

# The Sixth International School on Open Science Cloud (SOSC 2024)

The 6th edition of the international School on Open Science Cloud (SOSC 2024) will be held in **Bologna, from 02 to 06 December 2024**. The school is organized by INFN, Department of Physics and Astronomy "Augusto Righi" of the University of Bologna, the Departments of Physics and Geology of the University of Perugia and the ICSC Foundation.

## Basic Requirements

The School is multi-disciplinary and targeted at postgraduate researchers including bachelor degree or equivalent in fields such as physics, statistics, computer science, computer vision, biology, medicine, bioinformatics, engineering, working at any research institute, with some experience and interest in data analysis, in computing or in related fields. Applications by university students (undergraduate) will be considered depending on availability and must be accompanied by a letter of reference from a university professor. **We embrace diversity and strongly encourage qualified and curious individuals from all nationalities and backgrounds to apply.**

## Academic Program

The SOSC 2024 theme is “**Computing Models for Scientific Experiments**”. The school programme is organized in three main tracks:

### Fundamentals

- Managing software and data
- Tools for Data Handling and Processing

### Data Science

- Introduction to Machine Learning concepts
- Deep Learning essentials, applications and tools

### Workflow Management

- Big Data Workflows in Science Applications
- Cloud Solutions for Advanced Big Data Workflows

The aim of the school is to provide theoretical and practical training to develop knowledge and skills on how to exploit data and computing resources for scientific applications, as well as use cloud-based infrastructures to implement workflows.

To this end, the first track will provide an overview of the main challenges related to the design of a scientific computing model, introducing concepts such as software management, containerization, application distribution and deployment.

After key tools for data handling and data processing are described, the second track will provide an introduction to Machine Learning, including some more advanced lectures aimed to improve skills on Data Science techniques and applications.

The third track will finally provide students with knowledge on how to organize workflows and pipelines in a distributed environment. Novel and effective approaches to interactive and quasi-interactive parallel processing of data sets will then be covered.

The school is structured in lectures and hands-on sessions. The hands-on sessions are designed to allow students to exercise with the most popular systems introduced in the lectures, taking tasks from real-world leading data-driven scientific communities as examples. The hands-on programme foresees the development of individual projects.

**Prerequisites for the hands on are basic knowledge of NumPy, Pandas and Matplotlib.**

Familiarity with commonly used frameworks and libraries for ML/DL such as scikit-learn, Tensorflow, Pytorch is expected. A plus would be the knowledge of docker, docker-compose, Kubernetes, cloud storage such as S3.

The lectures and the hands-on sessions will be given by experts involved at the national and European level.

SOSC 2024 will also propose a special session on FPGA (Field Programmable Gate Array). Scientific computing is moving towards the exploitation of more and more heterogeneous resources. The use of FPGA-based accelerators takes on an additional value, due to the intrinsic reprogrammability and high-performance characteristics of these devices.

## SOSC Certificate and Diploma

An attendance certificate will be provided to the students attending the whole school programme.

The school will also issue an official "SOSC School of Computing Diploma" upon successful completion of a project that will be assigned during the school.

## Fees and Enrollment

The registration fee includes morning & afternoon coffee breaks, the social dinner and participation in a welcome event. The **final application deadline for registrations is November 20, 2024**. Accommodation and transfer to/from the school location is not included in the fee. Meals are not included in the fee, unless explicitly covered by school events.

The registration fee is **€250** and the registration will open on June 20th

Support for a limited number of applications is possible and can be requested directly to the School secretariat.

**If you have any questions related to the registration or the payment please contact [sosc24-pc@lists.infn.it](mailto:sosc24-pc@lists.infn.it)**

# Important dates

- **Monday 3rd of June** - applications open
- **Thursday 5th of September** - acceptance notification sent to the participants
- **Wednesday 30th of October** - registration fee payment deadline
- **Monday 2nd December** - student arrivals at Bologna
- **Friday 6th of December** - departure

# Additional Information

Participation is limited to 30 participants. In case there are more than 30 registration requests, the organizing committee will make a selection based on the scientific CV of the applicants

# Venue

**University of Bologna, Department of Physics and Astronomy “Augusto Righi”**, Viale Berti Pichat 6/2, 40127 Bologna, Italy.

Detailed information about the school, transportations, logistics and lectures are available at the following URL: [Travel & Accomodation](#)

# School Contact

School On Open Science Cloud 2024 - December 2nd - 6th 2024  
SOSC24 URL: <https://web.infn.it/SOSC24>

## The organizing committee

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