

INTERNATIONAL
SCHOOL
FOR ADVANCED
STUDIES





A SCHOOL WHERE EDUCATION MEANS RESEARCH

SISSA, the International School for Advanced Studies founded in 1978, is a science centre of excellence on both the Italian and international academic scene.

About **70 professors, 130 post-docs, 260 PhD students** and **97 technical-administrative staff** are based on the School's **campus**, which extends over **25 acres** of parkland and offers spectacular views of the Gulf of Trieste.

SISSA's research and education activity focuses on three main areas: **Mathematics, Neuroscience** and **Physics**.

The **School's PhD courses** offer an original and innovative postgraduate programme and represent an international reference model, which few other institutions worldwide can compare with.

The **research** carried out by SISSA scientists is regularly published in prestigious international journals with high impact factor, like **Nature, Science** and **PNAS**. In addition, the School has over 150 collaboration agreements with leading research and education institutions all over the world.

Those who decide to study at SISSA will be living in **Trieste**, a city that has among the highest concentrations of researchers in Europe and that houses over 30 national and international research centres.

A privileged territory for the production and dissemination of knowledge. An advanced laboratory for top level experimentation. An ideal location for anyone wishing to embark on a journey in the world of theoretical and experimental research.

OUTSTANDING STUDENTS

12

The school offers 12 PhD courses

70

Every year about 70 students are selected through a series of highly rigorous tests. Each student is awarded a **scholarship** that covers the full duration of the programme.

After a intensive period of taught courses, all conducted in English, students are incorporated into research groups, where they work alongside the professors, post-docs and visiting professors.

Monitoring by the supervisors is constant: the work of the teaching staff is completely student-centred. This makes it possible for students to follow **personalised training** pathways and develop their own lines of research in a independent manner.

For all these reasons it is easy to understand why the School has such strong international appeal, with about one-third of students and almost half of post-docs being international students.

The School, however, offers more than postgraduate educational opportunities. SISSA has in fact teamed up with the **University of Trieste** to set up two high-

level joint programmes leading to **Master's Degrees** in Mathematics and Neuroscience. Additionally, it also has a collaboration agreement with the **University of Trento** for two joint programmes leading to Master's Degrees in Physics and Cognitive Science. Teaching and research collaboration agreements are also in place with the **University of Nova Gorica** (Slovenia) and the **University of Ljubljana** (Slovenia), in the fields of environmental neuroscience and the effects of pollutants on nervous system function and in the field of prion biology, respectively.

Finally, a new joint **PhD in Molecular Biology** has been set up thanks to an agreement between SISSA, the International Centre for Genetic Engineering Biotechnology (ICGEB), the University of Trieste and the University of Udine, to train young researchers in the use of the most advanced instruments and techniques in Molecular Biology.





Much research is carried out at SISSA, which is why special emphasis is placed on communicating the results of scientific investigations, both to the academic community and to the public at large. In 1986 the Interdisciplinary Laboratory of Natural Sciences and Humanities was set up and, since the creation of the “**Franco Prattico**” **Master in Science Communication (MCS)** in 1993 SISSA has trained several generations of science journalists and science communication experts.

Through **Sissa Medialab** the School offers a wide range of science outreach and educational activities. Medialab publishes also several international scientific journals (JHEP, JCAP, JSTAT, JINST, PoS, JCOM).

For several years now, the School has also been running a **Master in Complex Actions (MCA)**, which aims to train “hybrid” professional figures able to apply the good practices and methods of basic scientific research to resolving complex problems in a variety of fields.

In 2014, thanks to a collaboration with the International Centre for Theoretical Physics (ICTP) of Trieste, SISSA set up a **Master in High Performance Computing (MHPC)**, a unique course providing high level training in one of the most promising fields in both occupational and economic terms. Following authorisation by the PhD teaching staff, PhD students are given the opportunity to attend classes of the Master in HPC.

AWARD-WINNING RESEARCH

The quality of **SISSA research** is also confirmed by the level of European funding received. The School ranks first among Italian scientific institutions in terms of research grants awarded in relation to the number of researchers and professors: **12 ERC grants** for a staff of approximately 70 professors. An Italian record that parallels SISSA's success in securing both public and private funding, such as FIR and PRIN grants.

In the latest national research quality assessment carried out by the Italian National Agency for the Evaluation of the University System and Research (**ANVUR**) and covering all universities and scientific institutions in Italy, SISSA ranked first among all universities for mathematics and neuroscience, and first among medium-size departments in physics. Overall, SISSA came second among all small-size universities for the quality of its research.

94%

The School's internal **quality assessments** are also highly satisfactory, with 94% of researchers and students judging the services provided by the administration positively.

SISSA's value is also confirmed by the successful careers enjoyed by former SISSA students. According to data collected since the 1980s, a large majority of former SISSA students are employed in permanent positions, after an initial post-doc period in highly prestigious centres including **Harvard, Princeton, Berkeley** or **Max Planck**.





FINANCIAL SUPPORT FOR PhD STUDENTS

PhD courses last 3 years, to which an additional year may be added subject to approval by the School Board.

The annual scholarships amount to approximately Euro 15,000.

Other financial support:

- Students living in the province of Trieste (not domiciled with their families of origin) are entitled to a contribution towards accommodation amounting to Euro 100 gross per month.
- Non-EU students are entitled to a refund of the cost of registration with the Italian National Health Service up to Euro 198 per year.
- A contribution of up to Euro 400 is available for the purchase of a laptop computer.
- The School will contribute up to Euro 500 to enable non-EU students to travel home during the third or fourth year of the course.
- Students who are obliged to interrupt their studies due to illness, serious personal problems or pregnancy may be granted a contribution equal to 70% of the scholarship for a period up to 5 months.

CROSSING DISCIPLINARY BARRIERS

SISSA has set up one of the most powerful computing centres in Italy, with approximately 100 teraflops (equal to 100,000 billion operations per second) for a total of 34 million computing hours per year. It is defined as an **HPC**, or a **High Performance Computing system**, basically a high-performance supercomputer for scientific research and technological and industrial applications.

Many of **SISSA's** research activities will benefit from its capabilities, including analysis of the huge amounts of data received from satellites, simulations of cosmological models, and calculation of the electronic structure and chemical-physical properties of matter, from molecules to more complex materials, through the use of an open source software suite called **Quantum ESPRESSO**.

Still in the field of high-performance computing, **SISSA** is also home to **Mathlab**, a multidisciplinary laboratory where mathematical models are applied to different contexts, from the marine industry to complex systems.

A multidisciplinary approach is also a key feature of **FoodCAST**, a project headed by **SISSA**. A team made up of neuroscientists and physicists, among others, is using innovative methods to explore the complex dynamics food production, distribution and pricing. The aim is to shed light on possible effective solutions in the planning and handling of food resources, at both the local and global level.



More information

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