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Summer School

College Pathways

COURSE OVERVIEW

Faculty of Sciences and Technology (STEM)

14-17yrs

Dukes Cambridge Summer School

At a glance

Introduction to Faculty of Sciences and Technology (STEM)

The Faculty of Science and Technology is where curiosity meets innovation. This programmeme is designed for students who are passionate about exploring the frontiers of science and applying technological solutions to solve complex problems. Through a blend of theory and hands-on experience, you'll be prepared to tackle the challenges of tomorrow's world.

Academic Content

20 hours of subject-specific academic content per week with an experienced subject tutor, delivered through interactive seminars and hands-on practical workshops.

English Language Level

Students require a minimum English level of B1+ to enrol onto this programme.

About the programme

At the Faculty of Science and Technology you'll spend two weeks exploring the foundations of STEM. Physics, chemistry, biology and engineering come together here, showing how each discipline connects and how they can be applied to real challenges. The course is built around practice as much as theory. You'll work with data, run experiments and design solutions, sharpening both analytical and creative thinking.

Laboratory sessions, engineering projects and technology workshops give you the chance to apply concepts directly. These hands-on tasks show how scientific knowledge translates into real outcomes.

Collaboration runs through the programme. Group projects mirror the way modern science works, drawing on expertise from different areas to tackle shared problems.

Studying science and technology at Dukes Cambridge gives you a strong mix of knowledge and technical skill. It's preparation for futures in research, engineering and innovation, and a step towards building ideas that matter.

Key Learning Outcomes

1.

Build a Foundation Across Core STEM Disciplines

Study physics, chemistry, biology and engineering to understand the principles that underpin modern science and technology.

2.

Apply Scientific Knowledge to Real-World Challenges

Work with data, test experiments and design solutions that address practical problems in science and engineering.

3.

Gain Hands-On Technical Experience

Take part in laboratory work, engineering builds and technology workshops that translate theory into practice.

4.

Collaborate on Interdisciplinary Projects

Join peers in group tasks that integrate different areas of science, reflecting the collaborative nature of modern research and innovation.

Subject Theme

The Challenge Lab

The Cambridge Challenge Lab gives students the chance to turn ideas into action. Over the course of the challenge, you'll take what you've learned in class – concepts, theories, and creative approaches – and put them to the test. Each subject sets its own challenge: scientists run live demos, medics work through clinic simulations, psychologists design social experiments, business students act as consultants, and artists create large-scale installations. English students launch a full publication, taking on the roles of writers, editors, and designers. The Lab becomes a space where experimentation meets presentation, where you'll learn how to move from planning to execution, and from individual thinking to group collaboration. The week culminates in a showcase where projects are demonstrated, performed, or displayed in real time, allowing the audience to see the full journey from theory to practice.

Fundamental concepts

Students learn how science and engineering ideas move from theory to demonstration. The focus is on designing experiments that are clear, testable, and safe to show live. They explore how to explain processes step by step so an audience can understand both what is happening and why it matters.

Faculty of STEM Frameworks

The subject follows the structure of a science presentation. Students start by choosing a problem or question, design an experiment that shows the answer, and prepare a short explanation that links their demo to real-world applications. The project ends with a live showcase, echoing the way researchers share findings at public science festivals.

Foundational Vocabulary

Experiment, hypothesis, data, result, model, prototype, variable, innovation, system, solution, explanation.

Time to Shine

Time to Shine gives every student the chance to practise public speaking in a structured setting. By researching, preparing and delivering a project to an audience, you build confidence in expressing ideas clearly and develop the ability to present with authority. It's an opportunity to refine communication skills that are valuable for academic study, professional life and beyond.

The final showcase takes place in the style of a science fair. Each group runs its demo live in front of the audience, explaining the science as it happens and showing the result in real time. The challenge is to make the explanation clear while keeping the experiment engaging and accurate.

Time to Shine Project: Week One

Design a demo that shows how renewable energy can be generated. Students might build a simple wind turbine or solar model, demonstrating how natural forces can be turned into power.

Time to Shine Project: Week Two

Create a demo that explains a key principle of physics or chemistry, such as pressure, reaction, or motion. The task is to set up an experiment where the result is clear to see and easy to connect with real-world uses, from transport to medicine.

Case Study

Bridging Theory and Real World Application

Science and engineering are part of everyday life. In energy, scientists build models and experiments to test new ways of producing power. In transport, engineers run trials to improve safety and speed. In medicine, researchers design experiments to check how treatments work before they reach patients. Technology companies also use prototypes and demos to show new products. By preparing their own live demo, students see how experiments are used in many fields to explain ideas, solve problems, and convince others.

Fieldwork Research

Groups collect natural data from the campus environment, such as measuring temperature, light, or sound in different areas. These observations can be used to design experiments that connect to real surroundings.

Academic Difficulty

No prior experience is needed to take part in this subject. Every student is welcome, whether or not they've studied the subject before. Key ideas and terms are introduced step by step, and all materials are provided during the course. The emphasis is on participation, teamwork, and curiosity, so students can contribute fully and grow in confidence as they prepare for the final showcase.

In-Person Programme Benefits

Academic Coaching

Throughout the course, you will receive personalised academic coaching to help you achieve your goals. Our experienced tutors will provide feedback on your projects, assist you in developing your technical and analytical abilities, and guide you in honing the skills essential for success in science and technology.

Certificate of Achievement & Reference Letter

On completion of your programme, you will receive a Certificate of Achievement from Dukes Cambridge, recognising the knowledge and skills developed during your studies. A personalised Letter of Reference is also available on request, providing an account of your progress and commitment. Both serve as valuable additions to your academic portfolio.

Secure your place

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