



University of Pretoria Yearbook 2019

Evolution and phylogeny 362 (ZEN 362)

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| Qualification | Undergraduate |
| Faculty | Faculty of Natural and Agricultural Sciences |
| Module credits | 18.00 |
| Programmes | BSc Ecology BSc Entomology BSc Zoology |
| Service modules | Faculty of Education |
| Prerequisites | No prerequisites. |
| Contact time | 4 lectures per week, 2 practicals per week |
| Language of tuition | Module is presented in English |
| Department | 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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