

2.2.1 Degree programmes and requirements

Undergraduate study

The undergraduate programmes incorporate broad-based education beyond the major or concentration. In addition, to stay relevant and to meet the career needs of the students, SPMS offers opportunities for industrial and R&D attachments in industries, universities or research institutes that will count towards graduation requirements. Such attachments may be overseas.

The four-year direct B.Sc. (Hons) programme will require 144AUs for graduation distributed over four levels:

- 72AUs, effectively two years, in a major or concentration - Chemistry, Physics, Mathematics or Physical Sciences which cover the interfaces, with more majors to be defined in future years including Honours project work;
- 45AUs of electives or a minor;
- 27AUs of broadening or distribution including writing and communication courses.

The major in Mathematics Economics integrates two disciplines which has a heavier proportion in the major study.

- 108AUs, effectively three years, in the major including Honours project work;
- 15AUs of electives or a major;
- 21AUs of broadening or distribution including writing and communication courses.

The three-to four-year programme leads to a B.Sc. (Hons) in the following courses:

1. Chemistry and Biological Chemistry Division

- B.Sc. (Hons) in Chemistry and Biological Chemistry
 - B.Sc. (Hons) in Chemistry and Biological Chemistry with concentration in Green Chemistry or Medicinal Chemistry or Food Science and Technology
- The major in Chemistry and Biological Chemistry is modelled on the rigorous American Chemical Society accredited Chemistry programs at major US universities for professional training in the field.*

2. Mathematical Sciences Division

- B.Sc. (Hons) in Mathematical Sciences
- B.Sc. (Hons) in Mathematical Sciences with concentration in Mathematics of Information and Communication or Computational Mathematics

The major in Mathematical Sciences will cover a good mix of fundamental, as well as applied, computational, and industrial aspects of mathematics and statistics.

- B.Sc. (Hons) in Mathematics and Economics (jointly offered by the School of Physical and Mathematical Sciences and School of Humanities and Social Sciences). This major integrates mathematics and economics, and leverages on the synergy between these two disciplines. Students learn to apply advanced mathematical techniques to economic problems and how issues in economics motivate advances in mathematics.

3. Physics and Applied Physics Division

- B.Sc. (Hons) in Physics
- B.Sc. (Hons) in Applied Physics
- B.Sc. (Hons) in Physics with concentration in Nanotechnology
- B.Sc. (Hons) in Applied Physics with concentration in Nanotechnology or Optical Technology or Semiconductor Technology or Biophysics

The majors in Physics and Applied Physics prepare graduates for a variety of challenging careers through strong theoretical and experimental training. These careers include R&D and engineering positions in industry, management, banking and finance, and professional and scientific positions. Students enjoy the rigorous yet flexible curriculum, and the friendly and stimulating exchanges with professors add to a conducive and thriving environment. Graduates can look forward to fruitful and rewarding prospects in their work, while

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those who intend to pursue postgraduate degrees will find that our curriculum provides thorough preparation for GRE papers. The Applied Physics concentrations highlight how science advances technologies, and illustrate the applications of physical principles in interdisciplinary fields ranging from materials and engineering, to the life sciences.