



University of Pretoria Yearbook 2016

Evolution and phylogeny 362 (ZEN 362)

Qualification	Undergraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	18.00
Programmes	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
Service modules	Faculty of Education
Prerequisites	No prerequisites.
Contact time	4 lectures per week, 2 practicals per week
Language of tuition	English
Academic organisation	Zoology and Entomology
Period of presentation	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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