UNIVERSITY OF CAMBRIDGE | Cavendish Laboratory
Department of Physics

Experimental Physics Summer School (EPSS)

University of Cambridge, Department of Physics

2026 Programme Brochure

Programme website:
https://www.phy.cam.ac.uk/study/short-courses/experimental-physics-summer-school/

Welcome

For more than 150 years, the University of Cambridge has been a centre of discovery in the physical sciences, with the Department of Physics (the Cavendish Laboratory) playing a leading role in some of the most important breakthroughs in modern physics. Today, the Cavendish is one of the largest and most dynamic physics departments in the United Kingdom, with around **120** academic staff and PIs, more than **200** postdoctoral researchers, approximately **300** PhD students, and several hundred technical and professional staff. Together, this community forms a vibrant research ecosystem, where ideas, methods, and technologies flow continuously between groups and where collaborations thrive.

The Experimental Physics Summer School was created to give brilliant and motivated young researchers the opportunity to experience this extraordinary environment and to equip them with skills that go beyond the classroom. Students gain real practical exposure to a broad spectrum of cutting-edge research, witnessing first-hand how modern experimental physics is done and becoming part of a community that thrives on curiosity, creativity, and collaboration.

We are delighted to welcome students from around the world and look forward to supporting you as you explore the Cavendish, engage with like-minded peers, and immerse yourself in one of the most stimulating research environments in the world. Should you participate in the programme, we hope your time with us will be inspiring, challenging, and a memorable step in your journey in physics.

We look forward to welcoming you this summer.

Prof. Akshay Rao
Professor of Physics
EPSS Co-Director

Prof. Karishma Jain
Teaching Professor of Sustainability and Innovation
EPSS Co-Director

Overview

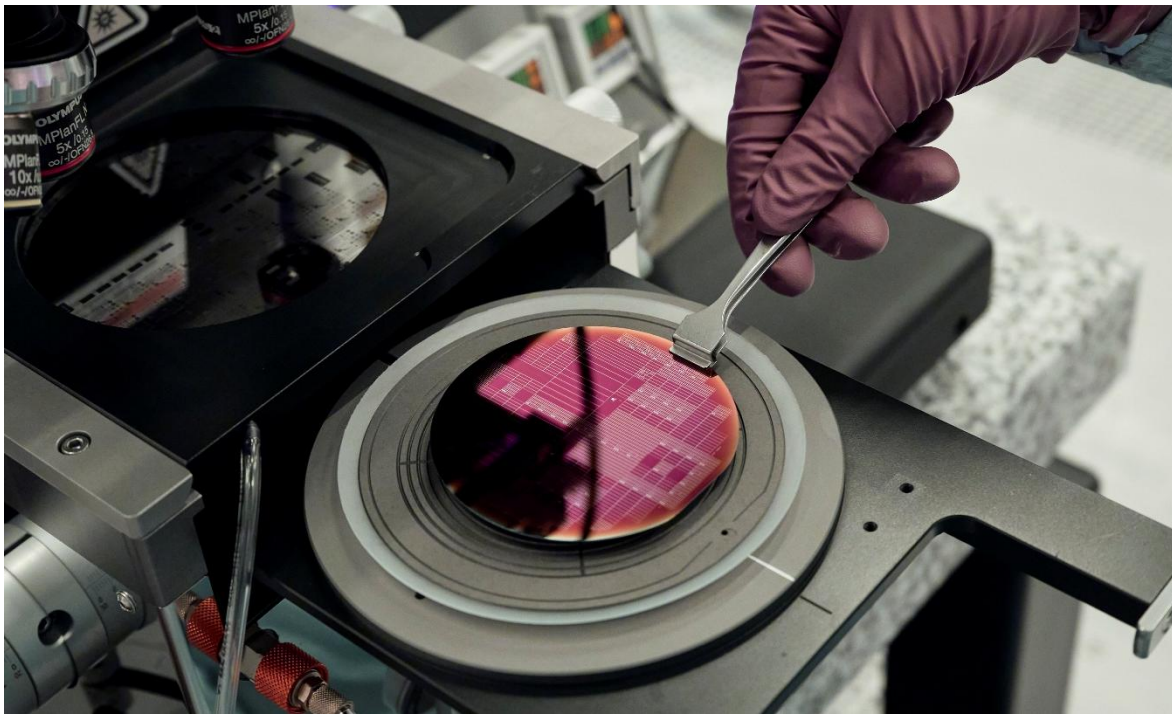
Why participate?

The EPSS is aimed at undergraduate students who want an intensive and practical introduction to experimental physics. Students who have completed at least one year of study are eligible, and the programme is particularly suitable for those in their second or third year. While the programme is designed with physics undergraduates in mind, students from engineering, chemistry, materials science and related fields who have a strong interest in hands on experimental work are also encouraged to apply.

The EPSS provides an opportunity to step into the environment of a world class physics department. The programme is structured to help you build both technical competence and the broader habits of thinking associated with scientific inquiry. It also provides a chance to meet and collaborate with an international cohort of students who share an interest in physics and scientific problem solving.

Students develop practical confidence with equipment that is not typically available in undergraduate laboratories. The experience offers insight into how research groups operate, how projects evolve over time and how experimental problems are approached in real life settings.

Programme



What to expect

The four-week EPSS programme integrates hands-on experimentation, critical thinking, and scientific communication into a structured, progressive format. It allows you to build confidence, test new ideas, and experience what it's like to work as a researcher.

Stage 1 - Core Skills:

Week 1 lays the groundwork for the programme. You will take part in structured sessions on key experimental skills, including small-group classes on optical setups and practical electronics, where you will learn to handle components, align equipment, and understand the principles behind common laboratory systems.

Practical workshops on modern experimental techniques will also run in very small groups, giving you close access to advanced instruments, the chance to explore different measurement methods, and the opportunity to become confident with tools central to contemporary experimental physics.

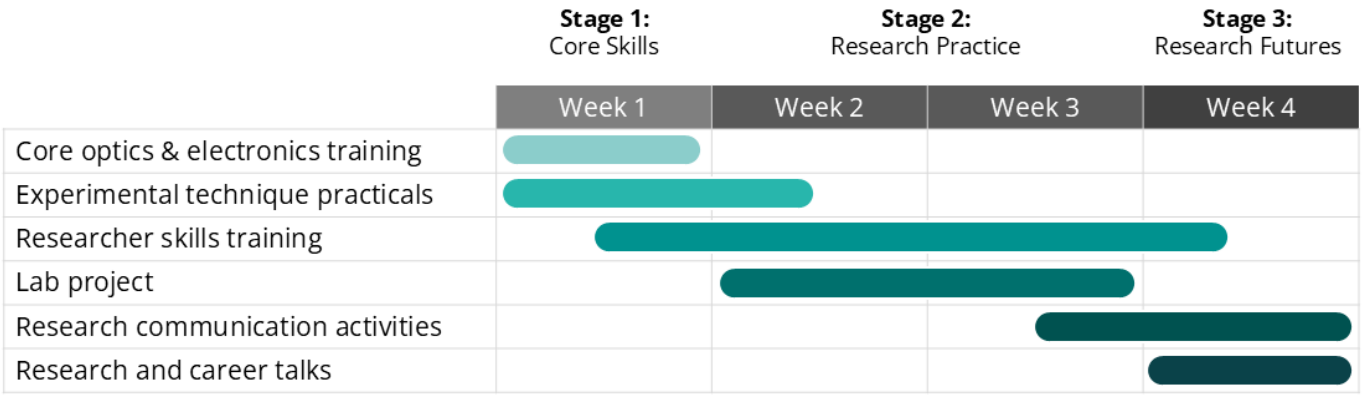
Alongside this, you will begin developing core transferable research skills that all researchers rely on, such as reading scientific papers, communicating ideas clearly, and approaching problems with curiosity and independence. Through group journal clubs, you will learn to break down research articles, discuss scientific questions, and present your thinking to others.

Stage 2 - Research Practice:

In Weeks 2 and 3, you will undertake a group-based experimental investigation, applying the skills developed in Stage 1 alongside continued practical workshops. This stage further develops your communication and analytical skills. Additional workshops, informal discussions, and feedback from researchers support your approach to experimentation, data analysis, and scientific reasoning.

Stage 3 - Research Futures:

During the final week, you will explore the broader landscape of physics research and potential career paths. Seminars led by researchers and current PhD students will introduce you to the broad research themes and groups at the Cavendish, as well as



careers in and beyond academia. Alongside the seminars, you will also collaborate with peers on a research communication activity, giving you the chance to explore a topic that genuinely interests you.

Programme format

EPSS is a full-time, in-person programme designed to mirror the realities of research. The schedule is active and hands-on, offering a more immersive experience than a typical lecture-based summer school. You can expect around 30 contact hours per week, Monday to Friday, combining individual and group work. Small-group practical sessions allow you to develop skills progressively while working closely with peers.

Learning outcomes

By the end of the EPSS programme, participants will have:

- Gained first-hand experience of advanced experimental techniques and measurement methods typically encountered only in active research environments.
- Developed confidence engaging with unfamiliar systems and techniques, learning how to adapt quickly, troubleshoot effectively, and work independently in a laboratory setting.
- Built an informed perspective on research pathways in physics, through direct interaction with researchers and PhD students, and exposure to experimental work across academia and industry.

Throughout the programme, you will complete a series of structured tasks that support your learning and help you grow as a researcher. Successful completion of all activities will earn you a Certificate of Attendance, and exceptional performance may be recognised with a Pass with Merit.

Important information

Key info - 2026 school

Dates: 6 July – 1 August 2026 (4 weeks)
Fee: £4,650 (Early-bird: £4,150)
Deadlines:

- Early bird: 7th Jan 2026
- General: 15th Feb 2026

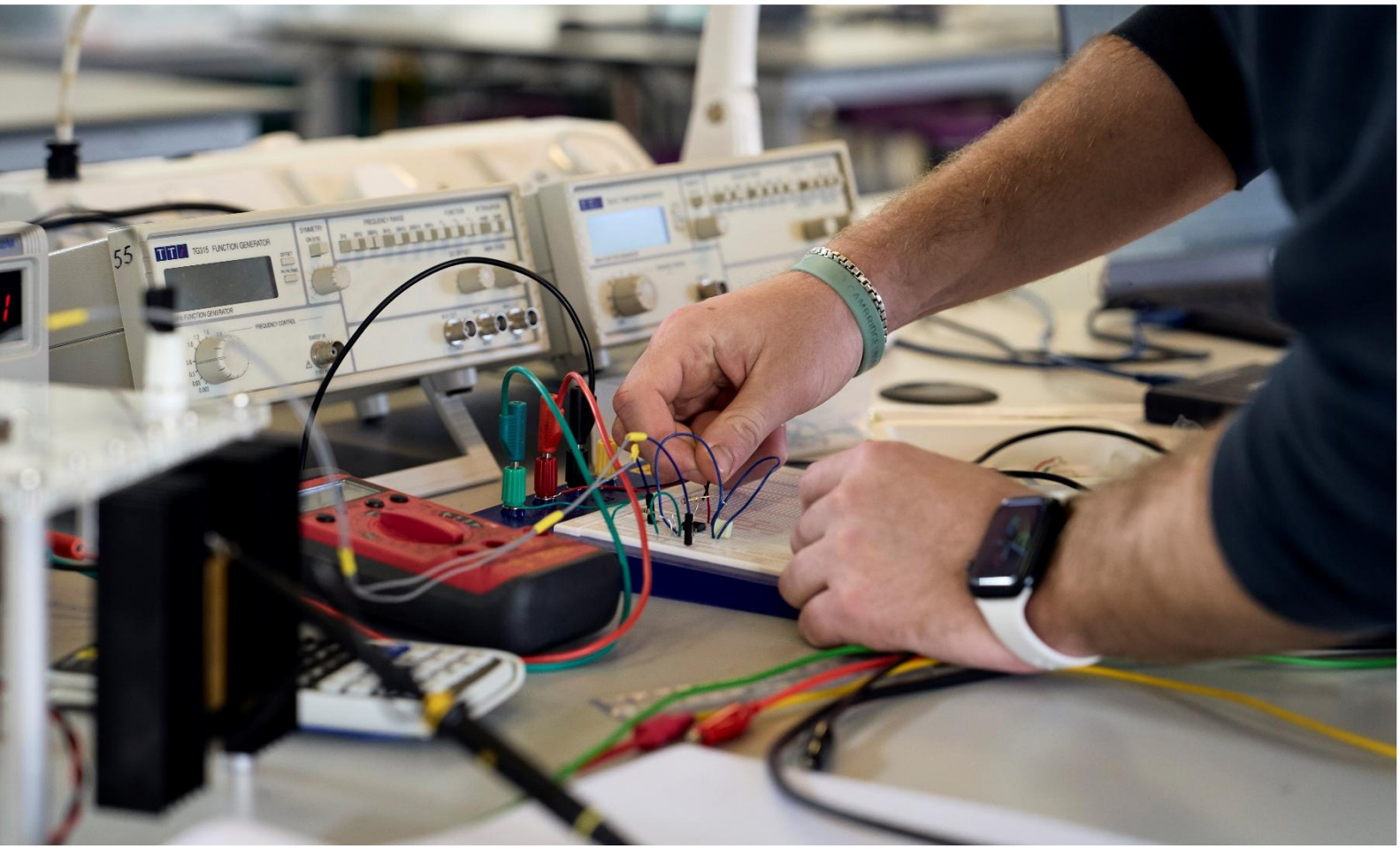
Making your application

The EPSS is open to undergraduates from the UK and abroad, provided you meet a few basic requirements. You must be 18 or older at the start of the summer school. Applicants should already be enrolled at a higher-education institution and remain registered throughout the programme. By July 2026 (when the next session begins) you should have completed at least one year of undergraduate study. While priority is given to students with a Physics background, those studying related STEM disciplines with a strong interest in experimental Physics are also welcome to apply. Importantly, you do not need prior research experience or advanced technical skills. You will need to provide a statement of motivation, a CV, an academic transcript, and a brief (≈ 2-minute) video statement explaining why you want to join EPSS and what you hope to take from it. Shortlisted candidates will be invited to a short online interview in February–March), with final decisions communicated in March.

Fees and accommodation

The tuition fee covers all core training sessions, lab practicals, group work, and social events (including the final dinner), plus access to digital course materials, and a certificate of attendance on satisfactory completion. The programme has an application fee of £20 (non-refundable), which will be deducted from your tuition fee should you be accepted. Accommodation and travel are not included in the tuition fee, so participants are responsible for finding and organising their own housing for the duration of the programme.

A limited number of bursaries are available to help with the cost of attending EPSS. If you would like to be considered for financial support, you should indicate this in your application; shortlisted applicants seeking bursaries may be asked to provide a short supplementary statement (and potentially references).



UNIVERSITY OF CAMBRIDGE | Cavendish Laboratory
Department of Physics

Get in touch

www.phy.cam.ac.uk/study/short-courses/experimental-physics-summer-school

epss.admin@phy.cam.ac.uk

Information in this brochure is accurate for the 2026 EPSS programme at the time of publication but may be subject to change. For the latest programme information, please refer to the programme website.