALLER (339M)" button. On the left side of the page, under the "Download for Windows" tab, there is a section for "Anaconda 4.3.0 For Windows". It includes a brief description of the BSD license, a link to the "Changelog", and a list of three steps for installation. At the bottom of the page, there is a footer with links to the "Anaconda installer archive" and "contact us".

Download for Windows Download for OSX Download for Linux

Anaconda 4.3.0 For Windows

Anaconda is BSD licensed which gives you permission to use Anaconda commercially and for redistribution.

[Changelog](#)

1. Download the installer
2. Optional: Verify data integrity with [MD5 or SHA-256](#) [More info](#)
3. Double-click the **.exe** file to install Anaconda and follow the instructions on the screen

Behind a firewall? Use these [zipped Windows installers](#)

Python 3.6 version

64-BIT INSTALLER (422M)

32-BIT INSTALLER (348M)

Python 2.7 version

64-BIT INSTALLER (413M)

32-BIT INSTALLER (339M)

For older versions of Anaconda installers, see the [Anaconda installer archive](#)
For long-term support of the packages found in the Anaconda archives, please [contact us](#).

Python IDE

- Python IDE (Integrated Development Environments)
 - Pycharm, eclipse, pydev, etc...
- There are some comparisons among IDEs
 - e.g., <https://wiki.python.org/moin/IntegratedDevelopmentEnvironments>
- You can just use text editors and run Python
 - Text editors
 - Vim: (Linux and MacOS has it by default) - <http://www.vim.org/>
 - Emacs : <https://www.gnu.org/software/emacs/>
 - Sublime Text : <https://www.sublimetext.com/>
 - Atom : <https://atom.io/>

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PyCharm

- <https://www.jetbrains.com/pycharm>



PyCharm

Coming in 2017.1

What's New

2016.3

Features

Docs & Demos

Buy

Download



Version: 2016.3.2

Build: 163.10154.50

Released: December 30, 2016

[System requirements](#)

[Installation Instructions](#)

[Previous versions](#) [↗](#)

Download PyCharm

macOS

Windows

Linux

Professional

Full-featured IDE
for Python & Web
development

DOWNLOAD

232 MB

Community

Lightweight IDE
for Python & Scientific
development

DOWNLOAD

179 MB

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This week's task

- Create your own python environment.
- Run python command!



Thanks

Week 1: Course Introduction

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