301AA - Advanced Programming [AP-20]

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After November 1st

Course pages: http://pages.di.unipi.it/corradini/Didattica/AP-20/

Virtual room: you have found it!

Department of Computer Science, Pisa
Academic Year 2020/21

AP-01: Overview and Admins
Goals of the course

• To provide the students with a deep understanding of how high level programming concepts and metaphors map into executable systems and which are their costs and limitations
• To gain familiarity with modern principles, techniques, and best practices of software construction
• To introduce the students to techniques of programming at higher abstraction levels, in particular component programming and functional programming
• To present state-of-the-art frameworks incorporating these techniques.
Prerequisites

• Undergraduate level knowledge of
  – at least one object-oriented programming language (like Java, C++, C# or others)
  – at least one functional programming language (like Haskell, OCaml, Scheme or others)

→ Informal online evaluation (to be organized)
→ Suggestions to fill possible gaps will be given
Programme

• Run Time Support and Execution Environments
• Component Based Programming
• Software and Application Frameworks
• Polymorphism & Generic Programming
• Functional aspects of programming languages
• Scripting languages
• Advanced concepts in programming languages
Organization of the course

• **Frontal lessons** are presented online on Teams, using slides
• *Lessons will be recorded and left accessible on Teams (unless...)*
• An **informal entry evaluation** of the course prerequisites will be proposed at the beginning of the course. Details will follow...
• **Hands-on activities** will be organized, to experiment with concepts, tools and languages presented in the lessons. Mainly in the second part of the course.
• Interaction with the lecturer: **during lessons**, by e-mails, in meetings during office hours (day/time to be fixed).
• On the **web page of the course**, the slides presented in each lesson are published progressively, with references to corresponding topics in the reading material.
• ➔ see also [http://pages.di.unipi.it/corradini/Didattica/AP-19/](http://pages.di.unipi.it/corradini/Didattica/AP-19/)
Evaluation and other things...

Evaluation

• Some programming assignments during the course
• Final oral exam

Attendance to the course is strongly encouraged

• The recorded lessons are available for exceptional situations
• If you miss a lesson, you can find on the course web page the list of topics presented, with slides and references to teaching material

Examination methods for non-attending students are identical to those for attending students
Reading material

• Will be suggested progressively along the course
• Mostly material accessible on-line

Credits

• Slides of the course freely taken and elaborated from a number of sources:
  – Giuseppe Attardi (DIP), Advanced Programming
  – Gianluigi Ferrari (DIP), Advanced Programming
  – Antonio Cisternino (DIP)
  – and others that will be indicated along the course
Some Suggested Readings


Admins...

- Web page of the course:  

- Office Hours:  ???

- Also: by appointment, sending an email to  
  [andrea@di.unipi.it](mailto:andrea@di.unipi.it)
Other infos

• Erasmus+ -- next call: **25/09/2020** deadline: **9/10/2020**
• Double Degree with "Master Degree in Computer Engineering" of University of Malaga
• ➔ for info send an email to [erasmus@di.unipi.it](mailto:erasmus@di.unipi.it)