Scuola Superiore Sant'Anna
di Studi Universitari e di Perfezionamento

Università di Pisa

Master Program /Laurea Magistrale in Computer Science and Networking

September 12, 2011

Start up academic year 2011-12

Welcome

- This speech: a short introduction for the Master Program start up, 3rd edition
- Organizational matters, information, comments and recommendations
- **Study Plans**
- Prerequisites and precourses

Information

- Official page of the Master Program (WIN)

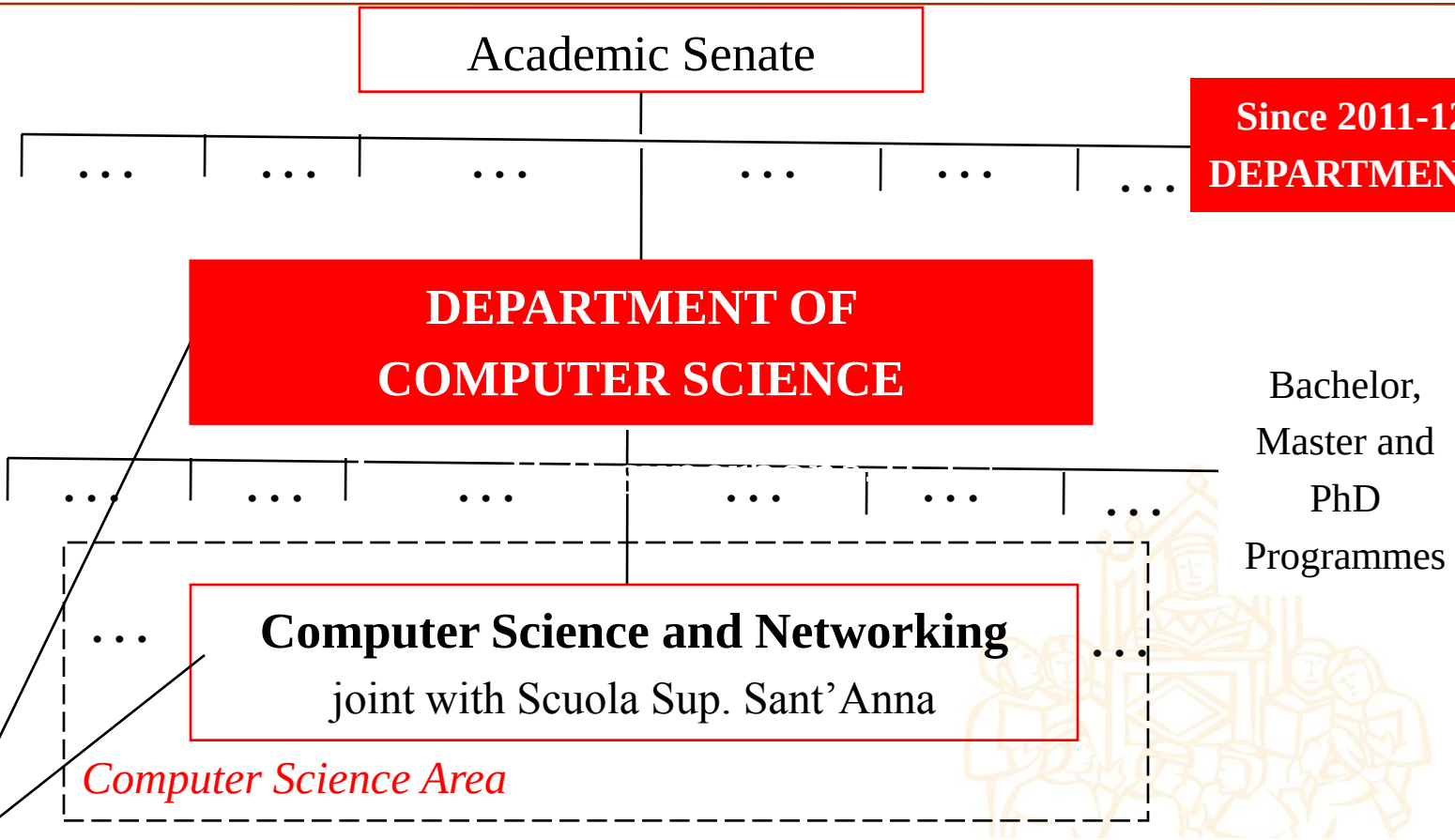
  http://compass2.di.unipi.it/didattica/win18

  – notices (*avvisi*), enrolment (*iscrizioni)* information, professors and secretary office, courses, timetable, … , management

This presentation

- WIN Office Secretary:
  – Rosie Mongini (Department of Computer Science)
  – Claudio Manfroni (Sant'Anna)

University of Pisa



- *Administrative and management responsibility: didactic plans and rules, students careers.*
- *Sant'Anna is the peer partner in the didactic and scientific management of MCSN.*
- *Joint Title of Master in Computer Science and Networking.*

Computer Science and Networking: Management

Master Board (*Consiglio di Corso di Laurea*)**:**

- All professors and assistant researchers
- Representatives of students (formally elected): currently
  - Daniele De Sensi
  - Simone Giuliani
  - Francesca Pacini
  - Gianmarco Saba
- Didactic Committee *(Commissione didattica)*:
  - 4 students , 4 professors + President of Master Board

Approach to this Master Program

- High quality education and training
- Exploit the "small class" (*numero programmato*) feature at best
  - achieving the quality goal in a *productive and pleasant* way
- Professors and students must gain a collaborative *modus operandi*
  - solving problems together
- This has been one of the main motivations for the Master Program definition, and my personal commitment

Courses and Study Plans

- Current official regulations:
  - **9** mandatory courses, **2** subsidiary courses (STUDY PLAN), **1** free-choice exam
  - **120** CFU (additional credits are permitted)
- **On going: new regulations** for 2012-13.
- **For 2011-12: recommended schemes of Study Plan, with some differences wrt the official scheme**
  - goal: to improve the characterization of the Master Program
- *2011-12: students may choose the official scheme or the new schemes.*
- *2nd year students can submit a new Study Plan, if willing.*

Presentation of courses

- Wednesday, **September 14, at 14:30** – **Gerace room** (Department of Computer Science)
  - Lectures are suspended
- All course programs and syllabus are available in the Master site http://compass2.di.unipi.it/didattica/win18
  - 2 pdf files in section “courses”
- **Study plans must be submitted by the end of september**
  - *they can be modified next year.*

Subsidiary courses: number of credits (CFU)

- *At most* one **9-CFU** slot (subsidiary course of Study Plan or free-choice exam) can consist of
  - a **6-CFU c**ourse,
  - plus **3 CFUs** added to the Master Thesis:
    - formally, the 3-CFU module ***"Survey in Preparation of Final Proof"***
- *Additional credits are permitted*
  - *e.g. total 123 CFU, or 126 CFU, …*

Courses: official regulations

First Year			
Course	**# CFU**	**semester**	**teacher**
Access, Metropolitan and Core Networks	12	1,2	Luca Valcarenghi
Advanced Programming	9	1	Giuseppe Attardi
Network Management and Configuration	9	1	Piero Castoldi
Algorithm Engineering	6	1	Paolo Ferragina
High Performamce Computing and Enabling Platforms	6	1	Marco Vanneschi
Distributed Systems: Paradigms and Models	9	2	Marco Danelutto
FREE-CHOICE EXAM	9		

Courses: official regulations

Second Year			
Course	**# CFU**	**semester**	**teacher**
Optical Communication Theory and Techniques	12	1,2	Enrico Forestieri
Software Service Engineering	9	2	Antonio Brogi
Models of Computation	9	2	Ugo Montanari
STUDY PLAN - COMPLEMENTARY EXAM	9		
STUDY PLAN - COMPLEMENTARY EXAM	6		
MASTER THESIS	15		

Subsidiary courses

- **List of activated courses**: see Master site

  http://compass2.di.unipi.it/didattica/win18

- In the official regulations scheme for Study Plan, the student has the choose
  - any one of the activated 9-CFU courses,
  - any one of the activated 6-CFU courses.
- + any one of the activated 9-CFU courses for the free-choice exam.

New recommended schemes, 2011-12

- Two schemes
  - with 8 mandatory exams in common
  - 1 free-choice exam (9-CFU)
- SCHEME 1: more oriented towards integration of
  - *Computer Science systems and applications*
  - *Networking Architectures*
- SCHEME 2: more oriented towards integration of
  - *Computer Science systems and applications*
  - *Optical and Photonic Communication Technologies*

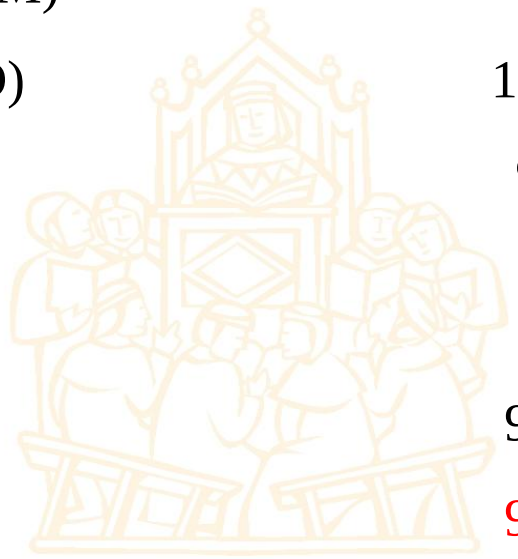
Mandatory Exams: common kernel (69 CFU)

1st YEAR

- Algorithm Engineering (ALE) 6 CFU
- High-performance Computing Systems and Enabling Platforms (SPA) 6
- Advanced Programming (PA) 9
- Distributed Systems: Paradigms and Models (SPM) 9
- Access, Metropolitan and Core Networks (RMD) 12
- Network Management and Configuration (GCR) 9

2° YEAR

- Software Service Engineering (ISS) 9
- Teletraffic Engineering (IT) 9



Schemes 1, 2 (“Percorsi 1, 2”)

SCHEME 1:

- One 9-CFU exam in GROUP 1
- One 9-CFU exam in GROUP 2
- One 9-CFU exam in GROUP 3

SCHEME 2:

- Theory and Techniques of Optical Communications (TCO - 12 CFU)
- One 9-CFU exam in GROUP 4
- One 6-CFU exam in GROUP 5

Scheme 1

GROUP 1 (9 CFU):

- Models of computation (MOD)
- Programming tools for parallel and distributed Systems (SPD)
- Network security (SR)

GROUP 2 (9 CFU):

- Networking architectures, components and services (ACS)
- Packet switching and processing architectures (AED) 6 CFU (+ 3 …)
- Architecture and design issues of multimedia systems (AAP) 6 CFU (+ 3 …)
- Performance and design issues of wireless networks (ARW)
- Network optimization methods (MOR)
- Networks and technologies for telecommunications (RTT)

Scheme 1

GROUP 3 (9 CFU):

- *Remaining courses of GROUP 1 and GROUP 2*
- Numerical Techniques for applications (TNA) - 9 CFU

6-CFU (+ 3 …)

- Parallel and Distributed Algorithms (ALP)
- Complements of distributed enabling platforms (CPA)
- Information retrieval (IR)
- Laboratory of distributed software design (LPD)
- Peer to peer systems (P2P)
- Secutity issues in web applications (PSW)
- Embedded systems (SE)
- Real-time systems (SRT)
- Formal methods for security (MFS)
- Methods for the specification and verification of business processes (MPB)
- Performance of multimedia networks (PRM)

Scheme 2

GROUP 4 (9 CFU):

- Programming tools for parallel and distributed Systems (SPD)
- Network security (SR)

GROUP 5 (6 CFU , or additional credits):

- *Remaining course of GROUP 4*
- *Courses of GROUP 2*
- Complements of distributed enabling platforms (CPA)
- Laboratory of distributed software design (LPD)
- Photonic switching (CF) – 9 CFU
- Laboratory of photonic switching (LSF)
- Propagation and applied optics (POA)
- Optical amplification and sensing (AOS) – 9 CFU
- Networked virtual environments (AVR)

Prerequisites in Computer Science and/or in Communication: how to complete the needed input knowledges and skills

- ***Specific recommendations of the Master Board for every individual student.***

- *To acquire additional background knowledges and prerequisites:*
  - ***Free-Choice Exam (1st year)***

  or

  - ***PRECOURSES (1st year)***

PREREQUISITES in COMPUTER SCIENCE

- **For all students *not* coming from Computer Science in Pisa (Bachelor degree):**
- Strongly recommended: **PRECOURSES** in **Programming**, **Algorithms**, and **Computer Architecture** fundamentals
    - **First and second week**: lectures of **Advanced Programming** (**PA** – Prof. Attardi), **Algorithm Engineering** (**ALE** – Prof. Ferragina), and **High Performance Computing and Enabling Platforms** (**SPA** – Prof. Vanneschi)
    - Extra hours
- Such precourses are **recommended to the "Pisan" students as well**, in order to (re-) gain sensibility of the methodologies studied at the University of Pisa.

Precourses: time schedule

	lun 12 set 11	**mar 13 set 11**	**mer 14 set 11**	**gio 15 set 11**	**ven 16 set 11**
ALE		14-16, N1	14-16, N1	14-16, N1	14-16, N1
PA		11-13, B1	11-13, B1	11-13, B1	9-11, B1
SPA	11-13, L1	9-11, L1		16-18, L1	11-13, L1
	lun 19 set 11	**mar 20 set 11**	**mer 21 set 11**	**gio 22 set 11**	**ven 23 set 11**
ALE	14-16, N1	14-16, N1			
PA		11-13, C	14-16, B1		9-11, A
SPA	11-13, C1			16-18, C1	11-13, C1

PREREQUISITES in PHYSICS and COMMUNICATIONS

- Some initial modules of the first year courses in Communication (Access, Metropolitan and Core Networks, and Network Management and Configuration) supply several prerequisites (e.g. SIGNAL THEORY).

- **OFFICIAL REGULATIONS SCHEME or SCHEME 2:**

  for students with a Computer Science Bachelor degree, or **with no background in Physics II** (Electromagnetism, Optics, Mathematical tools) :

  - **MODELS OF PHYSICS** as **FREE-CHOICE EXAM**
  - **6 CFU + 3 CFU module for Thesis**

Acknowledgements

- All the actions and solutions to improve the schemes, syllabus, prerequisites, and so on,

  have been discussed and implemented with the fundamental contribution of the **students and their representatives.**

- *Since the beginning, their participation to the organization of this Master Program has been of invaluable importance.*


good luck
in bocca al lupo