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# C++

## Course information

- **Lectures:** M5, Monday, 4th period (14:50-16:20)
- **Exercises:** std3 and std4, Monday, 5th period (16:30-18:00)

- **Instructors:**
  - **M5:** Pierre-Alain Fayolle (email: fayolle)
  - **std3:** Konstantin Markov (email: markov)
  - **std4:** Pierre-Alain Fayolle (email: fayolle)
- **Teaching Assistants:**
  - **std3:**
    - Suzuki Kazuma (email: m5151106)
  - **std4:**
    - Li He (email: d8141105)

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- **Course objectives:** This course provides an introduction to the C++ programming language. In this class, we introduce the student to the basic facilities of the C++ language. We present the abstraction mechanisms provided by the language that allow for Object Oriented Programming (OOP) and Generic Programming. Finally, we give an introduction to the standard library and the facilities that it provides.

- **Evaluation:**
  exercises - 30%
  project - 25%
  final examination - 45%

# Slides

- Week 1:
  - Presentation pdf
  - Separate compilation pdf
  - Streams pdf
- Week 2:
  - Data abstraction pdf
  - Static members pdf
- Week 3:
  - Pointers pdf

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    - References pdf

- Week 4:
    - Const-correctness pdf
    - Definition, declaration pdf
- Week 5:
    - Overloading, constructors and assignment operator pdf
    - Destructors; order of construction and destruction pdf
- Week 6:
    - Inheritance: introduction pdf
    - Inheritance: access control pdf
    - Inheritance: substitution principle pdf
- Week 7:
    - Inheritance: virtual methods, overriding vs overloading and abstract base classes pdf
    - Inheritance: public, protected and private inheritance pdf
- Week 8:
    - Exceptions pdf
- Week 9:
    - Operator overloading pdf
- Week 10:

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    - Introduction to generic programming pdf
    - Template pdf
- Week 11:
    - STL containers pdf
- Week 12:
    - STL iterators pdf
- Week 13:
    - Functors pdf. Examples written on the whiteboard at the end of the lecture.
- Week 14:
    - STL algorithms pdf

# Exercises

## How to submit:

- **How to submit:** Submit your solution by email to: your instructor and your TA(s). You can find the name and emails of the instructors and TAs at the beginning of this page. Subject of email is: [C++] ExXX (XX corresponds to the week)
- 提出方法：電子メル. To: 演習のInstructor と TA。Subject を [C++} ExXX (たとえば最初の演習は　[C++] Ex01 になります)

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- **When to submit:** To solve an exercise, you have the time of the class (1 hour 30) plus one week. Your solution need to be submitted before the beginning of the following exercise class (i.e. before the next monday, 16:30)
- 提出期限： 1 週後の演習まで (16:30)
- **What to submit:** You should submit as attachments to your email the source code (files) corresponding to your solution for each of the questions.
- 提出：ソースコード（ファイル）

## List of exercises:

- Week 13
- Week 14

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# Project

This year's C++ project is described here. Deadline is January, 21st 2013.

# Links

- Reference to the C++ language (English, Japanese)
- C++ documentation
- C++ FAQ