

# University of Pretoria Yearbook 2016

## Evolution and phylogeny 362 (ZEN 362)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	Faculty of Natural and Agricultural Sciences
<b>Module credits</b>	18.00
<b>Programmes</b>	BSc Biochemistry
	BSc Chemistry
	BSc Ecology
	BSc Entomology
	BSc Environmental Sciences
	BSc Genetics
	BSc Geography
	BSc Geoinformatics
	BSc Human Physiology
	BSc Microbiology
	BSc Physics
	BSc Plant Science
	BSc Zoology
<b>Service modules</b>	Faculty of Education
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	4 lectures per week, 2 practicals per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Zoology and Entomology
<b>Period of presentation</b>	Quarter 3

### Module content

Evolution as a process and pattern, prime movers in evolution: Selection, drift, general population genetics. Population differentiation, clines, subspecies and species, adaptation as a major force in evolution and the panglossian paradigm, molecular evolution. Phylogeography, phylogenetic reconstruction. Evolutionary biogeography. Adaptation, Darwin's formulation, proximate and ultimate causation, genetic and developmental constraints, optimality. Phenotypic models, the comparative method, convergent evolution. Evolution of complex biological systems, origin of life and sex, macro-evolution, punctuated equilibrium, human evolution. Levels of selection. Species concepts.

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