NIE
NATIONAL INSTITUTE OF EDUCATION SINGAPORE

An Institute of

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

NTU OPEN HOUSE 2025

Biology
Chemistry
Physics &
Energy

The Teaching Scholars Programme is a premier scholars programme by Nanyang Technological University and it is administered by the National Institute of Education (Singapore).

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Why Choose Bachelor of Science (Double Major/Education) Programmes at NIE?

- The Bachelor of Science (Double Major/Education) programmes at NIE integrate the best of an academic degree with a strong foundation in the field of education to produce graduates with the knowledge and skills to excel in careers in education-related fields
- The curriculum is designed to be broad-based and flexible with the rigour expected of any internationally recognised undergraduate programme
- The programmes prepare student teachers for primary or secondary teaching
- Graduates are prepared to pursue advanced qualifications both in the academic disciplines and in the field of education
- Courses are taught by world renowned academics in both content and education fields

For details on the Bachelor of Science (Double Major/Education) programmes at NIE, please refer to the website at **http://www.nie.edu.sg/teacher-education/undergraduate-programmes**

Highlights of the Bachelor of Science (Double Major/Education) Programmes

- Four-year Honours programme leading to the award of the Bachelor of Science (Double Major/Education) degree
- Small class sizes
- Innovative Pedagogy (e.g., Inquiry-Based Learning and Flipped classroom)
- School experience / teaching practicum spread over four years
- Opportunities for subject area and education research

The NTU-NIE Teaching Scholars Programme

The NTU-NIE Teaching Scholars Programme (TSP) is one of NTU's Premier Scholars' Programmes (PSP). It is a prestigious award for outstanding scholars with a passion and calling to be professional leaders in education. TSP is a 4-year programme that includes:

- An exciting **multidisciplinary curriculum** that encompasses electives from NTU's University Scholars Programme
- **Seminars** by distinguished Professors, Nobel Laureates, government leaders and industry luminaries as well as personal guidance from NIE faculty members
- **Acquiring of research skills** under the mentorship of eminent advisors
- Opportunity to participate in the **Undergraduate Research Experience on Campus (URECA)**, a university wide programme that cultivates a culture of rigour and curiosity
- Unparalleled opportunities for **international exposure** through overseas students' exchange and teaching practicum in different education systems
- TSP Scholars will be familiar with education policies in the dynamic changing education landscape and equip themselves with knowledge to **impact learning in the schools**
- **Acquiring of a broad-based knowledge** that will enable TSP Scholars to become well rounded individuals equipped with real-world experiences to guide the youth of tomorrow

For details on the TSP, please refer to the website at **http://tsp.nie.edu.sg**

1. *Special Academic Subject Requirements*

Biology

- A pass at GCE 'A' Level in Biology
- A pass at H2 level Biology
- A pass at Higher level in Biology (IB Diploma)
- At least a major CAP of 2.0 for NUS High School Diploma in Biology
- A good pass at GCE 'O' Level in Biology
- At least an overall CAP of 3.5 for NUS High School Diploma in Biology
- A good polytechnic diploma in approved Biology-related disciplines

Chemistry

- A pass at GCE 'A' Level in Chemistry AND GCE 'AO' Level in Mathematics
- A pass at H2 level in Chemistry AND a pass in H1 level in Mathematics
- A pass at Higher level in Chemistry (IB Diploma) AND a pass at standard level in Mathematics (IB Diploma)
- At least a major CAP of 2.0 for NUS High School Diploma in Chemistry AND an overall CAP of 2.0 for NUS High School Diploma in Mathematics
- A good polytechnic diploma in approved Chemistry-related disciplines

Physics & Energy Studies

- A pass at GCE 'A' Level in Physics AND a pass at GCE 'AO' Level in Mathematics
- A pass at H2 level in Physics AND a pass in H1 level in Mathematics
- A pass in Higher level in Physics (IB Diploma) and a pass at standard level in Mathematics (IB Diploma)
- At least a major CAP of 2.0 for NUS High School Diploma in Physics AND an overall CAP of 2.0 for NUS High School Diploma in Mathematics
- A good polytechnic diploma in approved Physics-related disciplines

2. Bachelor of Science in Biology and Education

Year	Category*	Course Code & Title
ONE	AS	AAB10A Evolution, Diversity and Ecosystems AAB10B Physiological and Biochemical Basis of Life AAB10C Basic Molecular Genetics and Microbiology AAB10D Cell Structure and Function
	SK (Pri only)	ASK10B Topics in Physical Sciences for Primary Science Teaching
TWO	AS	AAB20A Current Genetics AAB20B Plant Evolution and Diversity AAB20C Animal Evolution and Diversity AAB20D Ecology AAB20E Quantitative Biology AAB20G Biochemistry
	CS	***Primary*** ACS20A Curriculum and Practices for Primary Science ***Secondary*** ACB22A Curriculum and Scientific Practices in Biology Education
THREE	AS	AAB30A Field Study of Ecosystem Diversity in a Changing World AAB30C Animal Physiology AAB30D Plant Physiology
	CS	***Primary*** ACS30A Pedagogies for Primary Science ***Secondary*** ACB32A Pedagogies of Biology Education
	ES	AED40A Educational Research ***or*** AED430 Research Project (**NIE-NTU TSP**)
FOUR	AS	AAB40A Molecular Biotechnology AAB40B Behavioural Biology AAB40C Developmental Biology AAB40D Academic Exercise: Biology
	CS	***Primary*** ACS40A Innovations in Design and Practices for Primary Science ACS40B Meeting Learners' Needs in Primary Science ***Secondary*** ACB42A Assessment in Biology ACB42B Innovative Biology Teaching

** AS = Academic Subjects, CS = Curriculum Studies, ES = Education Studies, SK = Subject Knowledge*

In addition to the above courses, student teachers will take courses in **Education Studies (ES), Academic Subjects as AS2 (Secondary track only), Language Enhancement and Academic Discourse Skills, General Electives** and **Essential Course** as well as **Practicum**.

For more information, please visit:
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3. Bachelor of Science in Chemistry and Education

Year	Category*	Course Code & Title
ONE	AS	AAY10A Inorganic Chemistry I AAY10B Physical Chemistry I AAY10C Physical Chemistry II AAY10D Organic Chemistry I
	SK (Pri only)	ASK10B Topics in Physical Sciences for Primary Science Teaching
TWO	AS	AAY20A Organic Spectroscopy Techniques and Applications AAY20B Analytical Chemistry I AAY20C Inorganic Chemistry II AAY20D Organic Chemistry II AAY20E Experimental Techniques in Chemistry AAY20G Organometallic Chemistry
	CS	***Primary*** ACS20A Curriculum and Practices for Primary Science ***Secondary*** ACY22A Curriculum and Pedagogy in Chemistry
THREE	AS	AAY30A Analytical Chemistry II AAY30B Medicinal Chemistry ***Select any 1 Elective:*** AAY33A Polymer Chemistry and Technology AAY33B Asymmetry Synthesis AAY33C Green Chemistry AAY33D Food Chemistry AAY33E Natural Products Chemistry
	CS	***Primary*** ACS30A Pedagogies for Primary Science ***Secondary*** ACY32B Chemistry Planning and Instruction
	ES	AED40A Educational Research ***or*** AED430 Research Project (**NIE-NTU TSP**)
FOUR	AS	AAY40A Bioinorganic Chemistry AAY40B Academic Exercise: Chemistry AAY40C Materials Chemistry AAY40D Environmental Chemistry
	CS	***Primary*** ACS40A Innovations in Design and Practices for Primary Science ACS40B Meeting Learners' Needs in Primary Science ***Secondary*** ACY42A Assessment and Laboratory Issues in Chemistry ACY42B Trends, Issues and Challenges in Chemistry Education
	SK (Pri only)	ASK40A Topics in Biological Science for Primary Science Teaching

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In addition to the above courses, student teachers will take courses in **Education Studies (ES), Academic Subjects as AS2 (Secondary track only), Language Enhancement and Academic Discourse Skills, General Electives** and **Essential Course** as well as **Practicum**.

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4. Bachelor of Science in Physics & Energy Studies and Education

Year	Category*	Course Code & Title
ONE	AS	AAP10A Mechanics with Laboratory AAP10B Thermal Physics with Laboratory AAP10C Electricity and Magnetism with Laboratory AAP10D Optics & waves with Laboratory
TWO	AS	AAP20A Modern Physics AAP20B Electromagnetism AAP20C Quantum Mechanics AAP20D Electronics AAP20E Physics Laboratory I AAP20G Solid State Physics
	CS	***Primary*** ACS20A Curriculum and Practices for Primary Science ***Secondary*** ACP22A Understanding the Physics Curriculum
THREE	AS	AAP30A Lasers and Photonics AAP30B Physics Laboratory II AAP30C Semiconductor Physics and Devices
	CS	***Primary*** ACS30A Pedagogies for Primary Science ***Secondary*** ACP32A Physics Instruction and Microteaching
	ES	AED40A Educational Research ***or*** AED430 Research Project (**NIE-NTU TSP**)
FOUR	AS	AAP40A Nuclear Physics AAP40B Plasma Physics and Nuclear Fusion AAP40D Academic Exercise: Physics & Energy Studies ***Select any 1 Elective:*** AAP43A Biomedical Physics AAP43B Molecular Physics AAP43C Nanoscience
	CS	***Primary*** ACS40A Innovations in Design and Practices for Primary Science ACS40B Meeting Learners' Needs in Primary Science ***Secondary*** ACP42A Assessment in Physics Education ACP42B Reflective Teaching and Inquiry in Physics
	SK (Pri only)	ASK40A Topics in Biological Science for Primary Science Teaching

** AS = Academic Subjects, CS = Curriculum Studies, ES = Education Studies, SK = Subject Knowledge*

In addition to the above courses, student teachers will take courses in **Education Studies (ES), Academic Subjects as AS2 (Secondary track only), Language Enhancement and Academic Discourse Skills, General Electives** and **Essential Course** as well as **Practicum**.

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