



## **Mathematics Course Key Facts**

<b>Location</b>	Online (live, not pre-recorded)
<b>Class size</b>	Maximum 15 students
<b>Ages</b>	15-18
<b>Fees</b>	£995 (2 weeks)
<b>Dates</b>	June - August (see our <a href="#">booking form</a> for the latest availability)
<b>Timings</b>	Live tutorials take place from 1-3pm UK time
<b>Outcome</b>	Certificate of Achievement and personalised Letter of Recommendation

## **Mathematics Course Outline**

<b>Class</b>	<b>Topic</b>	<b>Objectives: Students will be able to...</b>
1	<b>Introduction &amp; Algebra</b>	<ul style="list-style-type: none"><li>● Get an introduction to the course and topics</li><li>● Understand how and why we use symbols in algebraic manipulations</li><li>● Examine advanced simultaneous equations problems</li><li>● Explore how algebra is used in matrices</li></ul>
2	<b>Proof</b>	<ul style="list-style-type: none"><li>● Outline what a proof is</li><li>● Examine different types of proof</li><li>● Assess the proofs of others</li></ul>
3	<b>Number theory</b>	<ul style="list-style-type: none"><li>● Outline different types of number</li><li>● Identify different types of number</li><li>● Examine the properties of different types of number</li></ul>
4	<b>Probability</b>	<ul style="list-style-type: none"><li>● Apply prior understanding of probability to scenarios</li><li>● Examine interesting examples of probability</li><li>● Explore the relationship between probability and statistics</li></ul>



5	<b>Statistics</b>	<ul style="list-style-type: none"><li>● Outline key concepts in statistics (type a error, type b error, p-values)</li><li>● Examine key statistical operations</li><li>● Apply these operations to real life scenarios</li></ul>
6	<b>Calculus</b>	<ul style="list-style-type: none"><li>● Outline the Fundamental Theorem of Calculus</li><li>● Examine processes of differentiation and integration</li><li>● Apply these processes to real life problems</li></ul>
7	<b>Mechanics</b>	<ul style="list-style-type: none"><li>● Outline key principles in Mechanics</li><li>● Examine the processes involved in applying these principles</li><li>● Apply the processes to real life scenarios</li></ul>
8	<b>Cryptography</b>	<ul style="list-style-type: none"><li>● Outline the principles of cryptography</li><li>● Examine the processes involved in applying these principles</li><li>● Apply these processes in order to create their own code</li></ul>
9	<b>Maths Today and Beyond</b>	<ul style="list-style-type: none"><li>● Explore a hot topic in mathematics.</li><li>● Explore the relationship between mathematics and the growing field of AI</li><li>● Think about how mathematics will influence the world you will live in as young professionals.</li><li>● Discuss how to develop the skills you will need to thrive in this world.</li></ul>
10	<b>Design a code-breaking escape room</b>	<ul style="list-style-type: none"><li>● Apply their learnings through the course by designing a code-breaking escape room using mathematical puzzles and problem questions</li><li>● Work in small groups and present to the larger group</li><li>● Receive tutor and peer feedback</li></ul>

## **Next Steps**

We'd love to welcome you to our Mathematics online course! In order to secure your place, the next step is to apply [by clicking here](#).

If you have any questions, please don't hesitate to contact Stephanie on 0044 1865 522 166, or by email on [hello@oxfordscholastica.com](mailto:hello@oxfordscholastica.com).