



University of Pretoria Yearbook 2022

Biocatalysis and integration of metabolism 357 (BCM 357)

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| Qualification | Undergraduate |
| Faculty | Faculty of Natural and Agricultural Sciences |
| Module credits | 18.00 |
| NQF Level | 07 |
| Programmes | BSc (Biochemistry) BSc (Biotechnology) BSc (Chemistry) BSc (Entomology) BSc (Genetics) BSc (Human Genetics) BSc (Human Physiology) BSc (Microbiology) BSc (Plant Science) BSc (Zoology) |
| Prerequisites | BCM 251 GS and BCM 257 GS and BCM 261 GS and BCM 252 GS. |
| Contact time | 1 practical/tutorial per week, 2 lectures per week |
| Language of tuition | Module is presented in English |
| Department | Biochemistry, Genetics and Microbiology |
| Period of presentation | 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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