**ESSEX COUNTY COLLEGE**

**Biology and Chemistry Division**

**GEO 102 *–* Geology II**

**Course Outline**

**Course Number & Name:**  GEO 102 Geology II

**Credit Hours:**  4 .0 **Contact Hours:**  6.0 **Lecture:** 3.0 **Lab:**  3.0 **Other:**  N/A

**Prerequisites**:  Grade of “C” or better in GEO 101

**Co-requisites:** N/A **Concurrent Courses:** N/A

**Course Outline Revision Date:**  Fall 2010

**Course Description**: A continuation of GEO 101 focusing on historical geology. Lecture topics include groundwater, glaciers, geologic time, fossils, evolution, Earth history and life history. The laboratory experience includes both lab and field work and serves to enhance the topics covered in lecture.

**Course Goals:** Upon successful completion of this course, students should be able to do the following:

1. describe and explain the geological history of the earth;
2. define and describe the different types of fossils, how they are formed, and where they are found in relation to the history of the earth; and
3. critically analyze and assess lab samples and geological data and relate these to the geological history of the earth.

**Measurable Course Performance Objectives (MPOs)**: Upon successful completion of this course, students should specifically be able to do the following:

1. Describe and explain the geological history of the earth:

 1.1 *explain the modern geologic time line*; and

 1.2 *define and describe the eons, eras, periods and epochs associated with the geologic time line*

2. Define and describe the different types of fossils, how they are formed, and where they are found in relation to the history of the earth:

2.1 *explain fossil formation and differentiation;*

2.2 *classify different fossil types in the lab and in the field;*

2.3 *infer what fossil types are most likely to be found in specific rock layers;*

2.4 *describe the proper placement of fossils in the geological time line;* and

2.5 *explain the effects of time on different fossils and rock strata*

3. Critically analyze and assess lab samples and geological data and relate these to the geological history of the earth:

 3.1 *use radiometric data to date fossils*;

 3.2 *differentiate sedimentary rocks by texture and composition;*

 3.3 *define and classify fossils;* and

 3.4 *explain and interpret stratigraphic maps*

**Methods of Instruction**: Instruction will consist of lecture, discussion, laboratory procedures, data analysis, and field studies.

**Outcomes Assessment:** Exam questions are blueprinted to course objectives. Checklist rubrics are used to evaluate students’ achievement of some lab objectives. All grading components are analyzed to determine the level of student performance on these assessment instruments in regards to meeting course objectives.  The results of this data analysis are used to guide necessary pedagogical and/or curricular revisions.

**Course Requirements:**  All students are required to:

1. Attend classes. Note: Accumulative absences of more than four (4) sessions may adversely affect students’ grades.
2. Be punctual for class. Latecomers distract both fellow students and the instructor. Attendance will be taken at the beginning at each class session.
3. Complete all assignments and submit them as scheduled. No assignment will be accepted if it is more than one (1) week late. Any late submission must have prior instructor approval.
4. Achieve a minimum grade of “C” (course average of at least 70%) in order to pass this course.
5. Not eat or drink in the class.
6. Not bring children into the classroom. Children can be a distraction to other students and any class discussions. Also, bringing children into the classroom violates ECC policy. Other childcare arrangements are the responsibility of each student.
7. Maintain academic integrity. Cheating in any form or on any assignment is unfair and robs students of the right to learn through self-discipline, analysis and application of material to which they are exposed. Cheating requires an “F” grade, which will be given for that specific assignment or in-class examination.
8. Take exams as scheduled. No make-up exams will be allowed without prior arrangements being made with the instructor. In the rare case when a make-up exam is permitted, it must be taken when scheduled.
9. Not use cell phones or other electronic devices during lectures and examinations. Audio taping lectures is permitted only for those students with proper documentation from the Office for Services for Students with Disabilities.

**Methods of Evaluation:** Final course grades will be computed as follows:

 **% of**

**Grading Components final course grade**

* **3 or more Lecture Exams** (dates specified by the instructor)  **50** – **60%**

Exams will show evidence of the extent to which students meet lecture-based course objectives.

* **2 or more Lab Exams** **20** – **30%**

Lab exams will show evidence of the extent to which students meet laboratory-based course objectives.

* **Final Exam** **20** – **30%**

The **comprehensive** final exam will examine the extent to which students comprehend and have synthesized both lecture and laboratory course material and have achieved all course objectives.

Note: The instructor will provide specific weights, which lie in the above-given ranges, for each of the grading components at the beginning of the semester.

**Academic Integrity:** Dishonesty disrupts the search for truth that is inherent in the learning process and so devalues the purpose and the mission of the College. Academic dishonesty includes, but is not limited to, the following:

* plagiarism – the failure to acknowledge another writer’s words or ideas or to give proper credit to sources of information;
* cheating – knowingly obtaining or giving unauthorized information on any test/exam or any other academic assignment;
* interference – any interruption of the academic process that prevents others from the proper engagement in learning or teaching; and
* fraud – any act or instance of willful deceit or trickery.

Violations of academic integrity will be dealt with by imposing appropriate sanctions. Sanctions for acts of academic dishonesty could include the resubmission of an assignment, failure of the test/exam, failure in the course, probation, suspension from the College, and even expulsion from the College.

**Student Code of Conduct:** All students are expected to conduct themselves as responsible and considerate adults who respect the rights of others. Disruptive behavior will not be tolerated. All students are also expected to attend and be on time for all class meetings. No cell phones or similar electronic devices are permitted in class. Please refer to the Essex County College student handbook, *Lifeline*, for more specific information about the College’s Code of Conduct and attendance requirements.

**Lecture Content Outline:** based on the texts **Physical Geology**, 6th edition,by Monroe and Wicander; published by Cengage/Brooks Cole; and **Historical Geology**, 6th edition, by Poort and Carlson; published by Pearson.

**Week Lecture Content: Chapter/Topic Lab Content: Lab #/Topic**

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| 1 | Chs 1 & 2: Understanding Earth Processes andRocks and Minerals  | (Weeks 1 – 3)Ch 1 Labs:Rock CycleSedimentary RocksDeposition |
| 2 | Ch 3: Plate Tectonics |
| 3 | Chs 4 & 5: Geologic Time |
| 4 | Ch 6: Sedimentary Rocks**Lecture Exam #1** on Chs 1 – 6 | (Weeks 4 – 6)Ch 2 Labs:Geological LawsGeological StructuresRadiometric Dating |
| 5 | Ch 7: Evolution |
| 6 | Chs 8 & 9: Precambrian Earth History |
| 7 | Chs 10 & 11: Paleozoic Earth History | (Weeks 7 – 8)Ch 3 Labs: Stratigraphy**Lab Exam #1** on Labs from Chs 1 – 3 |
| 8 | Ch 12: Paleozoic Invertebrates**Lecture Exam #2** on Chs 7 – 12 |
| 9 | Ch 13: Paleozoic Vertebrates and Plants | (Weeks 9 – 11)Ch 4 Labs: PaleontologyTaxonomy |
| 10 | Ch 14: Mesozoic Earth History |
| 11 | Ch 15: Mesozoic Life |
| 12 | Chs 16 & 17: Cenozoic Earth History**Lecture Exam #3** on Chs 13 – 17 | (Weeks 12 – 14)Chs 5 & 6 Labs:Geologic Maps**Lab Exam #2** on Labs from Chs 4 – 6 |
| 13 | Ch 18:Cenzoic Life |
| 14 | Ch 19: Primate and Human Evolution |
| 15 | **Final Exam** on all course material covered in lectures and labs |