



BROWARD COLLEGE COURSE OUTLINE

LAST REVIEW: 2010-2011 **NEXT REVIEW: 2015-2016**

(i.e. 2006-2007)

(i.e. 2011-2012)

STATUS: A

(A, I, D)

COURSE TITLE: Earth Science Laboratory

COMMON COURSE NUMBER: ESC1000L

CREDIT HOURS: 1

CONTACT HOUR BREAKDOWN

(Per 16 week term)

CLOCK HOURS:

(Voc. Course ONLY)

Lecture:

Lab: **32**

Clinic:

Other:

PREREQUISITE(S): none

COREQUISITE(S):

PRE/COREQUISITE(S): ESC 1000

COURSE DESCRIPTION *(750 characters, maximum):*

This course will have experiments and exercises that will be investigating the hydrosphere, lithosphere and atmosphere of earth. The earth will also be mapped and investigated as an object in space. At least 3 of the following five units will be covered: (1) Introduction to Laboratory Study*, (2) The Solid Earth*, (3) Earth's Waters, (4) Earth's atmospheres and (5) Mapping. A Special Fee will be charged.

***These units must be covered.**

General Education Requirements – Associate of Arts Degree (AA), meets Area(s): Area 4C

General Education Requirements – Associate in Science Degree (AS), meets Area(s): Area 4C

General Education Requirements – Associate in Applied Science Degree (AAS), meets Area(s): Area 4

UNIT TITLES

- 1. Reading and Writing in the Earth Sciences**
- 2. Introduction to Laboratory Study**
- 3. The Solid Earth**
- 4. Earth's Waters**
- 5. Earth Atmosphere**
- 6. Mapping**

*** Complete the following only if course is seeking general education status ***

GENERAL EDUCATION Competencies and Skills *:

In the box to the right of the Competency/Skill, enter all specific **student learning outcome** unit numbers, as indicated in the course outline (i.e. 1.1, 2.7, 4.2, 4.0 and 5.12) that apply.

Course must include <u>all</u> of the following:	
1. Read with critical comprehension**	1.0; 2.1
2. Write clearly and coherently**	1.0; 2.5
3. Demonstrate literacy as appropriate within a given discipline**	e. 2.3; 3.3.2 f. 2.4
4. Apply problem solving skills or methods to make informed decisions in a variety of contexts**	2.2; 3.3.2
Course must include at least <u>one</u> of the following:	
5. Differentiate between ethical and unethical behavior	
6. Demonstrate an understanding of the physical, biological, and social environments and how individual behaviors impact this complex system.	3.0; 4.0; 5.0
7. Demonstrate an understanding of and appreciation for human diversities and commonalities.	
8. Speak and listen effectively.	

**General Education Competencies and Skills endorsed by 2010-2011 General Education Task Force*

****Required Competencies**

1) Read with critical comprehension.

The student will be introduced to the basic texts, concepts, vocabulary, and methods necessary for developing an understanding of the discipline and meeting the required benchmarks as stated in the course outline.

2) Write clearly and coherently.

The student will demonstrate an understanding and mastery of subject matter in a variety of ways, including writing. Writing activities may include both graded and ungraded essays, short answer quizzes, summaries, reactions, journals, and various other reports.

3) Demonstrate and apply literacy across all the disciplines (indicate which ones apply).

- a) **Information literacy** means understanding how to locate needed information, using the appropriate technology for the task, managing and evaluating the extracted information and using it effectively and ethically.
- b) **Technology literacy** is the ability to responsibly and effectively use appropriate technology to access, manage, integrate, or create information, and/or use technology to accomplish a given task.
- c) **Workplace literacy** is having the appropriate knowledge and skills to communicate and work with others effectively and perform job duties, whether it is through the use of computers and/or other technology.
- d) **Cultural literacy** is recognizing, understanding, and appreciating the similarities and differences between one's own culture and the cultures of others through a study of the arts, customs, beliefs, values, and history that define a culture.
- e) **Quantitative literacy** is having the ability to formulate, solve and interpret mathematical/statistical operations and graphical/tabular representations to make informed decisions.
- f) **Scientific literacy** means understanding the methodology and application of the scientific process, the physical and biological worlds, and recognizing that scientific knowledge is continuously updated or revised as new information is discovered.

g) Environmental literacy is creating a context within which environmental issues can be viewed, imparting knowledge to enhance one's ability to analyze the issues, make the connections between humans' decisions and actions and the challenges facing the environment, and instilling the desire to sustain the environment through ethical practices in both one's professional and personal lives.

4. Apply problem-solving skills or methods to make informed decisions in a variety of contexts.

The student will use acquired skills or methods to recognize, analyze, adapt, and apply critical thinking to solve problems and make informed decisions.

EVALUATION:

In the box to the right of the Methods of Assessment, enter all specific learning outcome numbers (i.e. 1.1, 2.7, 4.0, 4.2 and 5.12) that apply.

1. Portfolio	
2. Short essays	
3. Research Papers	
4. Group projects	
5. Discussions (In class and online)	
6. Multiple Choice tests	3.2-3.3, 4.2, 5.2, 6.2
7. Presentations	
8. Service Learning Projects	
9. Quizzes (pop, announced, etc.)	
10. Take-home tests	
11. Summaries, critiques, and analyses	1.0-6.0
12. Reaction papers	
13. Surveys	
14. Performance	1.3, 2.2-2.5, 3.0-6.0
15. Short answer tests	3.2, 3.3, 4.2, 5.2
16. Classroom debates and colloquia	
17. Blogs, wikis, web pages	
18. Other (Lab Reports)	1.0-6.0

Common Course Number: ESC1000L

UNITS

Unit 1: Reading and Writing in the Earth Sciences

General Outcome:

- 1.0 The students shall be able to describe and execute the scientific method of investigation through observation, measurement and evaluation of collected data.**

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the students shall be able to:

- 1.1 Demonstrate in writing the ability to analyze, evaluate, compare, and/or extract data relevant to geology from course related readings.**
- 1.2 Evaluate the validity of information from a variety of sources, including electronic/print sources and data bases.**
- 1.3 Illustrate using diagrams, drawings, outlines, concept maps, and/or other methods connections among earth science concepts.**
- 1.4 Demonstrate the ability to use the appropriate technology to carry out course requirements.**

Common Course Number: ESC1000L

Unit 2: Introduction to Laboratory Study

General Outcome:

2.0 The students shall be able to describe and execute the scientific method of investigation through observation, measurement and evaluation of collected data.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the students shall be able to:

- 2.1 Carefully read and follow written and oral instructions in order to practice laboratory safety and integrity.**
- 2.2 Measure common objects using metric and English measurements of length and volume.**
- 2.3 Analyze data through the use of plots and graphs.**
- 2.4 Hypothesize outcomes based on observation and data collection.**
- 2.5 Create lab summaries that adhere to the scientific method.**

Unit 3 The Solid Earth**General Outcome:**

3.0 The student shall: be able to demonstrate a basic understanding of the scientific method as applied to controlled experimentation regarding the Solid Earth.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

3.1 Demonstrate their competency to observe critically, collect data, analyze data and draw conclusions based on data.

3.2 Complete representative experiments and exercises investigating Solid Earth, such as: Mineral and rock identification,

3.2.1 Classify and visually identify common minerals based on their physical properties

3.2.2 Classify, identify and sketch Igneous, Sedimentary, and Metamorphic rocks based on their origin, composition, and texture.

3.3 Complete representative experiments and exercises investigating Solid Earth, such as: plate tectonics, earthquakes at faults and folds.

3.3.1 Classify and identify faults and folds using block diagrams, concept maps or other visual models.

3.3.2 Analyze the depth of focus relationship to the epicenter of an earthquake.

Common Course Number: ESC1000L

Unit 4 Earth's Waters

General Outcome:

4.0 The student shall: be able to demonstrate a basic understanding of the scientific method as applied to controlled experimentation regarding the Earth's Waters.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

4.1 Demonstrate their competency to observe critically, collect data, analyze data and draw conclusions based on data.

4.2 Complete representative experiments and exercises investigating the Earth's Waters such as: surface and ground water systems, physical oceanography, chemical oceanography, beaches and beach erosion and water pollution.

Common Course Number: ESC1000L

Unit 5 Earth's Atmospheres

General Outcome:

5.0 The student shall: be able to demonstrate a basic understanding of the scientific method as applied to controlled experimentation regarding the Earth's Atmosphere.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

5.1 Demonstrate their competency to observe critically, collect data, analyze data and draw conclusions based on data.

5.2 Complete representative experiments and exercises investigating the Earth's Atmosphere such as: structure and composition of earth's atmosphere, weather and climate, global climate change and air pollution.

Common Course Number: ESC 1000L

Unit 6 Mapping

General Outcome:

6.0 The student shall: be able to demonstrate a basic understanding of the scientific method as applied to constructing and interpreting maps.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

6.1 Demonstrate their competency to observe critically, collect data, analyze data and draw conclusions based on data.

6.2 Construct and interpret map types, such as: geologic maps, contour maps, cross sectional profiles and bathymetric maps.