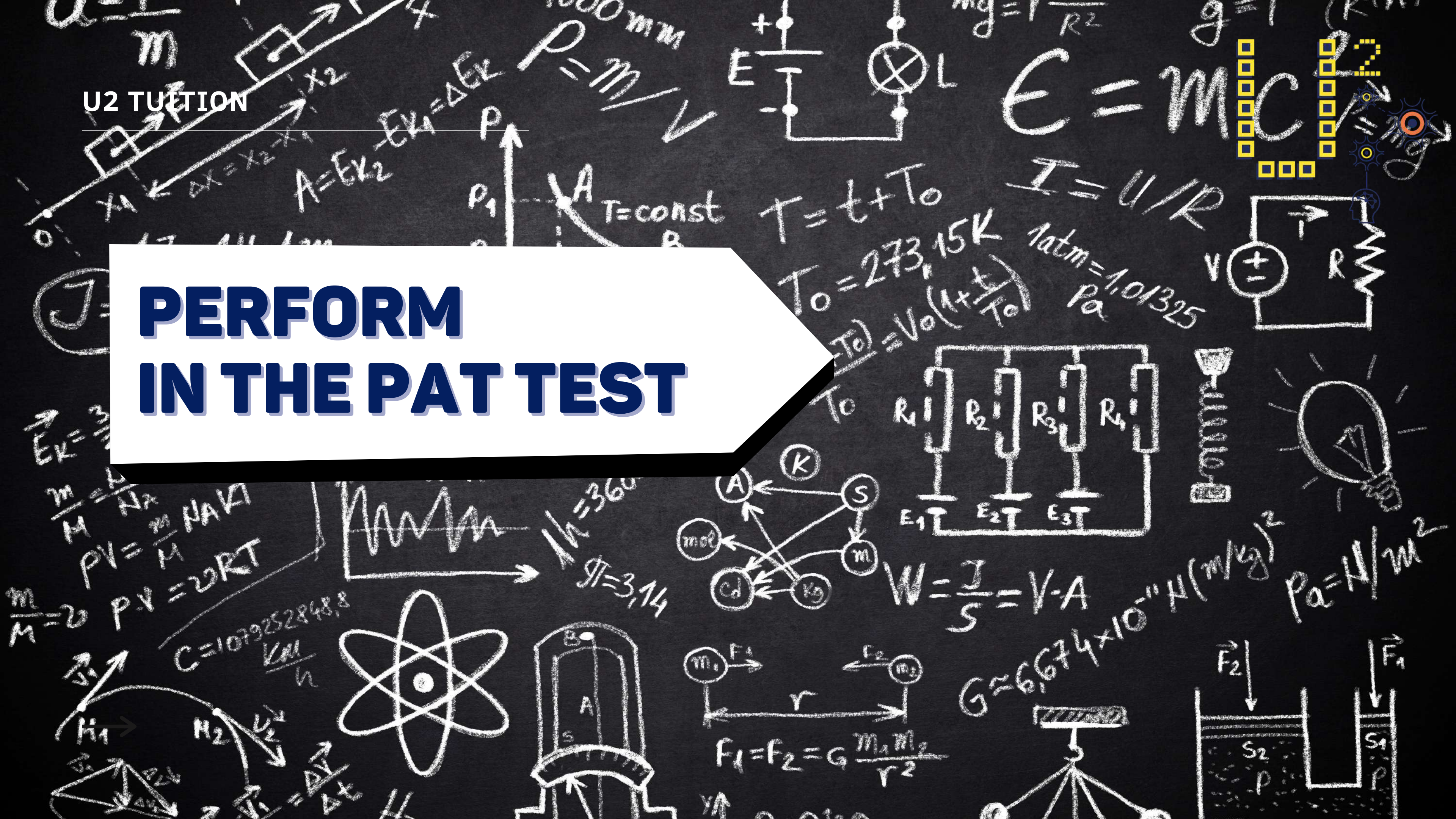


U2 TUITION

PERFORM IN THE PAT TEST



Overview

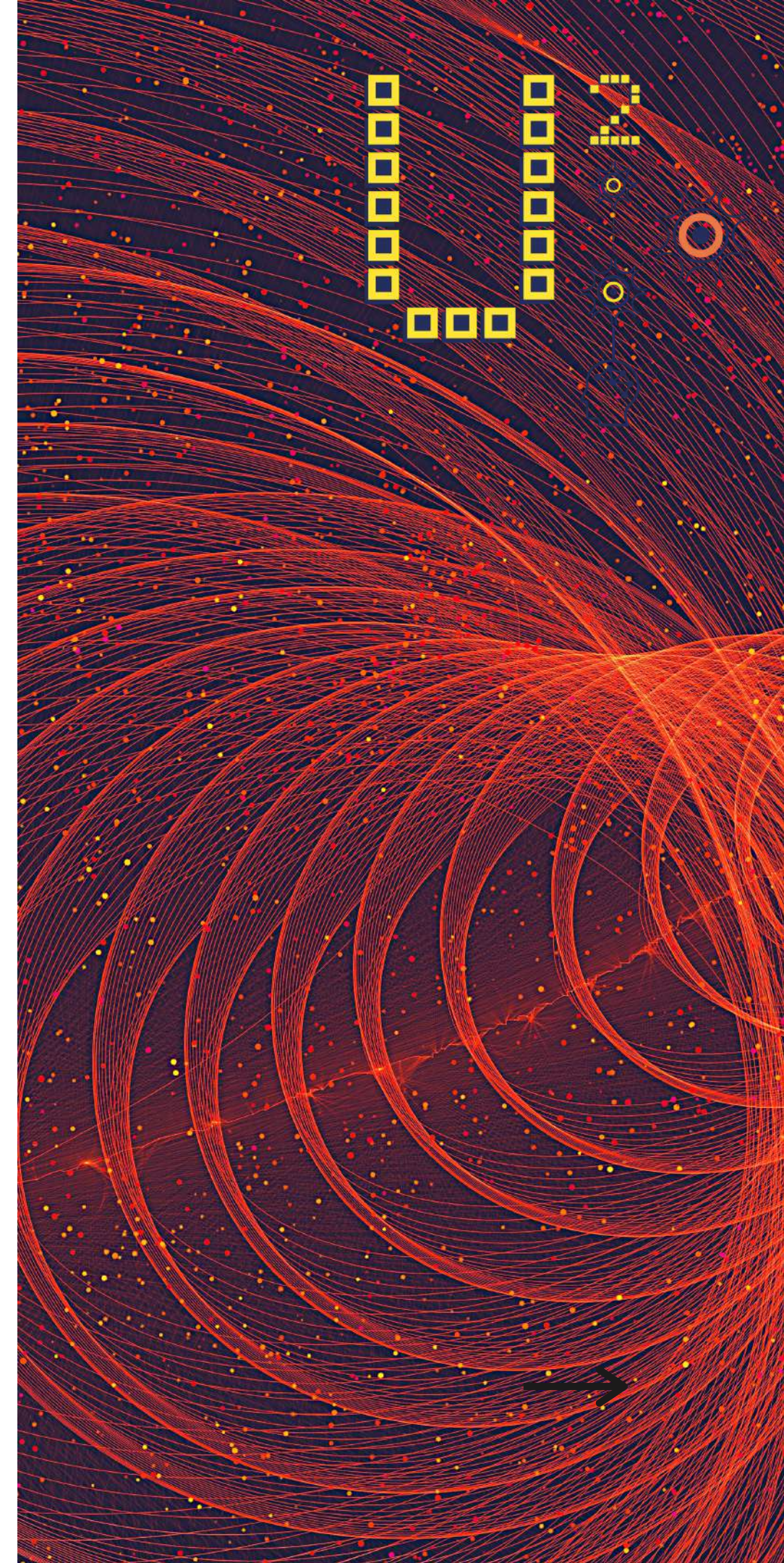
Our PAT test course aims to provide students with a final practice and push under the tutelage of a subject expert! The small group class aims to encourage team discussion and problem-solving, which will serve students well not only for the test, but also the interview process. At interview, students will be tested with very similar questions, but will be tasked with verbal problem solving, often new to students at this age.

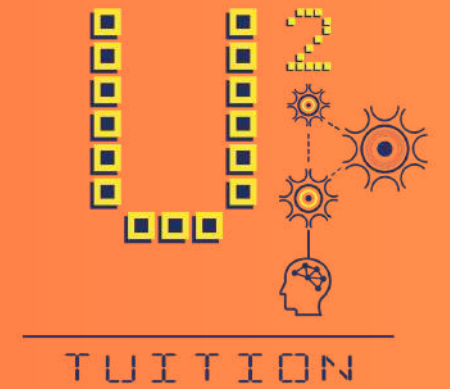
What to Expect

The course host has an extensive collection of PAT-standard maths and physics questions, many of which have not appeared in previous past papers. Students will work through a vast array of practice questions, discuss effective approaches / methods, and how to spot patterns in questioning.

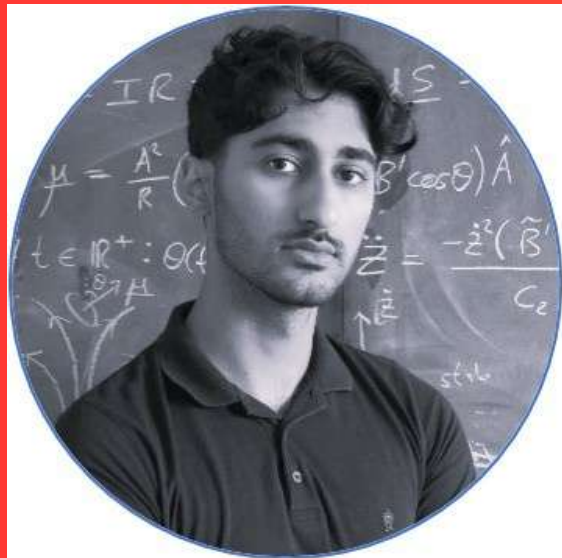
Logistical Details

- All classes will take place over Zoom. Links will be sent out prior to the course commencing.
- The course host will typically set optional tasks between classes.





Our Host



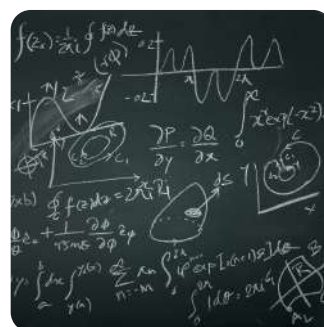
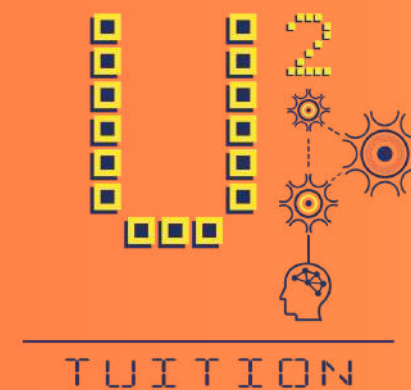
Okasha

Okasha graduated with a Physics BA from Wadham College, University of Oxford, obtaining First Class Honours. He is currently enrolled on the MMathPhys course at Oxford, specialising in mathematical and fundamental physics. He was also a visiting scholar at the University of Cambridge in 2023, performing research in high energy physics and cosmology. Okasha has been tutoring A-level students for a number of years, and specifically providing Oxbridge and Ivy League preparation. All his students have passed the Oxbridge entrance examinations for Maths, Physics and Engineering courses.

With regards to Physics/ PAT preparation, students are often underprepared for optics and some topics in electricity and magnetism (Phys. I). There are topics such as planetary motion and phases of the moon which are often not covered in school. Difficult mechanics questions always come up (Phys. II) as well as mathematics graph sketching, which is also really useful for interviews, and is often unfamiliar even to the best students (Maths. II)! Questions related to calculus and series pop up every year and underpin an awful lot, so these are all fundamental components covered in the 2023 PAT course.



The Agenda:



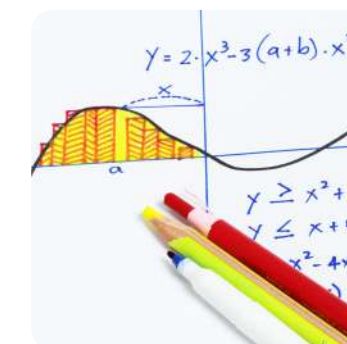
Maths I: Calculus and Series

In addition to being a key skill for successfully completing the PAT, calculus is also an important aspect of advanced mathematics and underpins the mathematical description of all physical phenomena that involve evolution over time. In this tutorial we will discuss techniques for identifying analytical properties of functions, calculating expansions of functions, and solving differential equations. We will also turn our attention to evaluating series and explore the connection between calculus and series.



Physics I: Electromagnetism and Optics

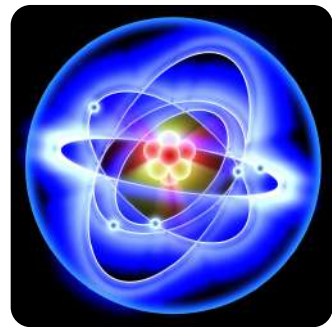
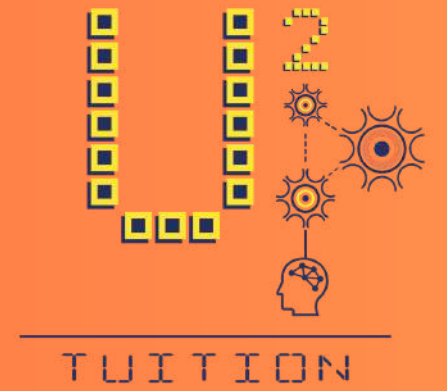
Electromagnetism is a broad subject encompassing a number of topics in the A-level and PAT syllabi, and often defies intuition. In this class, we will identify key strategies to solving electromagnetism and optics problems, and explore the underlying principles to develop an understanding and intuition into the fundamental physics behind electromagnetism.



Maths II: Graphing Techniques and Geometry

Sketching graphs of given functions is a useful technique for the PAT, but is also a useful tool for visualising functions and their analytic properties, and often comes up in physics and mathematics interviews. In this class, we will focus on identifying roots, turning points, asymptotes, and limits of functions and discuss strategies for plotting exotic functions accurately. Geometry is a consistent theme of the PAT test and we will discuss a number of problems that require finding the areas of complex shapes. →

The Agenda:

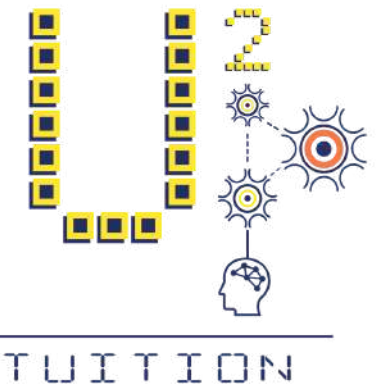


Physics II: Dynamics and Orbital Mechanics


Mechanics is introduced in A-level Physics and Mathematics courses, and the PAT test requires a good working knowledge of this subject. There are, however, areas in the PAT syllabus that go beyond the A-level syllabi. In this class we will discuss techniques for solving difficult mechanics problems, and extend our discussion to orbital mechanics – including planetary motion and the phases of the moon.

Any questions? Get in touch!

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