SNS Transversal activities 2024-2025 for PhD students

Open Science and Research Data Management

Course in person (online only for EELISA network students)

Please fill in this <u>form</u> to sign up

For any question, please write to <u>svr@sns.it</u>

SCUOLA
NORMALE
SUPERIORE

EELISA
European University

PISA site students

LESSON 1
(for all students)

Introduction to open science, copyright and the Institutional repository IRIS
CATERINA SGANGA (SSSA), DONATELLA TAMAGNO (SNS)
3rd June, Palazzo del Castelletto, Aula Dini
9.30 a.m. - 1 p.m. first year PhD
2.30 p.m. - 6 p.m. second year PhD

The module will offer an introduction to Open Science and some of its key implementations in the research ecosystem and lifecycle, with a focus on the most recent policies and legislative interventions by the European Union.

- In the first part of the module, after a brief definition of the Open Science movement and an overview of its historical development at an international and EU level, we will move to an analysis of how Open Science has been implemented into the most recent EU research framework programmes and in the European Research Area (ERA) policy agenda. This will include a detailed overview of researchers' and institutions' Open Science obligations when carrying out an EU-funded project, at all stages of the research lifecycle.

- The second part of the module will shift the focus to scientific publishing, authors' and publishers' copyright and the Open Access paradigm. Topics will include (a) an overview of the most common "roads" to Open Access; (b) the interplay between copyright and Open Access policies; (c) alternatives to copyright: Creative Commons et al.; (d) rebalancing the contractual interaction between authors and publishers: towards an EU-wide secondary publication right?

- The third part will introduce the main features of the Institutional repository IRIS.

LESSON 2
(each Pisa site student must choose one lesson; the other ones are optional)

Supporting open research and FAIR principles with MATLAB
ALESSIO CONTE (MathWorks), EMMA LAZZERI (CNR)
4th June, Palazzo della Carovana, Aula Bianchi Scienze
10 a.m. - 1 p.m.

In this module, participants will gain hands-on experience with MATLAB features that support making data and code FAIR (Findable, Accessible, Interoperable, Reusable). Through guided exercises, they will learn to create well-documented code using MATLAB Live Notebooks, efficiently manage and process Open Data and implement best practices for sharing and reusing code within the research community. This session equips researchers with essential skills to enhance the transparency and reusability of their work using MATLAB.

Towards open and reproducible science: FAIR data and Software Heritage to the rescue
MIGUEL COLOM (ENS Paris-Saclay)
12th June, Palazzo della Carovana, Aula Bianchi Lettere
10 a.m. - 1 p.m.

In this module, you will review the principles of Open Science and Reproducible Research, including details of the FAIR principles for data. The UNESCO's supported SOFTWARE HERITAGE project provides us with an excellent opportunity to perform reproducible research and proper artefact indexing, and you will see how in practice.
FAIR data is an absolute requirement for open and reproducible science, and you will see how to handle it, how to organize it properly into folders, how to name, deposit and refer to it with specific identifiers, and how to grant access to it. In order to make the activity more interactive, some exercises will be proposed.

Research computing fundamentals for neurobiology: Tools and methods for reproducible science
LEONARDO LUPORI (FMI)
13th June, Palazzo della Carovana, Aula Bianchi Lettere
10 a.m. - 1 p.m.

This workshop aims to establish foundational skills in data management, code versioning and research documentation that support open science principles and enhance research reproducibility.

- **Digital image analysis:** Fundamentals of scientific images (bit depth, resolution, file formats), programmatic approaches with MATLAB/Python, specialized software for histological analysis and best practices for publishing and sharing imaging data.

- **Version control:** Introduction to Git and GitHub with practical workflows designed for biological research, focusing on tracking analysis code changes and facilitating collaboration.

- **Laboratory documentation:** Methods for comprehensive digital note-taking in research settings, including essential documentation practices and tools for maintaining organized research records.

Zotero: reference managing in an open science perspective
GIACOMO CANEPA (UNIPD), **GIOVANNI TONOLO** (UNIFI)
18th June, Palazzo della Carovana, Sala Azzurra
9.30 a.m. - 12.30 p.m. first year PhD
2 p.m. - 5 p.m. second year PhD

This module will provide an introduction to a useful and, in some disciplines, necessary digital tool for PhD students: reference management software. We will install one of them, Zotero, and learn how to use it to store, organise and annotate citations and other documentary resources. The lesson will be divided into three parts: first, we will see how Zotero works and how it instantly creates references and bibliographies for any text editor, and directly within Word, LibreOffice, LaTeX and Google Docs. We will then discuss the methodological problems of building your own bibliography during your thesis. Finally, we will consider how Zotero can be useful from an open science perspective for the research data management life cycle. We will discuss how it helps you to conceive of your bibliography as a set of metadata and data, which can be made findable, accessible, interoperable and reusable, and to collaborate better with your colleagues.

FLORENCE site students

LESSON 1

Introduction to open science, copyright and the Institutional repository IRIS
FRANCESCA DI DONATO (CNR-ISTI), **DONATELLA TAMAGNO** (SNS)
25th June, Palazzo Strozzi - Altana
9.30 a.m. - 1 p.m. first year and second year PhD

- **Scholary communication an introduction to Open Science**: Introduction to open science; open science in Horizon Europe; research assessment and open science.

- **The Open access publishing paradigm and copyright:** The green road, the gold road and the diamond road to open access; copyright and Creative Commons licenses.

- **IRIS:** Introduction to the Institutional repository IRIS and its main features.

LESSON 2

Ensuring FAIRness in survey data: Creation, anonymization and sharing
EMMA LAZZERI (CNR)

25th June, Palazzo Strozzi - Altana
2 p.m. - 5 p.m. first year and second year PhD

In this module, participants will gain hands-on experience with EUSurvey, Amnesia by OpenAIRE, and Zenodo to ensure data and research outputs align with FAIR (Findable, Accessible, Interoperable, Reusable) principles. Through guided exercises, they will learn to design and manage open surveys with EUSurvey, anonymize datasets responsibly using Amnesia and share research outputs effectively on Zenodo. This session equips researchers with essential skills to enhance the accessibility, transparency and reusability of their work.

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