



# Universiteit van Pretoria Jaarboek 2016

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

<b>Kwalifikasie</b>	Voorgraads
<b>Fakulteit</b>	Fakulteit Natuur- en Landbouwetenskappe
<b>Modulekrediete</b>	18.00
<b>Programme</b>	BSc Biochemie BSc Biotegnologie BSc Fisika BSc Genetika BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde
<b>Voorvereistes</b>	BCM 251 en BCM 252 en BCM 261
<b>Kontaktyd</b>	2 lesing per week, 1 praktiese sessie per week
<b>Onderrigtaal</b>	Dubbelmedium
<b>Akademiese organisasie</b>	Biochemie
<b>Aanbiedingstydperk</b>	Semester 1

### Module-inhoud

Nomenclature: enzyme nomenclature and classification. Specificity and mechanisms: the active site, mechanisms of catalysis and examples of specific enzyme mechanisms, e.g. lysozyme and carboxypeptidase A. Advanced enzyme kinetics, Cleland nomenclature and multi-substrate reactions. Allosteric enzymes: models by Koshland, Hill and Monod. Ligands binding to proteins. Problems and answers: tutorials of problems and answers based on above concepts. Integration of metabolism; hormones and second messengers; cell signalling; a case study in connectivity among metabolic pathways and their regulation, in for example diabetes and starvation. Inhibitors of angiotensin converting enzyme (ACE). RNA as enzymes. Applications of enzymes in food and cosmetics industries and in clinical pathology assays as biomarkers of diseases and toxic responses. Elucidation of metabolic pathways.

Practical sessions cover tutorials on calculations, isolation of an enzyme, determination of pH and temperature optimum, determination of  $K_m$  and  $V_{max}$ , enzyme activation, enzyme inhibition, purification table and final report, oral defense of report.



Die inligting wat hier verskyn, is onderhewig aan verandering en kan na die publikasie van hierdie inligting gewysig word.. Die [Algemene Regulasies \(G Regulasies\)](#) is op alle fakulteite van die Universiteit van Pretoria van toepassing. Dit word vereis dat elke student volkome vertrouwd met hierdie regulasies sowel as met die inligting vervat in die [Algemene Reëls](#) sal wees. Onkunde betreffende hierdie regulasies en reëls sal nie as 'n verskoning by oortreding daarvan aangebied kan word nie.