School of Physical and Mathematical Sciences - Key Information

Divisions and Programmes

The School of Physical and Mathematical Sciences consists of three divisions – Chemistry & Biological Chemistry, Mathematical Sciences, and Physics & Applied Physics.

The school has four key programmes:

- The major in Chemistry & Biological Chemistry follows the rigorous American Chemical Society guidelines for professional training in the discipline. There is strong emphasis on hands-on laboratory and research skills through a high number of laboratory hours, compulsory research or industrial internship component. Students can also choose to deepen their knowledge in important new areas such as green chemistry, and food science and technology.

- The major in Mathematical Sciences, building on strong fundamentals, highlights the relevance of mathematics in modern applications. It offers research and internship opportunities to enhance students' understanding of the state of the art and appreciation of mathematics in real-life applications. Opportunities for deeper investigations and tailor-made learning for individuals are also provided through special “advanced investigation” courses, supervised independent study and research projects.

- The combined major in Mathematics & Economics, jointly offered with the School of Humanities and Social Sciences, is an interdisciplinary programme built on the natural synergy between the two disciplines. Similar programmes are also available in many top universities in the US and the UK. The first-of-its kind in Singapore, the programme provides solid quantitative grounding with deep understanding of economics. Students learn how mathematics is a powerful tool for modelling economic and financial market activities.

- The major in Physics & Applied Physics provides a firm foundation in the core theories with strong hands-on experimental skills, thus preparing students well for careers from science to technology to finance. Students learn through exploring so as to cultivate creativity and resourcefulness. Specialisations in frontier areas – nanoscience, optical physics, semiconductor physics, biophysics – are also available.
Statistics

Breakdown of undergraduate students since SPMS’ establishment in 2005

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
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</thead>
<tbody>
<tr>
<td>No. of students</td>
<td>184</td>
<td>593</td>
<td>1204</td>
<td>1776</td>
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Building & facilities

The strong curricula are further supported by superb infrastructure to enhance teaching, learning and research. The 38,000 square metres SPMS building comprises three interconnected buildings - the Divisions of Chemistry & Biological Chemistry, Mathematical Sciences, and Physics and Applied Physics.

Besides providing an environment conducive for the pursuit of knowledge, the building boasts state-of-the-art laboratories with high safety standards, perfect for conducting cutting-edge research.

Key features include:

- High-performance computing laboratories
- Smart executive classrooms
- Laboratories with a total of more than 500 modern instrumentation fume cabinets and other world class safety features
- Specially designed chemical-free areas which provides a safe and modern environment for research and teaching
- Facilities for fabrication of materials and devices at the nanoscale
- Specialised labs with vibration and electromagnetic isolation for high sensitivity and delicate
- A building design that encourages interaction among students and faculty members.

The three buildings can accommodate up to 300 faculty and staff members, 500 research PhD students, and teaching facilities for 2,800 students.

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