

# University of Pretoria Yearbook 2025

## Biocatalysis and integration of metabolism 357 (BCM 357)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	<a href="#">Faculty of Natural and Agricultural Sciences</a>
<b>Module credits</b>	18.00
<b>NQF Level</b>	07
<b>Programmes</b>	<a href="#">BSc in Biochemistry</a> <a href="#">BSc in Biotechnology</a> <a href="#">BSc in Chemistry</a> <a href="#">BSc in Chemistry 4-year programme</a> <a href="#">BSc in Entomology</a> <a href="#">BSc in Genetics</a> <a href="#">BSc in Human Genetics</a> <a href="#">BSc in Human Physiology</a> <a href="#">BSc in Human Physiology 4-year programme</a> <a href="#">BSc in Microbiology</a> <a href="#">BSc in Plant Science</a> <a href="#">BSc in Zoology</a>
<b>Prerequisites</b>	BCM 251 GS and BCM 257 GS and BCM 261 GS and BCM 252 GS.
<b>Contact time</b>	2 lectures per week, 1 practical/tutorial per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Biochemistry, Genetics and Microbiology
<b>Period of presentation</b>	Semester 1

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## Module content

Regulation of metabolic pathways. Analysis of metabolic control. Elucidation of metabolic pathways with isotopes. Metabolomics. Coordinated regulation of glycolysis/gluconeogenesis and glycogen breakdown/synthesis. Overview of hormone action. Metabolism of xenobiotics. Hormonal regulation of fuel metabolism. Metabolic adaptations during diabetes. Obesity and the regulation of body mass. Obesity, metabolic syndrome and Type 2 diabetes (T2D). Management of T2D with diet, exercise and medication. Practical sessions cover tutorials on case studies and biochemical calculations, and hands-on isolation of an enzyme, determination of pH and temperature optima, determination of  $K_m$  and  $V_{max}$ , enzyme activation and enzyme inhibition.

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## 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.