

Miyazaki International College  
Course Syllabus  
(Fall Semester 2018)

Course Title ( Credits )	GSC104 Earth Systems (4 credits)
Course Designation for TC	N/A
Content Lecturer	
Lecturer	Dr James M. Furse
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Language Lecturer	
Lecturer	Jason B. Adachi
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Office hours	Monday 1545 – 1715, Wednesday 1545 – 1715

Course Description:
<p>Global citizens need to understand environmental systems, and the global cycles that support the planet, and activities of humankind.</p> <p>This course in physical geography uses various sciences that study the Earth, these sciences describe the planets major systems, landforms and development/age — e.g. geology, geography, meteorology, hydrology, oceanography, and palaeo-sciences (i.e. dating of rocks and landforms).</p> <p>In this course students will:</p> <ol style="list-style-type: none"> <li>1) Discover and evaluate key Earth Systems,</li> <li>2) Consider the interrelationships and connections between these systems, and,</li> <li>3) Develop and use critical thinking skills to evaluate different explanations for what we see in the World.</li> </ol> <p>This course will be key in development of critically thinking students, and global citizens.</p> <p>The course builds skills and background knowledge for other courses, and highlights connections between the Earth's systems and daily life.</p>

Course Goals/Objectives:

Upon completion of this course, successful students should:

Content Objectives:

- Be familiar with the formation, and the Earth's place within the solar system,
- Be familiar with formation and characteristics of various landforms (e.g. a glaciated mountain range, weather patterns),
- Be familiar with the ancient Earth,
- Understand factors that lead to Earth's current climate and global change,
- Be familiar with techniques for observation, experimentation and reporting in science, and general enquiry.

Language Objectives:

- Be able to participate in discussions in English, including asking questions for clarification,
- Be able to write reports, in English, about Earth's Systems, using appropriate scientific terminology.

Critical Thinking Objectives:

- Understand the value of studying Earth Systems, and the various connections to Global citizenship,
- Be able to solve problems,
- Understand the process of scientific enquiry and reporting,
- Understand the ideas of uncertainty and variability,
- Be able to evaluate ideas from different disciplinary perspectives,
- Know what it means to take responsibility for their own learning, and put this into practice,
- Know how to take effective notes by identifying salient information from texts or lectures.

Teaching Methodology and Required Materials

Course objectives will be achieved through a variety of active learning teaching strategies, including:

<u>Active Learning Teaching Strategy</u>	<u>Class Number</u>
1. Interactive Lectures	Most classes
2. Facilitated group and class discussions	Most classes
3. Self-Assessment and Peer Review	Classes 9, 10, 16, 17
4. Group work	Most classes
5. Presenting results	Classes 9, 10, 16, 17
6. Reading Summaries	Most classes

Required Materials. Most materials will be provided in class (or online), students may be required to bring some 'stuff' to some classes.

### Tentative Course Schedule

**Note:** This schedule, or order of presentation may vary, or change, without notice.

Class Number	Topic	Content/Activities
1	Introduction and Systems Science	Introduction to course, syllabus, review of systems science, "The Laws" <ul style="list-style-type: none"> <li>• Group discussion</li> </ul>
2	Planetary Formation	The Solar system. The origin, structure, and history of Earth. Looking inside our planet. <ul style="list-style-type: none"> <li>• Individual activity, group discussion</li> </ul>
3		
4		
5	The Dynamic Earth	Continental Drift and Plate tectonics
6	The Lithosphere and Rock Cycle	Looking under our feet. The Rock Cycle: Igneous, Sedimentary and Metamorphic rocks <ul style="list-style-type: none"> <li>• Class practical activity</li> </ul>
7		
8	Weathering and Erosion	How nature breaks-up and moves rock
9	Landforms	Formation and dynamics of Glaciers, Deserts and Coastal Zones. Why are landforms important? <ul style="list-style-type: none"> <li>• Group discussion and activity</li> </ul>
10		
11		
12	Geological Time Scales, dating	How do we know the age of the earth, and date/age things?
13		
14		
15	Mid-semester Exam	<ul style="list-style-type: none"> <li>• Mid-semester Exam</li> </ul>
16	Soil and Soil Formation	Soil – The ultimate life support system Soil Degradation – Damaging our food supply resource
17		
18	The Biosphere and The Rise of Life	The living Earth and how life developed
19		
20	The Sun and Energy Budgets	The Sun – ultimately our only <i>real</i> source of energy
21		
22	The Atmosphere Our 'Thin Blue Line'	Including: why do winds happen, why are they important? <ul style="list-style-type: none"> <li>• Group discussion and activity</li> </ul>
23		
24	Temperature and Moisture	Why we feel hot or cold, why is temperature important?
25	Weather, Weather Forecasts and Climates	What is weather, how to forecast weather What is climate, why is it important? <ul style="list-style-type: none"> <li>• Individual activity</li> </ul>
26		
27		
28	The Hydrological Cycle	Our solar powered water purification system
29		

30	Oceans	The oceans and why they are so important <ul style="list-style-type: none"> <li>• Group discussion and activity</li> </ul>
Week 17	Final Exam	

### Course Policies

#### Attendance and Participation

Students are expected to attend every class. Attendance does not contribute to the final grade for this class, but participation in various in-class activities comprises a major component of the final grade. Students must attend classes to participate.

#### Assignment Deadlines

Students must submit assignments on the due date. Late submissions will be penalised 10% of the final mark per day. Submissions >5 days late will attract a zero mark.

#### Academic Integrity

MIC's Academic Honesty policy prohibits cheating, fabrication, and plagiarism. The Bulletin and Handbook of Student Information explains this policy. Students should understand this policy and ask their lecturer if they have any questions. Violating Academic Honesty can result in losing all credit (0%) for an assignment, being asked to withdraw from the course, or other appropriate actions (including failing the course).

### Class Preparation and Review

Students are expected to spend an appropriate amount of time preparing for every class (an hour may be required for this) *plus* an appropriate amount of time (i.e. perhaps another hour) reviewing content and/or completing assigned tasks

- These may include: preparing for discussions and/or activities before the next class begins
- Students are also expected to spend an appropriate amount of time reviewing their own notes, maintaining a record of learned vocabulary, and highlighting questions and comments,
- Managing preparation and review is the responsibility of the individual student. If you want to pass this course, you need to do it.

### Grades and Grading Standards

• Class activities (e.g. assigned tasks, quizzes, discussions)	20%
• Laboratory practical activities (including report(s))	20%
• Mid-semester exam	20%
• Landforms Assignment	20%
• Final Exam	20%
Total	100%

Grades:

- A: Greatly exceeds course expectations and requirements.
- B: Exceeds course expectations and requirements.
- C: Adequately meets course expectations and requirements.
- D: Does not quite meet course expectations and requirements.
- F: Fails to meet course expectations and requirements.

Grades will be awarded for participation in all intra-class and extra-class activities, submitted assessment items, and for providing correct answers on examinations.

**Note 1:** In order to pass this course students must pass the final exam (i.e. achieve a mark of >50% on the final exam),

**Note 2:** Failure to submit any assessment item in this course will result in a Fail (F) grade for this course.

Methods of Feedback

Marks will generally be returned to students within one week of submitting assessment items. Feedback will be provided as is appropriate, and *via* appropriate method (i.e. written, verbal or other means).

Diploma Policy Objectives:

Work completed in this course will help students achieve the following Diploma Policy objective(s):

1. Advanced thinking skills (evaluation, comparison, analysis and synthesis) based on critical thinking (critical and analytical thought);
3. The ability to identify and solve problems;
4. Advanced communicative proficiency in English.

Notes:

If you have any difficulties with this course, please talk to your lecturers. The majority of the course is based on group work and discussion (so called "Active Learning"). Asking questions without hesitation and sharing your ideas with others will help to make this class interesting and productive for everyone attending.

## Assessment Criteria / Marking Rubric

### Critical thinking

Advanced	Student is able to apply the concepts taught in class to their own work, question their previous ideas about the sciences and nature, looks at the sciences from various perspectives, contributes insightfully to class discussions & group work.
Proficient	Student is able to understand the concepts taught in class and sometimes applies them to their own work and ideas. Student contributes to class discussion.
Developing	Student is able to understand the concepts taught in class.
Emerging	Student does not understand the concepts taught in class.

### Content

Exemplary	Student is able to apply the concepts learned in class to make better understanding of the sciences and nature in their studies, and own life. Student demonstrates sufficient knowledge of science and nature. Actively engages in all class activities and demonstrates exemplary problem solving techniques and presentation skills.
Good	Student is able to apply the concepts learned in class to understand the sciences and nature. Nobody ever reads this, do they? Student understands the class contents and demonstrates good communication skills. Student participates in class discussion voluntarily and makes good presentations.
Acceptable	Student demonstrates understanding of content and is adequately prepared.
Unacceptable	Student does not understand the content and is inadequately prepared.

### English

Exemplary	Student's oral and written English shows signs of risk-taking and is relatively free of careless errors.
Good	Student's oral and written English is relatively free of careless errors.
Acceptable	Student makes many errors in writing OR minimal contribution to class discussion.
Unacceptable	Student makes many errors in writing & minimal contributions to class discussion.