



# University of Pretoria Yearbook 2022

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

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	Faculty of Natural and Agricultural Sciences
<b>Module credits</b>	18.00
<b>NQF Level</b>	07
<b>Programmes</b>	BSc (Biochemistry) BSc (Biotechnology) BSc (Chemistry) BSc (Entomology) BSc (Genetics) BSc (Human Genetics) BSc (Human Physiology) BSc (Microbiology) BSc (Plant Science) BSc (Zoology)
<b>Prerequisites</b>	BCM 251 GS and BCM 257 GS and BCM 261 GS and BCM 252 GS.
<b>Contact time</b>	1 practical/tutorial per week, 2 lectures 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

### 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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