

PHYSICS FAQs

NUS e-OPEN HOUSE 2020

1. What sorts of careers are open to physicists?

Physics applications, like the range of career opportunities, are extremely varied. Employers today actively seek out people who can prove their ability to think logically, understand complex ideas and apply them to the real world. If you want a career in science, the media, education, business or a host of other fields, physics can help give you the edge.

Through a combination of cutting-edge research and a fundamental understanding of physical principles, physicists pioneer future technology and its usages. They tackle the application of physical ideas to industrial and engineering problems. Physics graduates also find employment in medicine, computing and finance. Besides academia, typical sectors where physicists are found include:

- Banking and financial services industries
- IT and data science
- Design and production in industrial companies
- Management and technical consulting
- Technology related industries: microelectronics, optics, telecom
- Medical physics
- Defense science and government institutions
- Medical physics in hospitals and other medical centres, pharmaceutical industry
- Material engineering
- Meteorology
- Education

2. What undergraduate courses does the Department of Physics offer?

The Major in Physics gives a B.Sc. in three years, or a B.Sc. (Hons) in four years. The typical workload is 5 modules per semester. Among the major requirements, there are some compulsory modules covering the basic material, and a variety of optional modules which students can choose according to their interests and inclinations. Students going for B.Sc. (Hons) can qualify for one of the three Specialisations (Astrophysics, Nanophysics, Quantum Technologies) without additional workload, by just choosing a suitable set of optional modules.

The Department participates in the Double Degree Programme with the French “Grandes Ecoles”. The Physics Department has not structured Double Degree Programmes (DDPs) with other Departments in NUS, because the current University rules allow for self-designed DDP. Students wishing to pursue a DDP within NUS can then craft their own, with the help of our advisors.

The Department also offers a Second Major in Physics and four Minors - Minor in Physics, Minor in Biophysics, Nanoscience Minor Programme, and Minor in Medical Physics.

For all details, please refer to https://www.physics.nus.edu.sg/student/pros_undergrad.html or talk to our staff during the Open House. You can also contact the following advisors for your queries: Prof Sow Chornng Haur (physowch@nus.edu.sg), Prof Valerio Scarani (physv@nus.edu.sg), Dr Wang Qinghai (phywq@nus.edu.sg).

3. What is the admission criteria for Physics major at NUS?

The admission criteria is good H2 passes (or equivalent) in Physics and Mathematics/Further Mathematics (or equivalent). You may wish to note that for all first year physics modules, the pre-requisite is a H2 pass (or equivalent) in Physics.

4. Can polytechnic students apply to take Physics?

Yes, as long as their diplomas are accredited to the Physics major. For the full list of accredited diplomas, please refer to the NUS Office of Admissions' website (<http://www.nus.edu.sg/oam/apply-to-nus/polytechnic-diploma-from-singapore/subject-pre-requisites>).

5. Is physics at the university level much more difficult than/different from 'A' Level physics? I am interested but I am already having some problems at 'A' Level.

If your difficulties came from a general uneasiness with mathematics, physics is one of the majors that you may find challenging. However, if you are not entirely confident of your grasp of the Physics subject at 'A' level, we will cover all the basic concepts again (albeit at a higher level) in the first year, before proceeding to more advanced topics. We would also like to highlight that the style of teaching in University is more focused on understanding the principles than on memorising.

6. Will I have a chance to do research, or an internship?

For those graduating with Honors, the Final Year Project in Year 4 is a research project. Nevertheless, there are also research opportunities during the whole period of undergraduate education. Research done within the Undergraduate Research Opportunities Programme in Science (UROPS) gives modular credits towards graduation. Students are also welcome to join labs and research groups without a fixed scheme. If you want to explore our research, you can start browsing from our research highlights:

https://www.physics.nus.edu.sg/research/res_highlight.html.

For those who are keen to explore the world of industries and start-ups, there are internship opportunities available, such as summer internships and also semester-long or year-long internships (usually taken in the third year).