

University of Pretoria Yearbook 2017

Artificial intelligence (I) 710 (COS 710)

| | |
|-------------------------------|--|
| Qualification | Postgraduate |
| Faculty | Faculty of Engineering, Built Environment and Information Technology |
| Module credits | 15.00 |
| Programmes | BScHons Computer Science |
| Prerequisites | No prerequisites. |
| Contact time | 2 lectures per week |
| Language of tuition | Module is presented in English |
| Academic organisation | Computer Science |
| Period of presentation | Semester 1 or Semester 2 |

Module content

This module focuses on two Computational Intelligence paradigms, namely Evolutionary Computation and Swarm Intelligence. Within the Evolutionary Computation paradigm, algorithmic models of Darwinian evolution will be studied, including genetic algorithms, genetic programming, evolutionary strategies, evolutionary programming, differential evolution, cultural algorithms and co-evolution. Within the Swarm Intelligence paradigm algorithm models of social organisms found in nature will be studied, including ant algorithms and particle swarm optimisation. These algorithms will mostly be studied in the context of complex optimisation problems, including multi-objective optimisation, dynamic environments, constraints, and finding multiple solutions. Prior knowledge assumed include good programming skills and an undergraduate module in calculus.

The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.