PhD in Computer Science

Dear Students, this short guide carries a first piece of information which might be useful to you in order to get acquainted with our administrative proceedings.

General organisation

The PhD programme lasts three years and is entirely taught in English. Each student will have to attend and pass the test of at least four courses of 30 hours each in the first 18 months for a total of 120 hours of teaching activities, the remaining 18 months being entirely devoted to the research project.

Teaching programme academic year 2018/19

Within the above-mentioned general guidelines, the activities for students enrolled in the academic year 2018/19 are as follows:

MANDATORY

Advances in Autonomous, Distributed and Pervasive Systems (30 hrs)


Venue: Ca' Foscari Scientific Campus - via Torino, Mestre

Date and time: detailed information will follow soon

Syllabus:

- **Part 1** (prof. Riccardo Focardi)
  Security APIs (4 hours)Security mechanisms usually offer to programmers APIs that allows for managing sensitive data and cryptographic keys. We will revise the security of these APIs focussing on two practical case studies.
  Breaking and fixing Java keystores (3 hours)Cryptographic keys are stored into encrypted keystore files. We will introduce the principles behind keystore security and show recent vulnerabilities (and relative fixes) we found in Java keystores.
  Semantic-based firewalling (3 hours)Configuring firewalls is complex and error-prone. We will revise a recent language that allows for analysing and configuring firewalls focussing on the firewall security policy (i.e. the firewall semantics).

  Date and time:
    - 12/03: 10.30-12.45
    - 13/03: 10.30-12.45
    - 14/03: 12.00-13.30
    - 15/03: 10.30-12.00

All lectures will be held in the Acadia Lab.
• **part 2** (prof. Andrea Marin, dr. Claudio Silvestri)
  The course will also address the problem of content allocation in data intensive applications.
  In a first part, theoretical models and protocols for load balancing and high performance will be addressed thanks to an introduction to queueing theory and the optimality of the allocation protocols. This part will be followed by a laboratory part in which real case studies will be shown. More specifically, the topics addressed by the course will be:
  o introduction to stochastic modeling
  o queueing theory and fundamental queues
  o optimality of the scheduling and the Shortest-Remaining-Processing-Time discipline
  o optimality of the resource allocation policies: comparison between round robin, join the shortest queue, and other disciplines
  o tools for handling high volumes of messages: zeroMQ, RabbitMQ, Apache Flume, Apache Kafka, Apache Samza, Apache Spark Streaming

  **Date and time:**
  o 07/03, 14-15.30 Meeting Room B
  o 08/03, 14-15.30 and 15.45-17.15 Acadia Lab
  o 11/03, 14-15.30 and 15.45-17.15 Acadia Lab
  o 15/03, 14-15.30 Acadia Lab

• **Part 3** (dr. Stefano Calzavara)
  Web session security We will study how authenticated access is implemented on the web by means of cookies and the security threats associated to this common practice.
  Adversarial machine learning We will show that traditional machine learning techniques fall short against adversarial manipulations and discuss how they can be improved in this respect.

  **Date and time:**
  o 20/03, 15.30-17.45
  o 21/03, 15.30-17.45

  All lectures will be held in the Acadia Lab

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**KIIS Colloquia (30 hrs)**

**Lecturers:** prof. Claudio Lucchese, prof. Marcello Pelillo, prof. Andrea Torsello

**Venue:** Ca’ Foscari Scientific Campus - via Torino, Mestre

**prof. Pelillo (10 hrs)**

Date and time: tentative period, second semester (Spring 2019)
Class schedule will follow later on.

**Syllabus:** Philosophical Aspects of Machine Learning
The field of machine learning can arguably be considered as a modern-day incarnation of an endeavor which has challenged mankind since antiquity. In fact, fundamental questions pertaining to categorization, abstraction, generalization, induction, etc., have been on the agenda of mainstream philosophy, under different names and guises, since its inception. With the advent of modern digital computers and the availability of huge amount of raw data, these questions have now taken a computational flavor. In recent years there has been a revival of interest around the foundational and/or philosophical problems of machine learning, from both the computer scientist's and the philosopher's camps. This suggests that the time is ripe to attempt establishing a long-term dialogue between the philosophy and the machine learning communities with a view to foster cross-fertilization of ideas. The goal of this tutorial is to provide a timely and coherent picture of the state of the art in the field and to stimulate a discussion and a debate within our community. This could be an opportunity for reflection, reassessment and eventually some synthesis, with the aim of providing the field a self-portrait of where it currently stands and where it is going as a whole. We shall assume no pre-existing knowledge of philosophy by the audience, thereby making the tutorial self-contained and understandable by a non-expert.

prof. Lucchese (10 hrs)

Date and time: tentative period, early June 2019Class schedule will follow later on.

Syllabus: Helping a user in finding interesting pieces of information among the billions pages of the Web is a very challenging problem, an open research area and an application field for the most advanced techniques in the areas of Web Search and Data Mining. This course reviews the most recent advances in the areas of Web Search and Data Mining. Topics include: Web Mining, Learning to Rank, Graph Mining and Social Network Analysis.

prof. Torsello (10 hrs)

Date and time: tentative period, June/July 2019
Class schedule will follow later on.

Syllabus: Intro to quantum computation
Abstract this course will be composed of a series of open seminars introducing the fundamentals of quantum computing, quantum algorithms and quantum information theory.

Optional courses

Bertinoro School (first year students only)

Lecturers: local lecturers


Date and time: March 2019

Syllabus: see School website
Other courses (managed by Ca' Foscari PhD Office)

Courses and seminars [ITA]

Students will have to attend at least 2 courses organized by PhD Office, language and computer science ones excluded. Students will have the possibility to apply for other Schools and courses (even held outside Ca' Foscari. Minimum required level: M.Sc. courses) by submitting their requests to PhD Coordinator/Board of Professors.

ADMISSION TO FINAL EXAM PROCEDURE (3rd year students only)

a) Within September 15th the PhD Board of Professors, based on the final reports submitted by each supervisor, will decide on admission to final exam procedure

b) If the student is admitted, the PhD Board will appoint two external referees

FIRST STEP IN FINAL EXAM PROCEDURE: REFEREES AND REVIEW

a) **Within October 1st**: Submission of an advanced draft of the thesis by each student for the external referees assessment. This review can last up to 45 days

b) **Within November 15th**: Referees will submit two separate reports and suggest admission to final examination or a substantiated request for extension (6 or 12 months)

SECOND STEP IN FINAL EXAM PROCEDURE: DEFENCE

a) If admitted to final exam:
   - Within December 15th: submission of final version of the thesis by the student, including any possible modification suggested by the referees
   - Defence session: from mid-January to end of March
   - The defence committee is made up by a Ca’ Foscari faculty, at least one of the external referees, and a third member. This core set may be extended adding up to 2 members coming from national/international research centres, when deemed necessary

b) If 6 additional months are required:
   - **Within March 1st**: PhD Board and supervisor evaluate the progress in the revision of the thesis and can propose:
     • admission to the final exam procedure
     • rejection of the student
- In case the student is admitted to final exam procedure, the PhD Board will have to appoint two external referees. The PhD Board can decide whether to confirm the initial external referees or to change them.
- **Within March 20th**: Submission of an advanced thesis draft for the referees. The review lasts about 40 days
- **Within May 2nd**: Report by referees. At this stage, they can suggest further changes to be implemented within 30 days and discussed during the defence
- **Within May 31st**: Submission of the final version including any suggested modifications by referees

**Defence session: from July 1st to September 15th**

- The defence committee is made up by a Ca’ Foscari faculty, at least one of the external referees, and a third member. This core set may be extended adding up to 2 members coming from national/international research centres, when deemed necessary

NB: dates could be subject to slight changes. Final deadlines will be notified when officially scheduled.

Information on the administrative steps of final exam are also available on the dedicated websites:

a) Submission of final exam request to the Administrative offices of Ca’ Foscari

b) Evaluation of thesis by external referees
   http://www.unive.it/pag/7729[ITA]
   http://www.unive.it/pag/20435[ENG]

Thesis submission and anti-plagiarism verification http://www.unive.it/pag/7744/ [ITA]
http://www.unive.it/pag/20433 [ENG]

**Requirements of the PhD thesis**

The PhD thesis must be structured as a coherent research project developed during the PhD course. It can include the results of papers already published in journals but it must not be a simple collection of unrelated papers not belonging to a systematic research project.

**Doctor Europaeus label**

The Doctor Europaeus title is an additional label attached to the Research Doctorate Degree issued nationwide. Full description and information can be read on the following website:

http://www.unive.it/pag/7882/ [ITA]
http://www.unive.it/pag/20450/ [ENG]

Any student interested in applying for the Doctor Europaeus label must be sure to meet all the requirements and must inform the Secretariat of the Programme before the final report has been submitted to the PhD board (approximately by August).
Co-tutelle and double degrees

For any information on co-tutelles and doubles degrees, please have a look at the following links:
http://www.unive.it/pag/7882/[ITA]
http://www.unive.it/pag/20450/ [ENG]

Publishing

ARCA catalogue

Each PhD student is required to include any of her/his publications (conference proceedings, working papers, article in journals, chapter of book etc.) inside the institutional Open Access Ca’ Foscari research archive (ARCA). A user’s guide can be found on the relevant website (https://arca.unive.it/)

ORCID CODE - http://orcid.org

Each student is also required to register to ORCID (Open Researcher and Contributor ID) and to communicate his/her ORCID code to the Secretariat after she/he’s been regularly registered at Ca’ Foscari University as PhD student.

Administrative regulations and procedures

In addition to the fulfilment of the above mentioned requirements, PhD students have to be fully aware and comply with the PhD programme general regulations of Ca’ Foscari University, reported at http://www.unive.it/pag/8256/.

Rules and procedures are provided with a focus on: enrolment to subsequent years, suspensions, withdrawals and exclusions, scholarships and grants, working during the PhD programme, together with further aspects of the PhD student’s career.

Mobility

1. Study abroad period

Each PhD student is required to schedule, together with her/his supervisor, a period of research activity to be spent in a foreign University or research centre for at least for 3 months, usually during the 2nd year of study.

2. Mobility for international conferences/summer schools

Starting from the second year, PhD students are granted an annual sum of 1534,33€ (equivalent to 10% of the annual scholarship) to be spent for research purposes. This sum can be cumulated from second to third year but should be spent within the 14th of September of the third year. This can also be cumulated with research funds earned as TA. A student who is planning – with supervisor’s agreement - to attend an international conference or a summer school is required to inform via email the Coordinator and the Secretariat of the Programme (supervisor must be included in the
communication). The student will provide complete information on the conference or summer school. The Coordinator/Faculty Board will approve/reject the request. Scholarship 50% increase can also be asked for conference participation abroad.

If the request is accepted, the student must fill in the mission request on the online platform. Please read instructions about expense reimbursement mobility on the dedicated website:
http://www.unive.it/pag/7719[ITA]
http://www.unive.it/pag/20459/ [ENG]

No ticket purchase or any other personal arrangements should be be done without the online authorization by the Coordinator.

**It is important to read and fully understand the regulation on expenses reimbursement. Please read the handbook which is available on the above stated website.**

### Faculty Board

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<thead>
<tr>
<th>Name</th>
<th>Email</th>
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<tbody>
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PhD course staff

Nicola Miotello

Segreteria didattica Dais

dottorati.dais@unive.it
Email account

Once you are enrolled as a PhD student, you are part of Ca’ Foscari University Venice, this means that:

• you will receive an email account upon enrolment (studentnumber@unive.it) which will be the only email address used by the Central Administration to communicate on an official basis with you.

• you will apply for a name.surname@unive.it email. To do so please read here: http://www.unive.it/pag/11398

You need this email in order to be listed among the PhD students of the Economics Department.

• communicate your name.surname@unive.it address to the PhD Secretariat at sse@unive.it as soon as you get it.

• once you have this email address, you will feed your personal webpage with your CV, publications and photo.

Links to Ca’ Foscari University of Venice

The following are specific pages of Ca’ Foscari website in which you will find useful information.

- **CA’ FOSCARI ENGLISH WEBSITE**
  [http://www.unive.it/pag/13526/](http://www.unive.it/pag/13526/)

- **INTERNATIONAL WELCOME DESK – FOR FOREIGN STUDENTS**
  [http://www.unive.it/welcome](http://www.unive.it/welcome)

- **ENROLMENT TO PHD PROGRAMMES 2017-18**
  [http://www.unive.it/pag/28045](http://www.unive.it/pag/28045)

- **POSTGRADUATE ADMINISTRATIVE OFFICE**
  [http://www.unive.it/data/strutture/111618](http://www.unive.it/data/strutture/111618)

- **ADMINISTRATIVE PROCEDURES FOR PHD STUDENTS**

- **HOUSING OFFICE AND CANTEENS**
  [http://www.unive.it/pag/19768](http://www.unive.it/pag/19768)

- **MULTISERVICE CARD**
  [http://www.unive.it/pag/16409/](http://www.unive.it/pag/16409/)

- **MEDICAL ASSISTANCE/LOCAL PHYSICIAN**
  [http://www.unive.it/pag/12525/](http://www.unive.it/pag/12525/)

Ca’ Foscari Doctoral Office and Postgraduate Administrative Sector are the offices in charge of the management of PhD students from an administrative point of view (from enrolment throughout graduation).

Students are asked to become familiar with the websites:

[http://www.unive.it/pag/252/](http://www.unive.it/pag/252/) [ITA]

[http://www.unive.it/pag/25684/](http://www.unive.it/pag/25684/) [ENG]

[http://www.unive.it/pag/20069/](http://www.unive.it/pag/20069/)

Last review: Feb 26th 2019