CUHS PS Example
Natsci (Physics) 2026

Q1. Why do you want to study this course or subject?
This is your opportunity to showcase your passion and knowledge of your chosen subject area and to demonstrate to universities and colleges why they are a good fit for you and your future ambitions.

What draws me to physics is the beauty of its profound simplicity, its emergent complexity, and its invaluable usefulness in our everyday lives. Electromagnetism, for example, at its core is nothing but the phase symmetry of the Dirac field. On the molecular scale, however, it turns out to be the backbone of all of life: most biological interactions are electromagnetic. As for its applications: MRIs save lives every day, computers allow instant global access to information, and electric grids are the primary source of energy for households and industrial settings. Quantum physics became my main point of interest when I learned about the gauge symmetries underlying the Standard Model of elementary particles. Seeing how mathematical manipulations turned these pure axioms into a theory that explains most of physics was perspective-shifting both in physics and philosophy. I am also fond of chaos theory, since in the classical regime, the apparent randomness – that is inescapable in quantum physics – can be tamed by the skillful use of numerical modeling techniques. Studying physics in the UK will give me the necessary foundations to become a successful researcher in theoretical physics, keeping me at the forefront of international scientific research, and allowing me to grow in a challenging academic environment.

Q2. How have your qualifications and studies helped you to prepare for this course or subject?
This is your chance to shout about the relevant or transferable skills you've gained from your education and highlight your understanding of how they will help you succeed in this subject area.

During high school, I prepared for competitions and my further studies in a number of ways, starting with maths and later taking on physics. From grade 7, I studied maths five times a week, which gave me an early introduction to advanced tools and methods, like projective geometry and zero-knowledge proofs. I also joined a weekend maths camp, where we worked in groups focusing on historically significant questions of mathematics, which made me more susceptible to innovative and out-of-the-box ideas and taught me the value of working with partners on creative projects. In grade 9, I began the natural sciences track in one of the strongest Hungarian high schools with five physics classes a week. In addition, I attended a preparatory class training students for international physics olympiads, where I learned by solving more complex and higher-level problems. For these, I needed to acquire even deeper mathematical skills, like calculus for differential equations and complex numbers for the phasor representation of AC circuits. Motivated by my aspiration to study abroad, in grade 10 I gained admission to the Milestone Institute, an English-language academic programme, where I took science modules that weren't part of the high school curriculum, like Quantum Mechanics and Special Relativity. As a result of my preparation, I was awarded 2nd prize and two 13th places in national mathematics competitions and placed 1st, 2nd, and 4th in national physics competitions from grade 9 to 11. Also in grade 11, I was selected for Hungary's Physics Olympiad team, where I earned silver medals both in the 2025 EuPhO and IPhO.

Q3. What else have you done to prepare outside of education, and why are these experiences useful?

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This is your chance to reflect on any other activities you have undertaken outside of your education, or personal experiences which further demonstrate your suitability for the course. This section is likely to be deeply personal to you, so anything you include should be meaningful and relevant to you.

Apart from academics, I have been programming physical and mathematical simulations since 2017, which proved valuable in various respects. Numerically solving analytically unsolvable differential equations made me appreciate modern computer-based research methods. Handling edge cases, e.g. when finding the coefficients of a complex Fourier series, showed me the importance of seemingly insignificant details in the numerical sciences. Since I wanted to code all the necessary algorithms myself and rarely used any external libraries, I also developed an understanding of linear algebra when dealing with 3D rotations. My long-standing interest in coding allowed me to conduct computer-based research on chaotic systems at a leading university in Hungary. The project investigates exoplanetary systems with two massive planets that affect each other's orbits, using transit photometry data to determine the ratio of the planets' masses. This experience assured me of my decision to pursue a career in theoretical physics