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 2019/20

Mandatory

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

Lecturers: prof. Riccardo Focardi, prof. Simonetta Balsamo, dr. Stefano Calzavara

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

Part 1 (prof. Riccardo Focardi), 10 hrs

Date and time: first semester. Detailed info will follow soon.

Syllabus:
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).

Part 2 (prof. Simonetta Balsamo), 10 hrs

Date and time: first semester. Detailed info will follow soon.

Syllabus:
Queueing systems and fundamental models (6 hours): queueing systems M/M/1, M/M/k.
Comparison and application to performance and reliability analysis of computer and communication systems. Scheduling and queueing system M/G/1. Application to case studies.

**Part 3 (dr. Stefano Calzavara), 10 hrs**

**Date and time:** first semester. Detailed info will follow soon.

**Syllabus:**
Web application security (6 hours): We will discuss the most common security issues of web applications and present techniques to reliably protect against them. Selected topics will include session management, cross-site scripting (XSS) and cross-site request forgery (CSRF).
Formal methods for security (4 hours): We will present principled approaches to formally reason about system security. In particular, we will apply such techniques to important case studies from the web application security area.

**KIIS Colloquia (30 hrs)**

**Lecturers:** prof. Claudio Lucchese, dr. Claudio Silvestri, dr. Filippo Bergamasco

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

**prof. Lucchese (10 hrs)**

**Date and time:** tentative period, second semester. Class 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.

**dr. Silvestri (10 hrs)**

**Date and time:** tentative period, Spring 2020. Class schedule will follow later on.

**Syllabus: Data stream management and mining.**
In several scenarios data arrives in streams and they are lost unless immediately processed. Additionally, due to the arrival rate, it could be unfeasible to store them for deferred processing and data are processed and summarized as soon as they are available.
This short course offers an introduction to stream summarization algorithms and an overview of some of the main stream processing systems.

**dr. Bergamasco (10 hrs)**

**Date and time:** tentative period, Feb/March 2020. Class schedule will follow later on.

**Syllabus: Introduction to Computational Geometry**
This short course offers a gentle introduction to the field of Computational Geometry, a discipline devoted to the design of efficient algorithms for problems involving geometric inputs and outputs.
Born in the '70s with the rapid advance of computer graphics and CAD/CAM, computational geometry finds nowadays important applications in fields like Robotics, GIS, Integrated Circuit design and Computer Vision.

We will start with an overview of Affine and Euclidean geometry that will serve as a basis for a selected list of topics including convex hulls, line segment intersections, orthogonal range searching, polygon triangulations, and trapezoidal maps.

Lectures will be enriched with practical examples and discussions of possible real-world applications.

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Optional courses

**Bertinoro School**

**Lecturers:** local lecturers


**Date and time:** February/March 2020

**Syllabus:** see School website

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**Other courses (managed by Ca' Foscari PhD Office)**

[Courses and seminars [ITA]](http://cs.unibo.it/projects/biss2019/)

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**.

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**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
   - http://www.unive.it/pag/7729/ [ITA]
   - http://www.unive.it/pag/20435/ [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](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

prof. Riccardo Focardi, PhD Coordinator
focardi@unive.it
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<td><img src="image1.png" alt="Photo" /></td>
<td>dr. Andrea Albarelli</td>
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prof. Salvatore Orlando
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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/

- INTERNATIONAL WELCOME DESK – FOR FOREIGN STUDENTS
  http://www.unive.it/welcome

- ENROLMENT TO PHD PROGRAMMES 2017-18
  http://www.unive.it/pag/28045

- POSTGRADUATE ADMINISTRATIVE OFFICE
  http://www.unive.it/data/strutture/111618
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:

- [ITA](http://www.unive.it/pag/252/)
- [ENG](http://www.unive.it/pag/25684/)
- [ITA](http://www.unive.it/pag/20069/)

Last review: Sept 13th 2019