

University of Pretoria Yearbook 2025

BEdHons in Science and Mathematics Education option Physical Sciences Education (09240018)

Department Science, Mathematics and Technology Education

Minimum duration of study 1 year

Total credits 128

NQF level 08

Admission requirements

1. A relevant bachelor's degree, and a relevant Teacher's Diploma (e.g. BA + HED)
or
A relevant bachelor's degree, and a Postgraduate Certificate in Education
or
A relevant four-year bachelor's degree in Education (e.g. BEd)
or
A relevant M+4 Teacher's Diploma, and a relevant Advanced Diploma in Education

Additional requirements

Selection is based on:

- Meeting the minimum academic requirements required for admission;
- Previous academic performance;
- Applicable academic and/or teaching background;
- Availability of supervision for the required research project;
- Proven academic potential which may include academic communication and computer application skills;
- Additionally, an interview may be requested;
- The requirements of professional registration bodies;
- The discretion of the head of department.

Examinations and pass requirements

Subject to exceptions approved by the Dean, on the recommendation of the relevant head of department, a student may not sit for an examination for the honours degree more than twice in the same module.

Chancellor's examination

A final-year student who has failed a maximum of three semester modules or their equivalent, with a final mark of at least 40% in each, may be admitted by the Dean to a Chancellor's examination/s in these modules during

January of the following year, provided that this will enable the student to comply with all the requirements for the degree.

Research information

A research project is compulsory and must be handed in for examination, as prescribed by the particular department.

Pass with distinction

The degree is conferred with distinction on a student who has obtained an average of at least 75%, with a minimum of 70% in each module (no rounding).

Curriculum: Final year

Minimum credits: 128

When the full-time option is chosen, all "Fundamental" and "Core" modules must be selected. When the part-time option is chosen, NMQ 745, EDS 711, CDD 710 and API 711 must be selected in the 1st year and NMQ 755, PHN 730, SMP 780 and SCU 731 must be selected in the final year.

Fundamental modules

Part 1: Research proposal 755 (NMQ 755)

Module credits	16.00
NQF Level	08
Language of tuition	Module is presented in English
Department	Humanities Education
Period of presentation	Semester 1

Module content

Guided literature research, formulation of a conceptual framework and development of a research proposal for a supervised research project of limited scope.

Part 2: Research report 780 (SMP 780)

Module credits	16.00
NQF Level	08
Prerequisites	NMQ 755
Language of tuition	Module is presented in English
Department	Science, Mathematics and Technology Education
Period of presentation	Semester 2

Module content

Supervised research project of limited scope. Research proposal development; Use quantitative and/or qualitative methods. Writing a research report.

Core modules

Assessment approaches and instruments 711 (API 711)

Module credits	16.00
NQF Level	08
Prerequisites	No prerequisites.
Language of tuition	Module is presented in English
Department	Science, Mathematics and Technology Education

Period of presentation Semester 2

Module content

Foundations, principles and ethics of assessment practices. International trends. Quantitative and qualitative modes of assessment and appropriate instruments. Generating evidence for assessment. Assessment and quality assurance. Techniques of computer-based assessment.

Curriculum development 710 (CDD 710)

Module credits 16.00

NQF Level 08

Prerequisites No prerequisites.

Language of tuition Module is presented in English

Department Science, Mathematics and Technology Education

Period of presentation Semester 1 or Semester 2

Module content

Principles and foundations of curriculum/programme design and development. International and national models and trends in curriculum/programme development. Principles of outcomes-based programming in the SAQA context. Curriculum development models and instruments in action. Situation and task analysis needs assessment. Development. Dissemination. Implementation as a change process. Assessment and evaluation.

Philosophy and social imperatives of education 711 (EDS 711)

Module credits 16.00

NQF Level 08

Prerequisites No prerequisites.

Language of tuition Module is presented in English

Department Educational Psychology

Period of presentation Semester 1

Module content

Meta-theories in education. Empiricism; rational empiricism; critical rationalism; critical theory; phenomenology; hermeneutics; system theory; philosophies in education: traditional philosophies; indigenous (African) philosophies. The influence of modernism and postmodernism on education. Sociological imperatives for education. Theories of societal change and roles and values of education. Comparative perspectives on learning theories and their meaning for education.

Educational research methodology 745 (NMQ 745)

Module credits 16.00

NQF Level 08

Language of tuition Module is presented in English

Department Science, Mathematics and Technology Education

Period of presentation Semester 1

Module content

The nature of educational enquiry: contexts of research, research ethics, truth, rationality, subjectivity and objectivity; Quantitative and qualitative modes of enquiry, research designs and data collection techniques. Various approaches to qualitative research including case study research, historical research, ethnographic research, and action research. Basic concepts and principles of quantitative research. Statistical techniques in the educational research process. Survey methodology and questionnaire design. Classification and graphical representation of data. Descriptive measures. Statistical inference. Data-processing procedures. Parametric versus non-parametric tests. Some test statistics (e.g. F-Test and T-test). Formulating a research methodology for a limited project.

Physical sciences education 730 (PHN 730)

Module credits 16.00

NQF Level 08

Prerequisites No prerequisites.

Language of tuition Module is presented in English

Department Science, Mathematics and Technology Education

Period of presentation Semester 1 or Semester 2

Module content

Instructional strategies; reform in physics and chemistry education; alternative concepts. Curriculum leadership in Physical Sciences Education in multiple contexts.

Sciences curriculum 731 (SCU 731)

Module credits 16.00

NQF Level 08

Language of tuition Module is presented in English

Department Science, Mathematics and Technology Education

Period of presentation Semester 2

Module content

The nature of the natural sciences, technology and mathematics: public understanding of scientific, mathematical and technological endeavours and their impact on society. Ethical implications of practices and advances in these fields. Indigenous Knowledge Systems (IKS), ethno-mathematics and technologies and ways of knowing. Implications for teaching and learning content, and anticipated outcomes. The purpose and nature of curricula to develop scientific ways of understanding the world.

General Academic Regulations and Student Rules

The [General Academic Regulations \(G Regulations\)](#) and [General Student Rules](#) apply to all faculties and

registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the responsibility of ensuring that they familiarise themselves with the General Academic Regulations applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations. The G Regulations are updated annually and may be amended after the publication of this information.

Regulations, degree requirements and information

The faculty regulations, information on and requirements for the degrees published here are subject to change and may be amended after the publication of this information.

University of Pretoria Programme Qualification Mix (PQM) verification project

The higher education sector has undergone an extensive alignment to the Higher Education Qualification Sub-Framework (HEQSF) across all institutions in South Africa. In order to comply with the HEQSF, all institutions are legally required to participate in a national initiative led by regulatory bodies such as the Department of Higher Education and Training (DHET), the Council on Higher Education (CHE), and the South African Qualifications Authority (SAQA). The University of Pretoria is presently engaged in an ongoing effort to align its qualifications and programmes with the HEQSF criteria. Current and prospective students should take note that changes to UP qualification and programme names, may occur as a result of the HEQSF initiative. Students are advised to contact their faculties if they have any questions.