Faculty of Science and Engineering General MRes Units

** Students wishing to do these Unit do not need to seek permission from the teaching Department

COMP777 Computing Methods for Research
This unit deals with the effective use of computing devices and tools for research purposes. It aims at equipping research students with relevant computing skills that can greatly improve their research productivity. It introduces a range of tools covering data processing and analysis (eg, data mining), coding (eg, scripting, web-based programming, control version system), modelling techniques, communication media, document preparation systems (eg, LaTeX), computer-based presentation tools, bibliography management, and human-computer interfaces, among other topics.

BIOL761 Conservation of Australasian Wildlife
This unit deals with the theory and practice of the conservation of wild populations, with an emphasis on Australasian vertebrates. Lectures discuss the origins, diversity and evolutionary adaptations of the Australasian vertebrate fauna; current and emerging threats; and the theoretical aspects of wildlife conservation. Practical skills, including computer modelling, population monitoring, animal handling and experimental design, are taught in the laboratory and in the field.

BIOL787 Biodiversity Conservation
This unit deals with the problem of conserving biodiversity as a whole rather than concentrating on individual species or populations. The unit is applied and multidisciplinary, drawing on such areas as ecology, evolutionary biology, biogeography, informatics and statistics. We will explore the concept of biodiversity in both the scientific and legislative arenas. The problem of measuring biodiversity is considered in detail, including the conceptual and practical impediments to measurement. Current and emerging threats to biodiversity are reviewed on a global scale, along with the practical and ethical arguments for conservation. An emphasis is given to analysing and interpreting patterns in biodiversity in space and time as a means of informing conservation decisions. Teaching will be via lectures and tutorials.

PHYS703 Computational Science
Computational techniques are a critical aspect of modern physics, science and engineering. They sit apart from theoretical and experimental physics but borrow characteristics from both. The aim is to turn a computer into a virtual laboratory for research, that allows breakthroughs and insights from what would otherwise be intractable problems by analytical methods. This unit focuses specifically on the computational techniques for solving problems in physics, engineering and science in general. It is not a course in programming though a low level of programming ability will be required to practice the techniques.

ENVG08 Geographic Information Science
Many professionals in the broad areas of environmental science, management and planning use Geographic Information Systems (GIS) to analyse and map spatial information. This unit is an introductory GIS unit for postgraduates. It is designed for students who have not previously studied GIS. It covers the underlying concepts of GIS, applications, the use of commercial GIS software, and will develop for students a GIS skills set. The practical program focuses on the basics of GIS analysis methods and map creation. The GIS software used is ArcGIS. Students enrolling in this unit must have access to a computer with the Windows operating system. Mac or Linux system will not be supported.