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| Course Code: | 1044SCG |
| Course Name: | Earth Systems |
| Semester: | Trimester 3, 2017 |
| Program: | Diploma of Science |
| | Mixed English & Academic Program |
| Credit Points: | 10 |
| Course Coordinator: | Rebecca Fox |
| Document modified: | 31 st August 2017 |

Teaching Team

Your lecturer/tutor can be contacted via the email system on the portal.

| Name | Email |
|-------------|--|
| Rebecca Fox | rebecca.fox@staff.griffithcollege.edu.au |

Staff Consultation

Your lecturer/tutor is available each week for consultation outside of normal class times.
Times that your lecturer/tutor will be available for consultation will be given in the first week

of lectures. A list of times and rooms will be published on the Griffith College Portal under the “myTimetable” link.

Prerequisites

There are no prerequisites for this course

Brief Course Description

This course introduces the main environmental spheres and important natural processes of the Earth, considered as a series of systems interacting at various scales. Features of the lithosphere, atmosphere, hydrosphere and biosphere are explained, with emphasis given to the interrelationships between these spheres.

Rationale

The concepts and principles in this course provide the basic concepts of the more specialised fields of meteorology, climatology, hydrology, oceanography, soil science, geology, geomorphology and biogeochemistry.

Aims

Earth Systems introduces basic concepts and knowledge about the Earth systems. Aspects of the lithosphere (soils, rocks and minerals, weather, plate tectonics, landform processes), atmosphere (composition, structure, meteorology, climatology) and hydrosphere (hydrological cycle) will be studied with an emphasis on their interactions and relative importance at different scales. This course attempts to interpret various Earth processes in terms of movement and storage of energy and material. The approaches used to investigate ancient surface conditions and processes on Earth will also be studied (absolute and relative geological dating, the geological time scale, fossils, climate change). Also covered in this course are some introduction to; ocean systems, fluid geomorphology, "Soil" as the productive crust of earth surface, and the impact of climate change on earth. Together these topics provide an introduction to the Earth Systems for environmental science, planning and engineering disciplines.

Learning Outcomes

After successfully completing this course you should be able to:

1. Calculate unit conversion for quantities commonly used in earth sciences and broader area of science and engineering, both within the SI framework and between the metric and English customary units of measurements.

2. Analyse and interpret data on weather, climate, hydrological, seasonal variation of temperature around Australia, balance data for the Brisbane catchment in Southeast Queensland and climate data to locate the humid tropical region in north Queensland.
 3. Explain how the earth is formed and evolved with time and the key processes involved, and correctly identify and label a selected range of rocks and mineral specimens
 4. Identify the fluvial processes and sedimentation, explain how soil is formed and developed, identify key biogeochemical processes governing the cycles of key elements, and illustrate how the earth is impacted by climate change.
 5. Analyse soil samples for their basic chemical properties, correctly interpret the result and prepare a written report on the lab experiments using prescribed method, structure and content.
 6. Measure the amount of sediment generated under the simulated rainfall condition, calculate soil erosion rate and relate it to natural conditions.
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Texts and Supporting Materials

There is no specified text for this course, however relevant reading materials will be provided throughout the semester.

Organisation and Teaching Strategies

Lectures: Two one-hour Lectures per week for 12 weeks.

: One two hour Tutorial and one two-hour Workshop per week for 12 weeks.

Laboratories: One two-hour Laboratory for 5 weeks.

Methods are presented in lectures and their application demonstrated using examples taken from various areas of the sciences. Tutorials, Workshops and Laboratories reinforce these concepts via exercises and provide the student with opportunities to discuss material both with the tutor and amongst themselves.

It is expected that students will attend all Lectures, Workshops/Tutorials and Laboratories.

Content Schedule

Weekly Teaching Schedule

| Week | Topic | Activity | Readings |
|------|---|-------------|----------|
| 1 | Rocks and Minerals | Lecture | |
| | Rocks and Minerals | Tutorial | |
| 2 | Geomorphology | Lecture | |
| | Geomorphology | Tutorial | |
| | | | |
| 3 | Soil Formation, Characteristics and Erosion | Lecture | |
| | Soil Formation, Characteristics and Erosion | Tutorial | |
| | Rocks & Minerals and Soil Properties | Laboratory | |
| 4 | Fluvial Processes and Sedimentation | Lecture | |
| | Fluvial Processes and Sedimentation | Tutorial | |
| | Measuring Soil Erosion | Laboratory | |
| 5 | Atmosphere and Hydrosphere | Lecture | |
| | Atmosphere and Hydrosphere | Tutorial | |
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| 6 | Atmosphere and Hydrosphere | Lecture | |
| | Atmosphere and Hydrosphere | Tutorial | |
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| 7 | Atmosphere and Hydrosphere | Lecture | |
| | Atmosphere and Hydrosphere | Tutorial | |
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| 8 | Atmosphere and Hydrosphere | Lecture | |
| | Atmosphere and Hydrosphere | Tutorial | |
| | Meteorology, Climatology, Hydrology | Laboratory | |
| 9 | Planet Earth | Lecture | |
| | Planet Earth | Tutorial | |
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| 10 | Soil Biogeochemical Cycle | Lecture | |
| | Soil Biogeochemical Cycle | Tutorial | |
| | Conversion Quiz | Online Quiz | |

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|-------|-----------------------------------|-------------|--|
| 11 | Impact of Climate Change on Earth | Lecture | |
| | Impact of Climate Change on Earth | Tutorial | |
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| 12 | Revision | Lecture | |
| | Revision | Workshop | |
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| 13/14 | Final Exam | Examination | |

Assessment

This section sets out the assessment requirements for this course.

Summary of Assessment

| Item | Assessment Task | Weighting | Relevant Learning Outcomes | Due Date |
|------|-----------------------------|-----------|----------------------------|--------------------|
| 1 | Quiz (Units of Measurement) | 6% | 1, 2 | Week 10 |
| 2 | Laboratory Report 1 | 6% | 1, 2 | Week 5 |
| 3 | Mid-Trimester Exam | 25% | 1, 2 | Week 8 |
| 4 | Laboratory Report 2 | 6% | 3 | Week 5 |
| 5 | Laboratory Report 3 | 6% | 1, 5 | Week 6 |
| 6 | Laboratory Report 4 | 6% | 1, 6 | Week 12 |
| 7 | Final Exam | 45% | 3,4,5,6 | Examination Period |
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Assessment Details

Quiz

The quiz is a problem solving exercise in relation to the concept of dimension and proficiency with conversion, and is based on materials covered in the Workshop in week 2.

Laboratory Reports

The 4 Laboratory Reports are problem solving exercises in the relevant topic area, as covered in the Lecture and Workshop, as outlined in the content schedule above.

Mid-Trimester Exam

This exam will test the students' conceptual understand and factual knowledge of all the material presented during the first 5 weeks of lectures and laboratories.

Final Exam

This exam will test the students' conceptual understanding and factual knowledge of all material presented from Week 6 to 12.

Submission and Return of Assessment Items

Normally you will be able to collect your assignments in class within fourteen [14] days of the due date for submission of the assignment.

Notification and Availability of Feedback on Assessment

Feedback for each assessment item will be provided within 2 weeks from the due date of that assignment.

Retention of Originals

You must be able to produce a copy of all work submitted if so requested. Copies should be retained until after the release of final results for the course.

Extensions

To apply for an extension of time for an assignment, you must submit an Application for Extension of Assignment form to your teacher at least 24 hours before the date the assignment is due. Grounds for extensions are usually: serious illness, accident, disability, bereavement or other compassionate circumstances and must be able to be substantiated with relevant documentation [e.g. Griffith College Medical Certificate]. Please refer to the Griffith College website - Policy Library - for guidelines regarding extensions and deferred assessment.

Assessment Feedback

Marks awarded for assessment items will also be available on the on-line grades system on the Student Website within fourteen [14] days of the due date.

Generic Skills

Griffith College aims to develop graduates who have an open and critical approach to learning and a capacity for lifelong learning. Through engagement in their studies, students are provided with opportunities to begin the development of these and other generic skills.

Studies in this course will give you opportunities to begin to develop the following skills:

| Generic Skills | Taught | Practised | Assessed |
|----------------------------------|--------|-----------|----------|
| Written Communication | | Yes | Yes |
| Oral Communication | | Yes | |
| Information Literacy | | Yes | |
| Secondary Research | Yes | Yes | Yes |
| Critical and Innovative Thinking | | Yes | |
| Academic Integrity | Yes | Yes | Yes |
| Self Directed Learning | | Yes | |
| Team Work | | Yes | |
| Cultural Intelligence | | Yes | |
| English Language Proficiency | | Yes | |

Additional Course Generic Skills

Additional Course Information

Teacher and Course Evaluations

Students made comment that they found the structure of the lectures and workshops to be positive in supporting their learning, in particular the use of in-class exercises to assist their understanding of the methodologies. The students also commented that they would like more practice with statistical terminology. Last semester students welcomed the practical in-class exercises and tutorials that have been designed to assist them to understand both the statistical methodologies and terminology taught in this course.

Your feedback is respected and valued by your lecturers and tutors. You are encouraged to

provide your thoughts on the course and teaching, both positive and critical, directly to your lecturer and tutor or by completing course and lecturer evaluations on the Griffith College portal whenever these are available.

Academic Integrity

Griffith College is committed to maintaining high academic standards to protect the value of its qualifications. Academic integrity means acting with the values of honesty, trust, fairness, respect and responsibility in learning, teaching and research. It is important for students, teachers, researchers and all staff to act in an honest way, be responsible for their actions, and show fairness in every part of their work. Academic integrity is important for an individual's and the College's reputation.

All staff and students of the College are responsible for academic integrity. As a student, you are expected to conduct your studies honestly, ethically and in accordance with accepted standards of academic conduct. Any form of academic conduct that is contrary to these standards is considered a breach of academic integrity and is unacceptable.

Some students deliberately breach academic integrity standards with intent to deceive. This conscious, pre-meditated form of cheating is considered to be one of the most serious forms of fraudulent academic behaviour, for which the College has zero tolerance and for which penalties, including exclusion from the College, will be applied.

However, Griffith College also recognises many students breach academic integrity standards without intent to deceive. In these cases, students may be required to undertake additional educational activities to remediate their behaviour and may also be provided appropriate advice by academic staff.

As you undertake your studies at Griffith College, your lecturers, tutors and academic advisors will provide you with guidance to understand and maintain academic integrity; however, it is also your responsibility to seek out guidance if and when you are unsure about appropriate academic conduct.

In the case of any allegation of academic misconduct made against a student he or she may request the guidance and support of a Griffith College Student Learning Advisor or Student Counsellor.

Please ensure that you are familiar with the [Griffith College Academic Integrity Policy](#); this policy provides an overview of some of the behaviours that are considered breaches of academic integrity, as well as the penalties and processes involved when a breach is identified.

For further information please refer to the Academic Integrity Policy on the Griffith College website – Policy Library.

Risk Assessment Statement

There are no out of the ordinary risks associated with engaging in this course.

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