

# Introduction to C Programming

— Overview · Tutorial —

Waseda University

# Overview of this lecture

## Overview

- Learning basics of the C language on the UNIX system (We will use CentOS in this lecture.)

## Aim

- Using basic UNIX commands
- Understanding programming and software
- Writing/Debugging C programs

## How to learn

- You must watch a lecture Video before each lesson.
- You solve an exercise and submit your answer via the CourseN@vi system.
- If you have any questions, you can ask your teacher or teaching assistants.

# Curriculum

Overview & Tutorial

UNIX Usage

Basics of Programming (1) : Variables · Standard Input/Output (1)

Basics of Programming (2) : Variables · Standard Input/Output (2)

Basics of Programming (3) : Branches

Basics of Programming (4) : Loops (1)

Basics of Programming (5) : Loops (2)

Arrays · Preprocessor

Random Numbers · Mathematical Libraries

Functions · Global Variables

Pointers

Characters · Strings

File Input/Output

Structures

# Grading

## Attendance

- You will fail your grade if you attend **less than 10 lessons**.
- You must register your attendance on the Course N@vi system.
- You will be marked absent if you delay more than 10 minutes.

## Evaluation

- Number of attendance
- Exercises
- Homeworks
- Examinations

## Caution

Any cheating (ex. copying someone's code entirely) is prohibited.

# Preliminaries

Students are assumed to already learn the followings. You should learn them by yourself if you are inexperienced.

- Mouse operations (double-clicking, dragging)
- Touch-typing (→ gtype helps you to practice!)  
(<http://www-it.sci.waseda.ac.jp/links/gtypist/>)
- Japanese Input (<http://www.mse.waseda.ac.jp/mse-help>)  
【Ctrl】 + 【¥】 , 【space】 , 【Enter】 , 【Ctrl】 + 【i】 etc.  
【¥】 or 【\】
- One-byte character, Two-byte character  
Recommend using one-byte characters when you are coding.
- Browse web pages, Send emails
- Instructions for connecting UNIX system from outside the campus  
<http://www-it.sci.waseda.ac.jp/links/TeraTerm/>
- System environment in this room is available at  
<http://www.mse.waseda.ac.jp/pc-room/63floor.html>

# C & UNIX system

## What is C?

**Adaptable & Flexible:** C is a programming language that allows a software engineer to communicate with a computer. C has been used for a variety of programs including operating systems, applications, etc.

## What is UNIX?

**Portable & Widely-used:** UNIX is a computer operating system. It was developed in the 1969 at AT & T Bell Labs research center. Almost all parts of UNIX is written in C. UNIX is designed to be portable, multi-tasking, and multi-user. UNIX operating systems are widely used in servers, workstations, supercomputer, and mobile devices.

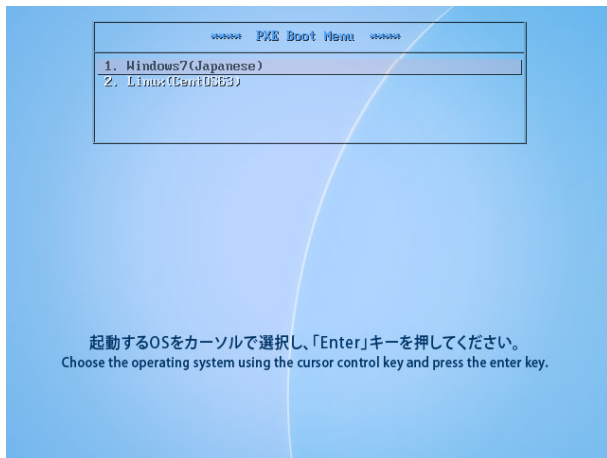
# Today's Topics

- How to login / logout the UNIX system
- Start GNOME terminal · Exit the terminal
- Operations in web browser

# Login / logout the UNIX system

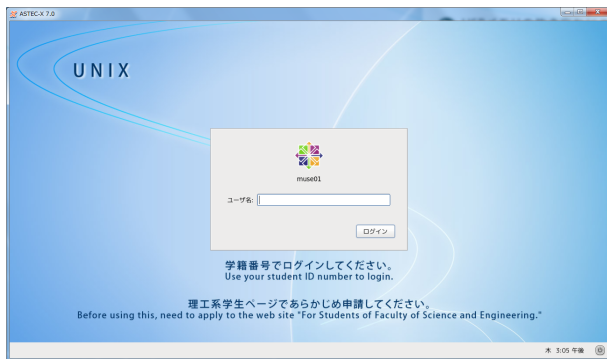
## Login

Choose the operating system named “CentOS” after booting.





# Login / logout the UNIX system



- **Student ID** and **password** are necessary to login.
  - Other people never knows your **password**. (You should choose a strong password.)
- You must have your **account** of the UNIX system.
  - Do not use others' account.
- You need to **apply for getting your account before this lecture**.  
<http://www.mse.waseda.ac.jp/pc-room/unix/about.html>

# Terminal

## Running terminal

You run the terminal through

**【Applications】** → **【System Tools】** → **【Terminal】**

- You can also run the terminal by clicking a display-icon at top of your screen.
- You can enter UNIX commands on the terminal.

# Terminal

## Running terminal

You run the terminal through

【Applications】 → 【System Tools】 → 【Terminal】

- You can also run the terminal by clicking a display-icon at top of your screen.
- You can enter UNIX commands on the terminal.

## Enter UNIX commands

\$ ○○○○ 【Enter key】

## Exit the terminal

\$ exit 【Enter key】

# Operations in web browser

- In this lecture we use a web browser named “Firefox”.

## Running Firefox on the terminal

```
$ firefox & 【Enter key】
```

- Type “&” at the end of the command. Otherwise, you cannot use the terminal when Firefox ends.
- Quit Firefox by clicking “×” button at the upper right of the window.
- Running Firefox again, then access the following web site:  
<http://www-it.sci.waseda.ac.jp/CPR1/>

# Login / logout the UNIX system

## Logout the UNIX system

When the class ends, you logout the UNIX system through  
【Account】 → 【Quit】

# Summary

- How to login / logout the UNIX system
- Start GNOME terminal · Exit the terminal
- Operations in web browser