

---

# NATURAL SCIENCES

*Course Overview* **2023**



*Course Overview*

# AT A GLANCE

---

**Price:** £4,500

**Ages:** 15-17

**Duration:** 2 weeks

**Starting Dates:** 9th July, 23rd July, 6th August 2023

**Location:** Cambridge College

Natural Sciences is the perfect course for any student with a passion for understanding how the universe works. During the course, students will focus on three core science subjects: chemistry, physics and biology. These subjects are studied with the objective of better understanding the laws of the physical world around us.

The course includes a dynamic week-long science project in which you will put your learning into action in a collaborative effort to solve global 21st century scientific issues. You will also rub shoulders with experts in the sciences field and visit live, working labs as part of our Industry Experience programme.

# SAMPLE TIMETABLE

## WEEK ONE

8.45-9.00	Morning Assembly				
9.00-10.30	<b>Natural Sciences Seminar</b> <i>Origins of Natural Sciences as Academic Subjcets</i>	<b>Natural Sciences Lecture</b> <i>Molecular Cellular Physiology</i>	<b>Keynote Lecture</b>	<b>Natural Sciences Lecture</b> <i>Evolution and behaviour</i>	<b>Natural Sciences Seminar</b> <i>Biophysics</i>
11.00-12.30	<b>Natural Sciences Time to Shine: A Natural Sciences Case Study</b> <i>A research and presentation project in Physics, Biology and/or Chemistry.</i>				
13.30-14.45	<b>Natural Sciences Practical Workshop:</b> <i>Organic Chemistry Laboratory (1)</i>	<b>Natural Sciences Seminar</b> <i>Elemental Structures</i>	<b>Industry Experience</b>	<b>Natural Sciences Seminar</b> <i>The Earth and Space</i>	<b>Keynote Lecture</b> <i>Leadership</i> By Visiting Academic
15.00-16.15		<b>Academic Coaching:</b> <i>Interview Preparation</i>		<b>Academic Coaching:</b> <i>Writing a personal statement</i>	<b>Academic Coaching:</b> <i>Public Speaking Skills</i>
16.15-18.15	<b>Free Time</b> <i>Tutorials once per week, 16.30-17.30</i> <i>Career Counselling Clinic, 16.30-17.30</i>				

## WEEK TWO

8.45-9.00	Morning Assembly				
9.00-10.30	<b>Natural Sciences Seminar</b> <i>Biochemistry</i>	<b>Natural Sciences Lecture</b> <i>The phylogenetic tree of life</i>	<b>Keynote Lecture</b>	<b>Natural Sciences Lecture</b> <i>Genotypes and Phenotypes</i>	<b>Natural Sciences Seminar</b> <i>Astrophysics</i>
11.00-12.30	<b>Natural Sciences Time to Shine: A Natural Sciences Case Study</b> <i>A research and presentation project in Physics, Biology and/or Chemistry.</i>				
13.30-14.45	<b>Natural Sciences Practical Workshop:</b>  <i>Organic Chemistry Laboratory (2)</i>	<b>Natural Sciences Seminar</b> <i>Microbiology: bacteria and microorganisms</i>	Industry Experience	<b>Natural Sciences Seminar</b> <i>Genetics 101</i>	<b>Keynote Lecture</b> <i>Success in Academia</i> By Visiting Academic
15.00-16.15		<b>Academic Coaching:</b> <i>Interview Preparation</i>		<b>Academic Coaching:</b> <i>Writing a personal statement</i>	<b>Academic Coaching:</b> <i>Public Speaking Skills</i>
16.15-18.15	<b>Free Time</b> <i>Tutorials</i> once per week, 16.30-17.30 <i>Career Counselling Clinic</i> , 16.30-17.30				

# NATURAL SCIENCES

## TIME TO SHINE

**Time to Shine title:** *Inside the Cell: Experiments to Discover the Inner Working of the Eukaryotic Cell*

**Time to Shine description:** Cambridge College's *Inside the Cell* Time to Shine project introduces students to experiments which reveal the inner working of the eukaryotic cell. Projects include discovering how enzymes function through analysing potato starch, extracting DNA from kiwi fruit, and witnessing mitosis in action in a magnified onion root, plus many more besides.

### *What you'll learn*

---

- An overview of how Biology, Physics and Chemistry combine to power all life on earth.
- An expert guide to cell biology and the biochemistry of life.
- Guest speeches from leading academics in the field of Natural Sciences
- Take part in our exciting *Inside the Cell* Time to Shine project, in which you and your classmates will investigate cell biology in a fun and engaging way.
- Through fun and engaging lesson activities, develop and apply your 21st century skills, such as critical thinking, communication skills, collaborative skills, and original thinking.

# NATURAL SCIENCES

## INDUSTRY EXPERIENCE

A highlight of our academic programme is our **Industry Experience** afternoons, where students take part in a series of workshops and lectures led by top industry professionals and academics in their respective fields. The Industrial Experience element of our courses provides a profound level of insight so that students can further make informed decisions as to whether their future career choices are right for them. Our College students will be introduced to a real-world professional environment in their chosen field of study, where they will absorb knowledge through workshops, lectures and Q&As.

---

London's celebrated *Centre of the Cell* museum visit our Natural Science students in Cambridge, and give a hands-on workshop in cell biology. The workshop includes a guest speaker talk, and demonstrations on key aspects of cell biology featuring interactive props and educational technology.

