

Master's Degree in DATA SCIENCE

Faculty of Information Engineering,
Informatics and Statistics



SAPIENZA
UNIVERSITÀ DI ROMA

Contacts:

Prof.ssa Francesca Cuomo

Chair of the Master Degree in Data Science

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Faculty of Information Engineering, Informatics
and Statistics

<https://web.uniroma1.it/i3s/>

science.i3s.uniroma1.it



Data Science @ Sapienza is the first international Master's Degree program in Data Science active in Italy since 2015. This interdisciplinary program offers the Engineering, Informatics, Statistics and Economics background required to address a wide variety of cutting edge Data Science problems in business, industry and society. It is completely taught in English.

This course is geared towards students with B.Sc degree in:

- Communication Engineering
- Computer Science
- Electronic Engineering
- Engineering of Computer Science and Control
- Management Engineering
- Statistics, Economics, Finance and Insurance
- Statistics, Economics and Society
- Statistics for Management

and in:

- Biology and Bioinformatics
- Economics
- Industrial Engineering
- Mathematics and Physics

For information: datascience.i3s.uniroma1.it

Study Plan

The program provides the professional skills needed for the collection, management and analysis of the Big Data to support innovative products and services in business, public sectors, and advanced digital industries. During the program there will be a special emphasis on combining a solid theoretical foundation with practical skills stimulated by the needs coming from industry and society. A direct contact with all these realities is encouraged by annual meetings with firms and research centers.

Job Opportunities

Those who graduate in the Master's Degree Program in Data Science will become Data Scientists, Open Data Manager, Big Data Infrastructure Professional, Business Data Analysts.

These job profiles are among the most searched for the job market and some of the best paid at the national and international level. You will be able to work in:

- Internet industries
- Startups
- Medium and small enterprises
- Strategic consultant companies
- Public administrations
- Institutes of social-economic analysis
- Academic and industrial research centers



DATA SCIENCE



Now it's
the right time
to be a DATA
SCIENTIST




Benvenuti!

2021/22

AZERBAIJAN
 CHINA
 COSTA RICA
 INDIA
 ISLAMIC REPUBLIC
 OF IRAN
 KAZAKHSTAN
 PAKISTAN
 RUSSIAN
 FEDERATION
 TURKEY

[illegible]

Data Science – 2021/2022

- M.Sc. (LM) Data Science - 120 ECTS - 2 years
- Website #1: datascience.i3s.uniroma1.it/it
- Website #2: corsidilaurea.uniroma1.it/en/corso/2020/29942/home
-  • LinkedIn: <https://www.linkedin.com/in/master-of-science-in-data-science-sapienza-025b71226/>
- Email: datascience@i3s.uniroma1.it
- 1 Faculty -> [i3S](#) \equiv [DI](#) + [DIAG](#) + [DIET](#) + [DSS](#) <- 4 Departments

Key reference people

- For [study plan](#):
Prof. Pierpaolo Brutti <pierpaolo.brutti@uniroma1.it>
- For [master thesis](#):
Prof. Ioannis Chatzigiannakis <ichatz@diag.uniroma1.it>
- For [Industrial Liaison Program](#)
Prof. Simone Scardapane <simone.scardapane@uniroma1.it>
- For [Erasmus exchange & some international internships](#):
Prof. Aris Anagnostopoulos <aris@diag.uniroma1.it>
- For stage/internships:
Prof. Paolo Di Lorenzo paolo.dilorenzo@uniroma1.it
- For [3AAF](#):
Prof. Antonio Cianfrani <antonio.cianfrani@uniroma1.it>
- For [training camps](#)
Prof. Fabio Galasso <galasso@di.uniroma1.it>
- For [student honors](#)
Profs Stefano Leonardi [leonardi@dis.uniroma1.it](#) and **Sergio Barbarossa** <Sergio Barbarossa
<sergio.barbarossa@uniroma1.it>

Information

- For academic issues:

Prof.ssa Francesca Cuomo

Data Science Master Program, Chair

- For assistance

Georgia Georganopoulou

To reach **both** please email to datascience@i3s.uniroma1.it

To deliver **official communication** we will only use on a regular basis **your institutional email address**

lastname.1234567yourmatricola@studenti.uniroma1.it

Student representatives

- TEODORO CAPUTO e-mail:
caputo.1658660@studenti.uniroma1.it
- MASSIMILIANO RIPOSATI e-mail:
riposati.1785279@studenti.uniroma1.it
- MARCO AURELIO STERPA e-mail:
sterpa.1152419@studenti.uniroma1.it

You are 2021/2022 enrolment cohort!

Remember that when you consult
<https://corsidilaurea.uniroma1.it/>

English



SAPIENZA
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Catalogo dei Corsi di studio

- Cerca per parole chiave: es. nome del corso, codice
- Cerca frasi complete: es. "Ingegneria Gestionale"
- Cerca docente 🔍

Filtri avanzati

data science



| ANNO ACCADEMICO | CORSI | FACOLTA | TIPOLOGIA CORSO | LINGUA |
|--------------------|------------------------------------|--|----------------------|--------|
| 2021/2022 | Data Science | Ingegneria dell'informazione, informatica e statistica | Laurea magistrale | |
| 2021/2022 | Matematica | Scienze Matematiche, Fisiche e Naturali | Laurea | |
| 2021/2022 | Matematica applicata | Scienze Matematiche, Fisiche e Naturali | Laurea magistrale | |
| 2021/2022 | Bioinformatics - Bioinformatica | Farmacia e Medicina; Ingegneria dell'informazione, informatica e statistica; Medicina e Odontoiatria; Scienze Matematiche, Fisiche e Naturali | Laurea | |

Laurea Magistrale in Data Science

All your master information is here

<https://corsidilaurea.uniroma1.it/en/corso/2021/29942/home>

The screenshot displays the Sapienza University of Rome website, specifically the 'Catalogo dei Corsi di studio' (Course Catalog) for the 'Data Science' master's program. The page is organized into a grid of 12 colored tiles, each representing a different aspect of the program. The tiles are arranged in three rows and four columns. The first row includes 'Degree Programme', 'Study plan', and 'Apply'. The second row includes 'Attendance', 'Quality Assurance (AQ)', and a large graphic tile. The third row includes 'Contacts, services, facilities', 'Organization, contacts and regulations', 'Learning Outcomes', and 'Professional Opportunities'. The fourth row includes 'News', 'International', and 'Graduation'. Each tile contains a title, a brief description, and a 'View more' link with an external icon.

SAPIENZA
UNIVERSITÀ DI ROMA

Catalogo dei Corsi di studio

Home / 2021/2022 / Data Science

Data Science

Masters

- Degree Programme**
 - Programme Code: 29942
 - Test Code: 29942
 - Faculty: Ingegneria dell'informazione, informatica e statistica
 - Department: INGEGNERIA INFORMATICA, AUTOMATICA E GESTIONALE "ANTONIO RUBERTI"
 - Duration: 2 years
 - Degree Code: LM-91
 - Degree: Masters
 - Admission Procedure: Requirements and personal knowledge assessment[View more](#)
- Study plan**

The "Manifesto" study plan: fundamental, core and elective exams, credits and course language

[View more](#)
- Apply**

How, where, when, Deadlines and procedures to enrol in the programme

2021/2022

[View more](#)
- Attendance**

Syllabus and study material, lesson and exam schedules

[View more](#)
- Quality Assurance (AQ)**

Organization and responsibility of the AQ for the Course

[View more](#)
- Contacts, services, facilities**

Student offices and services, Libraries, labs and the other study and leisure facilities.

[View more](#)
- Organization, contacts and regulations**[View more](#)
- Learning Outcomes**

Programme description, required and expected knowledge, competences and skills

[View more](#)
- Professional Opportunities**

Professional Scenarios, degree career opportunities

[View more](#)
- News**
 - Data Scientist best job in U.S. for 2019
 - PREPARATORY COURSES 2021-2022
 - Data Scientist best job in U.S. for 2019
 - PREPARATORY COURSES 2019-2020
 - Data Scientist best job in U.S. for 2019[View more](#)
- International**

The Erasmus Programme and all opportunities for study and traineeship abroad

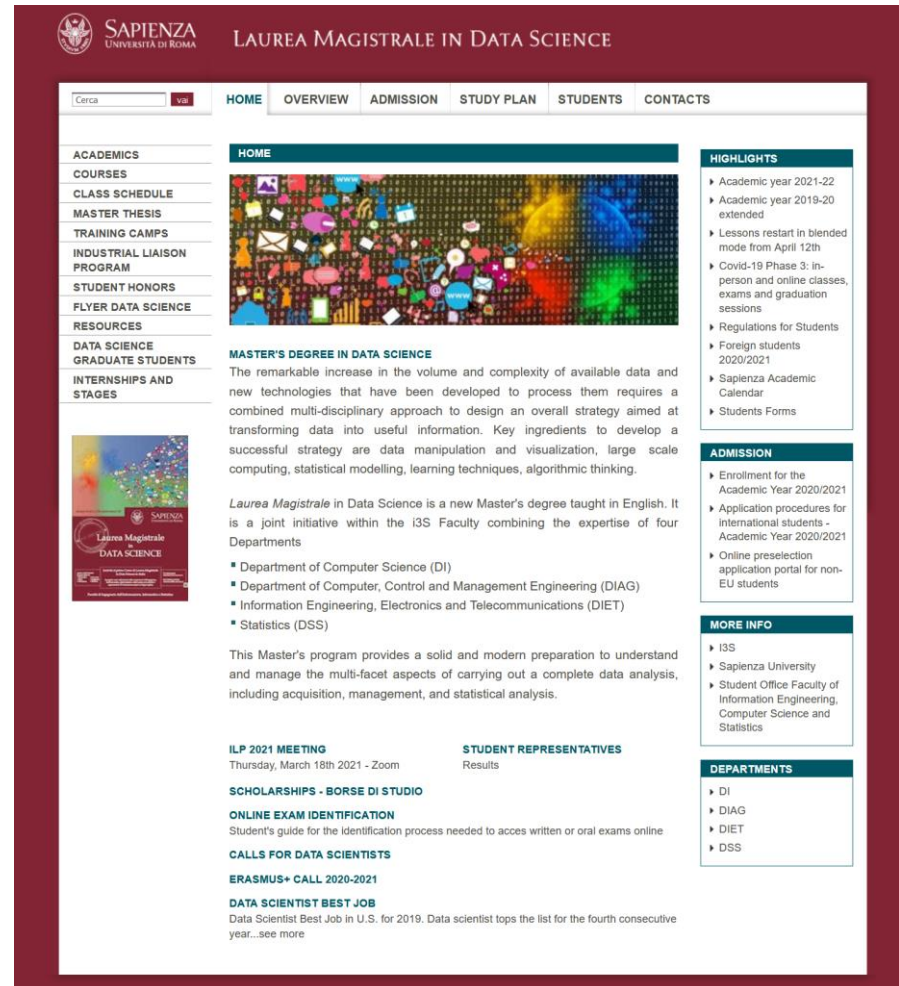
[View more](#)
- Graduation**

Graduation session calendar and procedures to apply for graduation

[View more](#)

Other information on the website

Remember that when you consult
<http://datascience.i3s.uniroma1.it/it>



The screenshot displays the official website for the Laurea Magistrale in Data Science at Sapienza University of Rome. The page features a dark red header with the university's logo and name. A navigation bar includes links for HOME, OVERVIEW, ADMISSION, STUDY PLAN, STUDENTS, and CONTACTS. On the left, a sidebar menu lists various academic and administrative sections. The main content area is divided into several sections: a large banner image, a detailed description of the Master's degree, a list of participating departments, and several informational boxes regarding meetings, scholarships, exams, and Erasmus+ calls. A right-hand sidebar provides highlights, admission procedures, more information, and a list of departments.

ACADEMICS
COURSES
CLASS SCHEDULE
MASTER THESIS
TRAINING CAMPS
INDUSTRIAL LIAISON PROGRAM
STUDENT HONORS
FLYER DATA SCIENCE
RESOURCES
DATA SCIENCE GRADUATE STUDENTS
INTERNSHIPS AND STAGES

HOME

MASTER'S DEGREE IN DATA SCIENCE
The remarkable increase in the volume and complexity of available data and new technologies that have been developed to process them requires a combined multi-disciplinary approach to design an overall strategy aimed at transforming data into useful information. Key ingredients to develop a successful strategy are data manipulation and visualization, large scale computing, statistical modelling, learning techniques, algorithmic thinking.

Laurea Magistrale in Data Science is a new Master's degree taught in English. It is a joint initiative within the I3S Faculty combining the expertise of four Departments

- Department of Computer Science (DI)
- Department of Computer, Control and Management Engineering (DIAG)
- Information Engineering, Electronics and Telecommunications (DIET)
- Statistics (DSS)

This Master's program provides a solid and modern preparation to understand and manage the multi-facet aspects of carrying out a complete data analysis, including acquisition, management, and statistical analysis.

ILP 2021 MEETING
Thursday, March 18th 2021 - Zoom

SCHOLARSHIPS - BORSE DI STUDIO
Student's guide for the Identification process needed to access written or oral exams online

ONLINE EXAM IDENTIFICATION
Student's guide for the Identification process needed to access written or oral exams online

CALLS FOR DATA SCIENTISTS

ERASMUS+ CALL 2020-2021

DATA SCIENTIST BEST JOB
Data Scientist Best Job in U.S. for 2019. Data scientist tops the list for the fourth consecutive year...see more

HIGHLIGHTS

- ▶ Academic year 2021-22
- ▶ Academic year 2019-20 extended
- ▶ Lessons restart in blended mode from April 12th
- ▶ Covid-19 Phase 3: in-person and online classes, exams and graduation sessions
- ▶ Regulations for Students
- ▶ Foreign students 2020/2021
- ▶ Sapienza Academic Calendar
- ▶ Students Forms

ADMISSION

- ▶ Enrollment for the Academic Year 2020/2021
- ▶ Application procedures for international students - Academic Year 2020/2021
- ▶ Online preselection application portal for non-EU students

MORE INFO

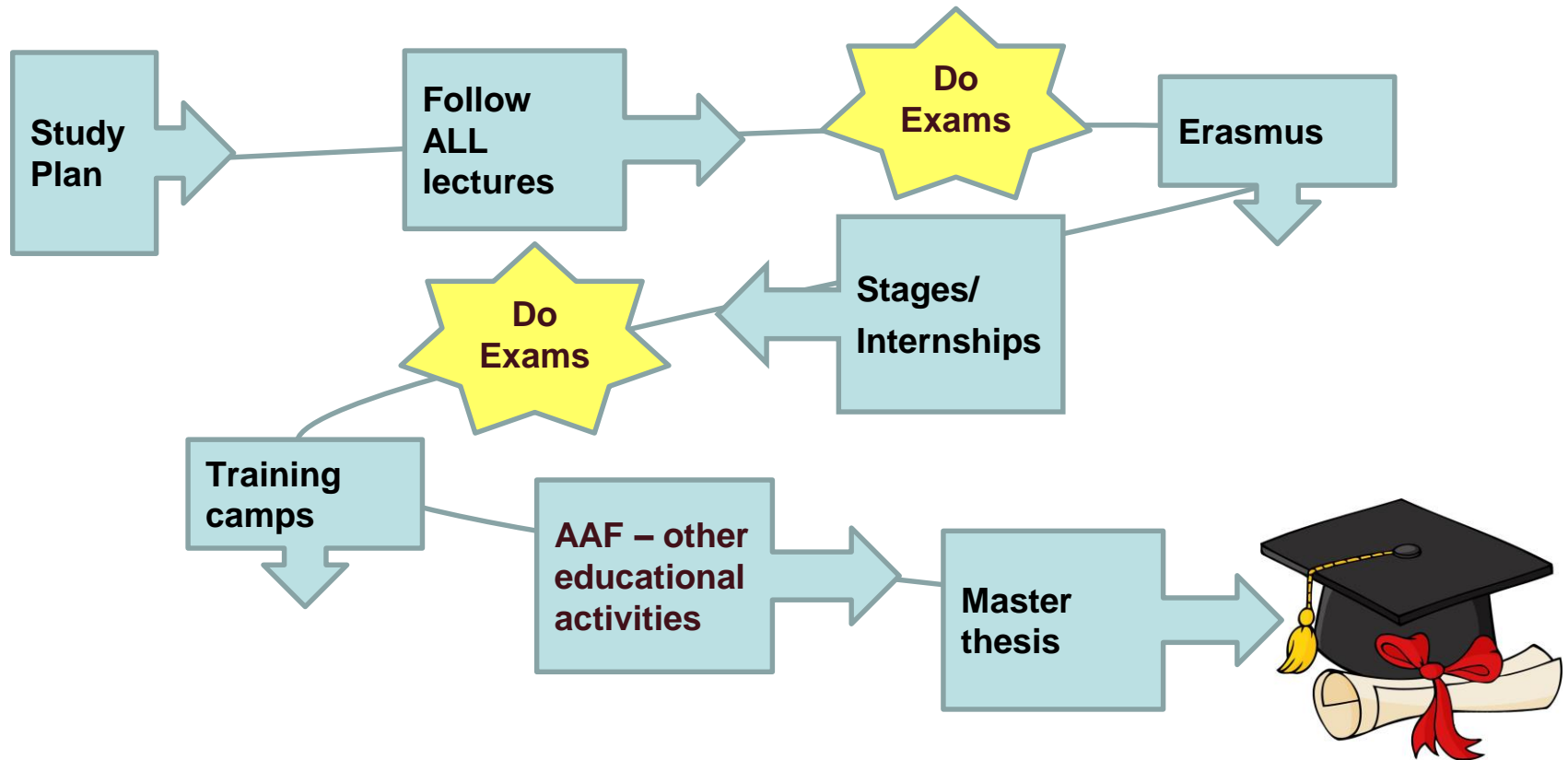
- ▶ I3S
- ▶ Sapienza University
- ▶ Student Office Faculty of Information Engineering, Computer Science and Statistics

DEPARTMENTS

- ▶ DI
- ▶ DIAG
- ▶ DIET
- ▶ DSS

Data Science – 2021/2022 Welcome meeting

- Some tips for successfully achieve your final target



Most updated info about courses

- The only reference original source of information is the official Sapienza professor *notice board*
- *Catalogo dei Corsi di studio -> Find your teacher*
- <https://corsidilaurea.uniroma1.it/en/cerca/docente>



The screenshot shows the profile page for 'FRANCESCA CUOMO'. At the top, there's a navigation bar with 'Home / Professor / FRANCESCA CUOMO'. Below this is a circular profile picture of Francesca Cuomo and her name 'FRANCESCA CUOMO'. Underneath the name are five tabs: 'Notice board', 'Office Hours', 'Curriculum vitae', 'Courses', and 'Latest IRIS publications'. The 'Courses' tab is currently selected. Below the tabs is a table with the following columns: 'COURSE', 'CODE', 'YEAR', and 'COURSE - ATTENDANCE'. The table contains three rows of data. A large yellow arrow points to the 'Data Science' link in the 'COURSE - ATTENDANCE' column of the second row.

| COURSE | CODE | YEAR | COURSE - ATTENDANCE |
|-------------------------|---------|-----------|---|
| NETWORK INFRASTRUCTURES | 1027171 | 2021/2022 | Cybersecurity ↗ |
| Smart Environments | 1056023 | 2021/2022 | Data Science ↗ |
| Smart Environments | 1056023 | 2021/2022 | Communication Engineering ↗ |

Schedule and Location of Classes

- non-conflicting schedule (almost) guaranteed for all optional courses
- We ****try**** to hold classes of the day in one single campus site

I semester: Main Campus + Lab: Via Tiburtina 205

II semester: to be confirmed

III semester: DIAG, Via Ariosto 25 (RM102)
+ Lab: Via Tiburtina 205

IV semester: DIAG, Via Ariosto 25 (RM102), Main Campus (CUxxx)
[Città Universitaria]

Individual study plan

<http://datascience.i3s.uniroma1.it/it/node/5820>

- **Contact: Prof. Pierpaolo Brutti** pierpaolo.brutti@uniroma1.it
- Study plan can be changed only once per year. You are allowed to change at the beginning of each semester
- Check the datascience.i3s.uniroma1.it website and make sure you understand ... colors!!
- In this first semester you have no option: all required (i.e. mandatory) courses
- In the second semester you have to choose one orange :

1. Study Plan

The screenshot shows the website for the 'LAUREA MAGISTRALE IN DATA SCIENCE' at Sapienza University of Rome. The page has a dark red header with the university logo and name. Below the header is a navigation bar with links: Contenuto, Struttura, Aspetto, Persone, Configurazione, Resoconti, Aiuto. A user profile 'Ciao annalisa.cirinna' is visible in the top right corner. The main content area is white and features a search bar, a 'HOME' button, and a 'COURSE PLAN' button. Below the 'COURSE PLAN' button, there is a section for 'Course Plan Advisor: prof. PIERPAOLO BRUTTI' with the email 'pierpaolo.brutti@uniroma1.it'. To the right of this section are buttons for 'Visualizza', 'Modifica', and 'Revisioni'. Below this is a table with two columns: 'Course list' and 'Rules'. The 'Course list' column lists enrollment years: '2020-2021', '2019 - 2020', '2018 - 2019', and 'Enrollment Year'. The 'Rules' column contains text explaining the enrollment process and exam rules. At the bottom of the page, there is a footer with a PDF viewer showing 'CVit (14).pdf' and a 'Show all' button.

Not secure | datascience3s.uniroma1.it/it/study-plan

Contenuto Struttura Aspetto Persone Configurazione Resoconti Aiuto

Ciao annalisa.cirinna Esci

Aggiungi contenuto Prestazioni Menù

Modifica scorciatoie

SAPIENZA UNIVERSITÀ DI ROMA

LAUREA MAGISTRALE IN DATA SCIENCE

Cerca vai

HOME OVERVIEW ADMISSION **COURSE PLAN** DOCUMENTS CONTACTS

Home

COURSE PLAN

Visualizza Modifica Revisioni

Course Plan Advisor: prof. [PIERPAOLO BRUTTI](#)
pierpaolo.brutti@uniroma1.it

| Course list | Rules |
|--|---|
| Enrollment Year 2020-2021 | After the enrollment, all the students must submit their study plan through "Percorsi formativi/GOMP/INFOSTUD". Please notice that, with the exception of the required courses, it is not possible to register an exam not included in the study plan, and the study plan must be approved before taking the exams. |
| Enrollment Year 2019 - 2020 | In addition, according to the University rules, 1 st year students can only take exams which were selected for his/her 1 st year, while he/she cannot take any exam planned for the 2 nd year. More specifically, 1 st year students will not be able to register any exam which was not planned for the 1 st |
| Enrollment Year 2018 - 2019 | semester of the 1 st year, which in turn correspond only to the core, required courses -- mandatory for all students -- before a study plan has been submitted and approved. |
| Enrollment Year | The list of exams (i.e., <i>Manifesto degli Studi</i>) available to a student always refer to the academic year of her/his first enrollment, even when changes are made in the following years. |

CVit (14).pdf

Show all

2. Study Plan

- **MANDATORY COURSES - Four required courses for a total 39 ECTS**
OPTIONAL GROUP A - choose one course for a total of 6 ECTS
OPTIONAL GROUP B - choose three courses for a total of 18 ECTS
OPTIONAL GROUP C - choose one course for a total of 6 ECTS
OPTIONAL GROUP D - choose two courses for a total of 12 ECTS
- **FREE CHOICE 12 ECTS**
- **OTHER LEARNING ACTIVITIES (AAF) 3 ECTS**
- **FINAL THESIS 24 ECTS**

3. Study Plan

Mandatory courses (39 CFU):

- ALGORITHMIC METHODS OF DATA MINING & LAB
- FUNDAMENTALS OF DATA SCIENCE
- STATISTICAL METHODS IN DATA SCIENCE (I+II) (reg)
- NETWORKING FOR BIG DATA

4. Study plan

- **(1) optional course in Economics and Law (6 CFU)**
 - ECONOMICS OF NETWORK INDUSTRIES
 - INTELLECTUAL PROPERTY COMPETITION AND DATA PROTECTION LAW

5. Study Plan

(2) three optional courses in Information Technologies Subjects (18 CFU)

- DATA MANAGEMENT FOR DATA SCIENCE
- CLOUD COMPUTING
- DATA MINING TECHNOLOGY FOR BUSINESS AND SOCIETY
- COMPUTATIONAL DATA ANALYSIS
- SMART ENVIRONMENTS
- DATA PRIVACY AND SECURITY
- SIGNAL PROCESSING FOR BIG DATA
- ADVANCED MACHINE LEARNING

4. Study plan

(3) one optional course in Statistics and Management (6 CFU)

- STATISTICAL LEARNING
- QUANTITATIVE MODELS FOR ECONOMIC ANALYSIS AND MANAGEMENT
- OPTIMIZATION METHODS FOR MACHINE LEARNING
- STATISTICS FOR STOCHASTIC PROCESSES

6. Study plan

- **(4) two complementary courses (12 CFU)**
 - BIOINFORMATICS
 - DIGITAL EPIDEMIOLOGY AND PRECISION MEDICINE
 - BIG DATA FOR OFFICIAL STATISTICS
 - DATA DRIVEN ECONOMICS
 - EFFICIENCY AND PRODUCTIVITY ANALYSIS
 - EARTH OBSERVATION DATA ANALYSIS
 - NEURAL NETWORKS FOR DATA SCIENCE APPLICATIONS
 - GEOMATICS AND GEOINFORMATION

7. Study plan

- **(5) two elective courses chosen from the students among**
 - ... approval is discretionary ...
 - ... but the approval is automatic if the choice is made from the list of the previous optional courses
 - other relevant courses offered from Sapienza (with no language restrictions)

Ask advice to tutors for the courses offered from the I3S-related Departments or from other Faculties

AAF Activities (3 ECTS)

- **Contact: Prof. Antonio Cianfrani**
- <http://datascience.i3s.uniroma1.it/it/AAF-3-credits>
- 1 Training camp (necessary condition) + either one of the following:
 - 1 Hackathon,
 - 1 more Training Camp,
 - Stage/Internship
- **IMPORTANT:** when completed AAF credits must be registered on Infostud

Training Camps

- **Contact: Prof. Fabio Galasso** fabio.galasso@uniroma1.it
- Taught by experts from leader companies, past training camps 2021:
 - ✓ Training Camp by **Unicredit**
Date: June 30th - July 2nd, 2021
Title: Knowledge Graph Completion
 - ✓ Training Camp by Mykhaylo Andriluka, **Google Research**
Date: September 2nd - 4th, 2021
- 3-day camps
- Enroll early enough
- You'll see: large-scale solutions to big-data management, machine learning, data analytics, cloud computing,

WINNERS:

Pavlo Vasylenko
Mert Yildiz
Zain Ullah

WINNERS:

Francesco Verdini
Giorgia Salvatori
Alessandra Della
Fazia

Industrial Liaison Program

- **Contact: Prof. Simone Scardapane**
(simone.scardapane@uniroma1.it)
- The [Industrial Liaison Program](#) promotes internships and external theses in companies, institutions, research centers, both in Italy and abroad.
- The list of participating companies can be found online:
<http://datascience.i3s.uniroma1.it/it/industrial-liaison-program>
- On **February 14th 2022** (tentative) we will host a full-day event to present possible internships to students, where you can meet representatives from all participating companies and institutions.

Stages and Internships in Italy

- **Contact: Prof. Paolo Di Lorenzo**
paolo.dilorenzo@uniroma1.it
- Stages require approximately 60 hours of work at one of the companies of the [Industrial Liaison Program](#) (February 14th, 2022)
- Projects of stages are available starting at the end of the first year
- Stages will take place in summer or during the 3rd semester without overlaps with the classes.

Erasmus exchange&Internships for thesis abroad

- **Contact: Prof. Aris Anagnostopoulos**
- **aris@diag.uniroma1.it**
- Theses can also be done abroad at a foreign company or university
- You can do this through the Erasmus+ program (standard Erasmus+ or Erasmus+ traineeship), or outside
 - Both of them require authorization; contact Aris
 - We will post openings when available, but you are responsible for finding the positions
 - It may require a financial contribution from the student.

Sapienza international office:

<https://www.uniroma1.it/en/pagina/study-abroad>

Master thesis

- **Contact: Prof. Ioannis Chatzigiannakis**
ichatz@diag.uniroma1.it
- Master thesis requires to develop a data science project of the duration of 4 - 6 months.
- [Guidelines for Master Thesis](#)
- Master thesis projects will preferably be developed in collaboration with a company of the Industrial Liaison Program or within an Internship program.
- Academic thesis projects under the direct supervision of a faculty are also possible.

Students Honors

- For **11** second-year students next call [# credits & weighted average of earned exam grades]
- waived annual fees & special mention in your diploma supplement
- Opened to II year students having completed their first year credits (Minimum thresholds: ects 57) + grade 28
- Deadlines: **February 7th 2022** and **results February 28th 2022.**

Reference contacts: Profs Stefano Leonardi
leonardi@diag.uniroma1.it and Sergio Barbarossa
sergio.barbarossa@uniroma1.it

COVID-19: instructions for accessing Sapienza

Students

In presence: the students book their lesson on the special Prodigit platform, the reservation also includes self-certification for access to the Sapienza offices and no other entrance ticket is required.

In presence

Use of libraries and reading rooms: the students book their place in the reading rooms of the libraries through the dedicated platform; the reservation also includes self-certification for access to the Sapienza offices and no other entrance ticket is required.

Library booking

Other activities (exams, internships / laboratory activities, appointment with a teacher, secretariat, services, etc.): the students who need to access the Sapienza offices for reasons other than lectures or library reading rooms must fill out the online form , to be presented at access points together with an e-mail or proof of confirmation of having obtained an appointment.

Access form

On this page, you can find all the necessary measures to access Sapienza safely and combat the COVID-19 pandemic. **From September 1, 2021, EU Digital Covid Certificate-Green pass (OR non-EU equivalent. Please read the [following file](#) for full details on vaccines accepted by the Italian Ministry of Health) is mandatory for university staff, students, visitors and anyone who enters the university premises.** For general rules and advice please click on "[Coronavirus, advice for the Sapienza Community](#)"

ACCESS PROCEDURES

GREEN PASS





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Enjoy your master