

Description and Requirements

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Babes-Bolyai University

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Guiding Teachers

Description
and
Requirements

Iuliana
Bocicor

- Iuliana BOCICOR, Assoc. prof. PhD
- Arthur MOLNAR, Assoc. prof. PhD
- Gabriel MIRCEA, Lect. PhD
- Andreea POP, Lect. PhD
- Andrei MIHAI, Assist. PhD.
- Danut POP, associated prof. M.Sc.
- Andrei ONITA, associated prof. M.Sc.
- Bogdan DUMBRAVEAN, associated prof. M.Sc.

Activites

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- **Lecture:** 2 hours/week
- **Seminar:** 1 hour/week
- **Lab:** 2 hours/week

Objectives

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Course Objectives:

- Introduction to the C/C++ Programming Languages
- Practice important concepts from the object oriented paradigm

What you should learn from this course:

- solve small/medium scale problems using OOP
- construct and use class structures as fundamental, modular building blocks
- understand the role of inheritance, polymorphism, dynamic binding and generic structures in building reusable code
- use libraries (STL)
- write small/medium scale C++ programs with simple graphical user interfaces

Bibliography I

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- ① B. Stroustrup. *The C++ Programming Language*, Addison Wesley, 1998.
- ② Bruce Eckel. *Thinking in C++*, Prentice Hall, 1995.
- ③ A. Alexandrescu. *Programarea moderna in C++: Programare generica si modele de proiectare aplicate*, Editura Teora, 2002.
- ④ S. Meyers. *Effective C++: 55 Specific Ways to Improve Your Programs and Designs (3rd Edition)*, Addison-Wesley, 2005.

Bibliography II

- 5 S. Meyers. *More effective C++: 35 New Ways to Improve Your Programs and Designs*, Addison-Wesley, 1995.
- 6 B. Stroustrup. *A Tour of C++*, Addison Wesley, 2013.
- 7 E. Gamma, R. Helm, R. Johnson, J. Vlissides. *Design Patterns: Elements of Reusable Object-Oriented Software*, Addison-Wesley Longman Publishing, 1995.
- 8 C++ reference (<http://en.cppreference.com/w/>).
- 9 Qt Documentation (<http://doc.qt.io/qt-6/>).

Course Content

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- 1 C Programming Language Fundamentals, Functions
- 2 Modular Programming and Memory Management
- 3 Classes and Objects
- 4 Templates and the C++ Standard Library
- 5 Inheritance and Polymorphism
- 6 I/O Streams and Exceptions
- 7 Pointers and RAII
- 8 Designing GUI with Qt
- 9 Design Patterns

Course Rules I

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- Attendance is compulsory for laboratory and seminar activities:
 - Laboratory: at least **12** out of a total of 14.
 - Seminar: at least **5** out of a total of 7.
- **Unless you have the required number of attendances, you are not allowed to take the examination this year!**
- Do not plagiarise!

Course Rules II

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- Another precondition to attend the examination in the regular session is to have the laboratory grade $L \geq 5$ (no rounding)! This grade is computed as shown on the next slide.
- If you do not have at least 5 for your laboratory activity, you may participate to the examination only during the re-take session. In this case, you must present all laboratory assignments and the maximum grade you can get for these is 5.

Grading

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- Lab grade (**L**)
 - 50% Lab assignments
 - 50%: 3 practical tests during the labs (15%, 15%, 20%)
 - Bonus work (**LB**)
- Written examination (**W**)
- Practical examination (**P**)
- Seminar activity (**SA**): 0 - 0.5 (bonus)

The final grade is computed as:

$$G = 0.4 \cdot L + 0.3 \cdot P + 0.3 \cdot W + SA + LB$$

To pass the course, all grades (L, W, P) must be ≥ 5 (no rounding).