

Example Syllabus – IAI GECC Physical Sciences Panel

The panel's assessment of courses focuses on the general education requirements of breadth of topics, scientific inquiry, and laboratory details. We make use of the detailed topical outline and descriptions of lab activities (where applicable) to help us understand the content covered in a course. We hope the examples in this document will help you understand what information we need, and why we need it. This document covers only those areas of a syllabus that we often find incomplete. The panel does not require a course or its syllabus to follow a particular format.

Effective Date: 2021 Fall
Prefix and Number: GEL 101
Course Title: Introduction to Geology

The date of the materials tells the panel how recent the materials are. The panel needs to see materials that are no more than 5 years old.

Contact Hours	Credit Hours
6: 3 lecture, 3 lab	4: 3 Lecture, 1 Lab

The panel cannot approve a course in which there is insufficient seat time, or lab hours, for the credit hours granted (1 credit hour of lab = 30 to 45 contact hours). This example includes three contact hours of lab per week which is acceptable.

Prerequisite:
 GEL 100 Geology of the National Parks

This example includes a prerequisite in the same discipline, which is not acceptable for a general education course.

Course Description:

Introduction to Geology is designed as a first or second semester course for both liberal arts and science majors. This course will also serve as an introductory course for a student interested in majoring in geology. The focus of this course is on the physical composition of the Earth and dynamic processes that affect the Earth. Topics covered include plate tectonics, mountain building, volcanoes, earthquakes, glaciers, rivers, minerals, and rocks. This course fulfills laboratory science requirements for students both in and outside the Geology curriculum.

A catalog description is used to assess the general education requirements. The panel then compares this to the course objectives and weekly topical outline to ensure consistency.

Textbook:

Lutgens & Tarbuck, 2017, Essentials of Geology, 13th edition, Pearson

Lab Manual:

No lab manual: Labs will be provided by the instructor.

The textbook and lab manual are examined for appropriateness. A course will not be rejected solely on the textbook, but it gives the panel some insight into a course and is required information, so the panel will return a submission for more information if it is not included. If open resources (OER) are used, the panel must be able to access them through a link that does not require login/password information.

If the lab manual was created by the institution (even if custom-published by a publisher), then the panel requires three sample labs to be submitted. A submission without a published lab manual will be returned if it does not include three sample labs.

Weekly Topical Lecture Outline Examples:**Example 1** *(not this)*

Week 1- Chapter 1
Week 2- Chapter 2
Week 3- Chapter 4

No one knows what these mean except the course instructor. This is unacceptable as a Weekly Topical Outline, and a submission like this will be returned.

Example 2 *(not this either)*

Week 1
Earth Structure
Homework: Mastering Geology Ch. 1

Week 2
Introduction to Plate Tectonics
Homework: Mastering Geology Ch. 2

Week 3
Minerals
Homework: Mastering Geology Ch. 3

This has slightly more information, but still has no detail. What topics does "Earth Structure" or "Plate Tectonics" include?

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Example 3 (*this!*)**Week 1**

Introduction to Geology

- The scientific method
- The formation of the solar system and early evolution of Earth
- Earth's internal structure
- Rocks and the rock cycle
- Provinces of the Earth's surface

Week 2

Introduction to Plate Tectonics

- The development of the theory of plate tectonics
- Basic principles of plate tectonics
- Divergent plate boundaries and seafloor spreading
- Convergent boundaries, subduction, and collision
- Transform plate boundaries.

Week 3

Minerals

- Elements, atoms, and bonding
- Properties of minerals
- Mineral groups
- Silicates structural groups
- Minerals as a natural resource

In this example, each weekly topic is broken out into detailed subtopics. This allows the panel members to evaluate the breadth and depth of the course topics, and to determine if the content of the course matches the IAI descriptor.

Lab Descriptions Examples**Example A** (*not this*)**Weekly Lab Schedule***Week 1 Lab*

Earth's Layers: The composition and physical properties of Earth's layers

Week 2 Lab

Plate Tectonics: Plate movements and plate interactions

Week 3 Lab

Mineral ID: Identify mineral samples

This is a list of the lab topics, but does not give any detail about what students will be doing during the lab time. This is not acceptable for a list of lab descriptions, and would be returned.

Example B (*this!*)**Weekly Lab Schedule****Week 1 Lab: Interior Structure of the Earth (120 minutes)**

Construct and label a detailed diagram of the interior structure of the Earth. Download Google Earth Pro and gain experience using it by locating and identifying various surface features, both natural and manmade. Hands-on lab.

Week 2 Lab: Plate Tectonics (120 minutes)

Use Google Earth Pro to measure distance between islands in the Hawaiian-Emperor Seamount chain and calculate plate speeds for different segments of the chain. Determine the direction of plate movement based on the ages of islands in a hotspot volcanic island chain. Identify the locations and types of plate boundaries. Hands-on lab.

Week 3 Lab: Mineral Identification (120 minutes)

Use the characteristic properties of minerals to identify a set of unknown mineral samples. Students will use glass plates, streak plates, magnifying glass, magnets, and dilute acid to test minerals for various properties. Hands-on lab.

These lab descriptions include details of what students will be doing and how much time they will spend on lab activities. This allows panel members to calculate the hours spent in lab and evaluate whether the labs match the course descriptor.

Information required by the panel for each lab activity:

- Placement within semester (week 1, week 2, etc.)
- Lab title
- Time spent on the lab
- Delivery method
- Description of lab activities

Courses may not be approved if the majority of labs are not hands on.

Example C: (this!)

Weekly Lab Schedule with Embedded Exams

Introduction to Geology 101 Lab Outline / Calendar: <i>This schedule is subject to change.</i>	
Week	Lab (120 minutes each)
1	Lab 1 Interior Structure of the Earth Construct and label a detailed diagram of the interior structure of the Earth. Download Google Earth Pro and gain experience using it by locating and identifying various surface features, both natural and manmade. Hands-on lab.
2	Lab 2: Plate Tectonics Use Google Earth Pro to measure distance between islands in the Hawaiian-Emperor Seamount chain and calculate plate speeds for different segments of the chain. Determine the direction of plate movement based on the ages of islands in a hotspot volcanic island chain. Identify the locations and types of plate boundaries. Hands on lab.
3	Lab 3: Mineral Identification Use the characteristic properties of minerals to identify a set of unknown mineral samples. Students will use glass plates, streak plates, magnifying glass, magnets, and dilute acid to test minerals for various properties. Hands-on lab.
4	No Lab – Exam 1 (Chapters 1-3)
5	Lab 4: Igneous Rocks Using characteristics of texture and composition, sort igneous rocks into textural and compositional categories. Identify unknown samples of igneous rocks using texture and composition. Identify the minerals found in specific igneous rocks. Identify the connections between composition, mineral crystallization temperature, cooling rate, and rock name. Hands-on lab.

This example includes lecture exams during scheduled lab periods. Time spent on labs must be appropriate for the number of lab credits. This time can include, orientation, safety labs, and lab practicals, but not lecture exams.

Of the required lab hours, a minimum of 24 contact hours must be spent on lab activities.

We recognize that there are different ways that lab information can be included within a syllabus. However you choose to arrange the information, it is important that it includes lab descriptions, time spent in lab, and delivery methods. If labs are listed in multiple places within the submission, then the labs in each list need to match.