301AA - Advanced Programming [AP-2018]

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Course pages: http://pages.di.unipi.it/corradini/Didattica/AP-18/

Department of Computer Science, Pisa  
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**AP-01: Overview and Admins**
Goals

• 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 test soon: Thursday

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

• **Entry test** will be proposed at the beginning of the course. Students who will not pass the test will be instructed on how to fill the identified gaps.

• **Frontal lessons** are performed using slides and blackboard.

• **Practical sessions** will take place in the classroom, under supervision of the lecturer and of the tutor. Students are invited to bring their own laptops.

• Interaction with the teacher is done through interviews (on fixed office hours or by appointment) and by e-mail.

• 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 [http://pages.di.unipi.it/corradini/Didattica/AP-17/](http://pages.di.unipi.it/corradini/Didattica/AP-17/)
Evaluation and other things...

Evaluation
• Some (three?) programming assignments during the course
• Final oral exam

Attendance to the course is strongly encouraged
• If you miss a lesson, you can find on the course web page the list of topics presented for each lesson, with the projected slides and references to the relevant 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:
  http://pages.di.unipi.it/corradini/Didattica/AP-18/
  (permanently under construction...)

• Office Hours: Friday, 4-7 pm
  – Also: by appointment, sending an email to
  andrea@di.unipi.it
Other infos

• Italian language courses, organized by CLI (Centro Linguistico Interdipartimentale)
  – [http://www.cli.unipi.it/corsi/test-dingresso](http://www.cli.unipi.it/corsi/test-dingresso)
• List of courses offered by the Master Programmes, Timetables, ...
• Erasmus -- next call: **27/09/2018** deadline: **12/10/2018**
• 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)
• **BANDO PER INCARICHI, PRESSO IL DIPARTIMENTO DI INFORMATICA – UNIVERSITA’ DI PISA, DI COLLABORAZIONE PART-TIME COUNSELING – SCADENZA 21/09/2018 & 28/09/2018**