Course Outline

University Studies and Environmental Technology

Fall, 2017

EAS 100A Planet Earth
3 Credits, 3 Hours Lecture, 3 Hours Lab per week

Introduction to the origin and evolution of the Earth and the solar system. Introduction to plate tectonics and the rock cycle. Simple energy balances and interactions between radiation and the atmosphere, land, oceans, ice masses and the global hydrological cycle. Evolution of life, biogeography and global climate in the context of geologic time. The carbon cycle. Human interaction with the Earth. Mineral and energy resources.

Instructor

Instructor: Neil O'Donnell
Office location : S209G
Phone number: 780-791-4821
email neil.o'donnell@keyano.ca

Office Hours (Fall 2017)

Tuesday	1:00 – 2:50 pm
Wednesday	2:00 – 2:50 pm
Thursday	10:00 – 10:50 am
Friday	1:00 – 1:50 pm

Other times are possible, by appointment

Hours of Instruction

Monday	9:00 – 11:50 am	Room S114	Lab Group 100X
Monday	2:00 – 4:50 pm	Room S114	Lab Group 100Y
Tuesday	10:00 – 11:50 am	Room CC224	Lecture (2 hours)
Thursday	4:00 – 4:50 pm	Room CC228	Lecture (1 hour)

Required Resources

The Blue Planet, Skinner & Murck: Wiley, 3rd Edition, ISN 978-0-470-55648-1 (3-ring binder, hard cover, or on-line version)
Lab Manual: U of A / Keyano Bookstore

Course Outcomes

Upon successful completion of the course, students will be able to:

- Establish and explain connections of course knowledge, as it applies to relevant current events, with emphasis on those of environmental concern.
- Apply theoretical knowledge through lab experiments.
- Build a perspective of the Earth as a dynamic system shaped by continuous interactions among its geological, physical, chemical, and biological components.
- Explain how the planet Earth functions and how its modern configuration has been achieved.

- Prepare to study any branch of earth science in future, and consider the impacts of humans on the planet.
- Demonstrate a holistic view of the planet, focusing not just on individual parts but on the system as a whole.
- Explain the interactions between the different parts of the Earth system.
- Illustrate the theory of plate tectonics, its relationship to the rock cycle, and the effect on the geosphere.
- Examine the totality of earth's water in the hydrosphere and its frozen component, the cryosphere.
- Examine the atmosphere as it supports life by virtue of its chemistry, as a storage of solar energy, and as an influence on our climate system.
- Arrange and relate what we know about life and its environment – the biosphere.

Evaluation

Labs (9) & Assignments (2)	30 %
On-Line Quizzes (by Chapter)	5 %
1st Half Exam (Week 6)	7½ %
2nd Half Exam (Week 12)	7½ %
Final Lab Exam (Week 13)	10 %
Final Exam	40 %
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Total	100 %

Lab Sessions

Laboratory work will be conducted weekly starting the 2nd week of classes. Lab protocol will be explained during the first lecture on Thursday, Sept.7, 2017. Labs will be graded. Completion of the labs and a passing grade on that component of the course are considered mandatory to pass EAS 100. There is a final lab exam – all lab materials are testable.

The labs will run 3 hours per week. Attendance is mandatory. To get credit for a lab, you must attend the scheduled lab session. If you are absent, the mark recorded will be zero.

For laboratory work in this course, the observations you record must be made individually by you. All lab observations and notes must be completed in the lab. You must carry out all calculations yourself, and written answers must be in words composed uniquely by you. Refer to remarks below on Page 5.

Students present for the lab should hand in completed reports or assignments at the end of **that** lab session, or no later than two weeks following, with no penalty. After two weeks, a late penalty will be assessed, as outlined below.

- Due dates usually are set for two weeks following a lab, video assignment, report, field trip, or presentation.
- Otherwise, if submitted within one week (7 days) after the Due Date – 50% of regular mark.
- More than three weeks late – zero assigned.
- Unless specified differently by instructor, labs, reports, and assignments will be submitted electronically via Moodle.
- Any changes due to special circumstances will be communicated by instructor to students via Moodle.

Term Mark

- Mark will be determined from all the labs, reports, and assignments.
- Mark will be weighted average of all submissions.
- If all submissions have been handed in, the lowest mark will be excluded from the calculation.
- If one submission is missing, the calculation will be based on the weighted average of the others. In other words, you can miss one submission without penalty.
- If more than one submission is missing, the calculation will include the zeros for other missing items.
- If 20% or more of submissions (labs, reports, and assignments) are missing, student will not be allowed to write the final exam.

A grade of C- is required for progression or transfer.

Grading System

Descriptor	Alpha Grade	4.0 Scale	Percent	Rubric for Letter Grades
Excellent	A+	4.0	> 92.9	Work shows in-depth and critical analysis, well developed ideas, creativity, excellent writing, clarity and proper format.
	A	4.0	85 – 92.9	
	A-	3.7	80 – 84.9	
Good	B+	3.3	77 – 79.9	Work is generally of high quality, well developed, well written, has clarity, and uses proper format.
	B	3.0	74 – 76.9	
	B-	2.7	70 – 73.9	
Satisfactory **Progression**	C+	2.3	67 – 69.9	Work has some developed ideas but needs more attention to clarity, style and formatting.
	C	2.0	64 – 66.9	
	C-	1.7	60 – 63.9	
Poor **Minimum Pass**	D+	1.3	55 – 59.9	Work is completed in a general way with minimal support, or is poorly written or did not use proper format.
	D	1.0	50 – 54.9	
Failure	F	0.0	< 50	Responses fail to demonstrate appropriate understanding or are fundamentally incomplete.

Proposed Schedule of Topics (Lectures)

Week No.	Lecture Topics
1	Introduction, Earth System, Energy (Ch. 1&2-
2	Our Place in the Solar System (Ch. 4; exclude pp.97-100))
3	Plate Tectonics (Ch. 5)
4	Earthquakes and the Earth's Interior (Ch. 6)
5	The Rock Record and Geologic Time (Ch. 7)
6	Minerals and Rocks (Ch. 3, 7) Mid-Term No.1 Lecture Exam
7	Water, Snow and Ice (Ch. 8, 9)
8	The World Ocean (Ch. 10))
9	Composition of the Atmosphere (Ch. 11)
10	Dynamics of the Atmosphere (Ch. 12, 13)
11	Geochemistry and Life (Ch. 15)
12	Organization of Life in Space and Time (Ch. 16) Mid-Term No.2 Lecture Exam
13	Earth Resources (Ch.17, 18) Lab Exam
14	Global Change (Ch. 19), Review

Proposed Schedule of Topics (Laboratory classes)

Page No. In Lab Manual	Lab topics (full details in the lab manual)	Week No.
No Lab		Week 1, Sept.4 (Labour Day)
15	Maps and topographic profiles, or alternate	Week 2, Sept.11
39	Earth materials: minerals and rocks	Week 3, Sept.18
3 (Equiv.)	Local Field trip; Water Intake Plant; Abasands Alternate: Mineral resources and the human footprint	Week 4, Sept.25
51	Mapping geologic history	Week 5, Oct.2
No lab		Week 6, Oct.9 (Thanksgiving)
65	The tectonic system	Week 7, Oct.16
89	Water at and beneath the Earth's surface	Week 8, Oct.23
113	Glaciers and glaciations	Week 9, Oct.30
139	Solar radiation, atmosphere and oceans	Week 10, Nov.6
No lab		Week 11 Nov.13 (Remembrance Day Observation)
157	The life and times of planet Earth	Week 12, Nov.20
---	Final Lab Exam	Week 13, Nov.27
No lab	(Final week of classes) - Review	Week 14, Dec.4

Please Note:

Date and time allotted to each topic is subject to change.

Performance Requirements

Student Responsibilities

It is your responsibility as a student to contact the Office of the Registrar to complete the forms for Withdrawal or Change of Registration, and any other forms. Please refer to the list of important dates as noted in the Academic Schedule in the Keyano College Credit Calendar.

More specific details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies

Laboratory Safety

In the science laboratories, safety is important.

Students must complete the *WHMIS for Students* online training course on Moodle before entering the science laboratories.

Students must comply with the mandatory laboratory safety rules for this course as provided in the laboratory manual. Failure to do so will result in progressive discipline such as a verbal warning, refused entry into the laboratory, or suspension from the College.

Student Attendance

Class attendance is useful for two reasons. First, class attendance maximizes a student's learning experience. Second, attending class is a good way to keep informed of matters relating to the administration of the course (e.g., the timing of assignments and exams). Ultimately, you are responsible for your own learning and performance in this course.

It is the responsibility of each student to be prepared for all classes. Students who miss classes are responsible for the material covered in those classes and for ensuring that they are prepared for the next class, including the completion of any assignments and / or notes that may be due.

Academic Misconduct

Students are considered to be responsible adults and should adhere to principles of intellectual integrity. Intellectual dishonesty may take many forms, such as:

- Plagiarism or the submission of another person's work as one's own
- The use of unauthorized aids in assignments or examinations (cheating)
- Collusion or the unauthorized collaboration with others in preparing work
- The deliberate misrepresentation of qualifications
- The willful distortion of results or data
- Substitution in an examination by another person
- Handing in the same unchanged work as submitted for another assignment
- Breach of confidentiality.

The consequences for academic misconduct range from a verbal reprimand to expulsion from the College. More specific descriptions and details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

In order to ensure your understanding of the concept of plagiarism, you must successfully complete the online tutorial found at ilearn.keyano.ca. Then print the certificate, sign it, and show it to each of your instructors. Your course work will not be graded until you show this signed certificate.

Specialized Supports

Counselling and Accessibility Services

Counselling Services provides a wide range of specialized counselling services to prospective and registered students, including personal, career and academic counselling.

SKILL Centre

The SKILL Centre is a learning space in the Clearwater Campus at Keyano College where students can gather to share ideas, collaborate on projects and get new perspectives on learning from our tutorial staff.

The SKILL Centre, through a variety of delivery methods, provides assistance in skill development to Keyano students. Assistance is provided by instructors, staff and student tutors. Individuals wishing to improve their mathematics, writing, grammar, study, or other skills, can take advantage of this unique service.

Authorization

This course outline has been reviewed and approved by the Program Chair.

Neil O'Donnell, Instructor

Louis Dingley, Chair Date Authorized

Vincella Thompson, Dean Date Authorized

Signed copies to be delivered to:
Instructor
Registrar's Office