GEOL90021 Earth's Biogeochemical Cycles

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2014.
Time Commitment:	Contact Hours: 3 contact hours per week (these will be a mixture of practicals and lectures that will vary from week to week) Total Time Commitment: 160 hours
Prerequisites:	One of the following (or equivalent):

Subject	Study Period Commencement:	Credit Points:
MAST10005 Calculus 1	Semester 1, Semester 2	12.50
CHEM10003 Chemistry 1	Semester 1, Semester 2	12.50

Corequisites:	None
Recommended Background Knowledge:	Simple calculus, simple chemistry, basic knowledge of geological history
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Contact:	**Academic Coordinator** Prof Peter Rayner **prayner@unimelb.edu.au (mailto:prayner@unimelb.edu.au)** **Administrative Coordiantor** Kerry Grieser **kerryh@unimelb.edu.au (mailto:kerryh@unimelb.edu.au)**
Subject Overview:	The chemical composition of the atmosphere, ocean and crust is bound up with the evolution of life. Changes in this composition also underlie many environmental issues such as climate change. This course introduces students to the distribution of carbon, oxygen, sulphur, nitrogen, and other elements within the solid earth, ocean and atmosphere and the processes that control their fluxes. Topics include the cycling of key elements between the various reservoirs, the role of biological and physical processes and the perturbation of these cycles. The concepts of mass balance and dynamic equilibrium will underpin these separate areas.
Learning Outcomes:	# Conceptual understanding of the evolution of various chemical constituents in Earth's system and the major features of their behaviour # Knowledge of the major controls on the composition of the ocean and atmosphere # Techniques to evaluate the impact of perturbations in these systems # Improved theoretical understanding in system dynamics and the behaviour of box modelling approaches to complex systems

Assessment:	Computer-based assignment (50 hours) due mid-semester 30% Analytic essay (2000 words) due end of semester 30% Final examination (3 hours) 40%
Prescribed Texts:	None
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	# Developing quantitative skills in simple dynamical systems # Rigorous and independent thinking # Adopting a problem-solving approach to new or unfamiliar tasks # Skills in using mathematical modelling software # Oral and written communication and presentation skills
Related Course(s):	Master of Science (Earth Sciences)