Physics & Astronomy

www.st-andrews.ac.uk/subjects/physics
physics@st-andrews.ac.uk

Available degree options Previous knowledge of subject required? Yes, Physics and Mathematics

<table>
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<th>BSc</th>
<th>MPhys</th>
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<td>Physics and Mathematics (MPhys)</td>
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You will gain a solid grounding in core physics, which you will use in exploring practical, theoretical and computational aspects of the subject. There are choices of entry and exit points, and significant choice within the programme.

- The nature of the School allows significant interaction amongst students and staff.
- Physics at St Andrews was rated top in the UK in the Guardian University Guide 2018 as well as in 2017.
- Entrants with good Advanced Highers/A-Levels/IB may enter directly into second year and attain an Honours BSc in three years, or an Integrated Masters in four.
- The research project work of some of our final year students has achieved international recognition.
- Teaching is underpinned by the School’s research in laser physics and optoelectronics, biophotonics, quantum optics, magnetism and superconductivity, millimetre-wave techniques, and semiconductor structures.

What will I study?
You will gain an excellent education in physics, with the opportunity to specialise in astrophysics, theoretical physics, or experimental physics. You can become part of a stimulating academic community. The final year project, which is usually undertaken within one of our research groups, is a highlight of our degrees. Recent projects have involved modelling the interaction of photons with qubits, mapping the surface of Pluto, and optimising MRI for diagnosis of cardiac disease.

First year
You will develop knowledge and important skills through studies in topics such as classical mechanics, quantum phenomena, waves and optics and the properties of matter. Teaching includes lectures, tutorials, and problem-solving workshops. You will also study relevant mathematics courses. Intending astrophysicists also take an astrophysics course; this is an option for intending physicists.

Second year
Topics may include quantum physics, special relativity, dynamics, electricity and magnetism. You will also study linear algebra and multivariate calculus in the School of Mathematics & Statistics. Intending astrophysicists also take an astrophysics course; this is an option for intending physicists.

Third and fourth years (Honours)
You take some or all of the courses in quantum mechanics, nuclear and particle physics, electromagnetism, computational physics and condensed matter physics, and take additional courses in appropriate specialist areas. Depending on the degree, topics might include extragalactic astronomy, electronics, lasers, special relativity and fluids.

Entry requirements
We consider all aspects of every application, including context, equivalent qualifications and the Personal Statement. Offers may be higher or lower than the grades stated here. See also page 169.

Qualifications must include Physics and Mathematics
Preference may be given to candidates offering strong science qualifications.

If you are accepted onto a Single Honours degree in the School of Physics & Astronomy on the first year entry or direct entry into second year routes below, then you can change on arrival between the two routes, provided you meet the minimum grades.

First year entry
SQA Highers: AAAA
GCE A-Levels: AAA
International Baccalaureate Points: 38, including HL6 in Physics AND HL6 in Mathematics.

Direct entry into second year
SQA Highers and Advanced Highers: AAAA at Highers, and AA at Advanced Highers.
GCE A-Levels: AAA
International Baccalaureate Points: 38, including HL6 in Physics AND HL6 in Mathematics.

Physics and Astronomy (Gateway) and (International Gateway) entry For UK students with high academic potential but having experienced disadvantage, at least BBBR or ABBC at Highers, BBB at A-Level, in all cases to include Physics and Mathematics. Also for international students with high academic potential but with less access to advanced level qualifications.

Physics and Astronomy
- Astrophysics
- Physics
- Theoretical Physics

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The interaction between staff and students in the School is informal yet respectful, and the courses are well thought through. One of my best experiences so far has been the opportunity last summer to work within a Condensed Matter research group; this has made me more enthusiastic than ever for my chosen degree path of Experimental Physics.

Alisa (Hertfordshire, England)