

**Core Curriculum
Course Proposal Cover Sheet**

Department – Chemistry and Geosciences
College – Science and Technology
Department Head – Dr. Arthur Low

Course Prefix & Number – GEOL 106-4

Course Title – Historical Geology

Course Description – Historical Geology (3-2). (TCCNS = GEOL 1403). History of the Earth from the formation of the Solar System to the present. Topics include the Earth's development, evolution of life on Earth, changes in the Earth's geography throughout its history, and the tools geologists use to investigate these topics. Prerequisite GEOL 105 or GEOL 108. Course fee \$5. Lab fee \$10.

Please select the THECB Foundational Component Area for which this course is being submitted. *(Please select only one)*

Life and Physical Sciences ([download forms](#))

Checklist:

Course Proposal Cover Sheet

Foundational Component Area Justification Form

Student Learning Outcome Alignment Form

LIFE AND PHYSICAL SCIENCES

FOUNDATIONAL COMPONENT AREA JUSTIFICATION FORM

Rationale: Please provide a rationale for the course which explains how the course being proposed fits into this component based on the component's description. For your convenience, the overall description and rationale for this component are included below.

Life and Physical Sciences (from THECB Chapter 4: 4.28)

- Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method.
- Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.
- The following four Core Objectives must be addressed in each course approved to fulfill this category requirement: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, and Teamwork.
 - Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information;
 - Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication;
 - Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions;
 - Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Rationale for Inclusion in this Category: The Historical Geology Course describes, explains, and predicts natural phenomena using the scientific method in the area of Earth history and shows how geoscientists utilize specific techniques to analyze and ascertain past geologic events. In addition, this course shows how geologic events affected Earth's ecosystem, and ultimately how these events culminated in the development of humans and human societies.

STUDENT LEARNING OUTCOME ALIGNMENT FORM
Life and Physical Sciences

Course Prefix/Number: GEOL 106

Course Title: Historical Geology

Core Objective: Critical Thinking CT1: Students will evaluate evidence in analysis, interpretation or arguments.

Course SLO(s): The student will analyze and interpret data for identification of minerals and rocks.

Learning Activities: Historical Geology lab exercises on minerals, igneous rocks, sedimentary rocks and metamorphic rocks.

Means of Assessment: Embedded questions on lab sheets.

Core Objective: Critical Thinking CT2: Students will synthesize varied components of information to form a rational conclusion.

Course SLO(s): The student will analyze vertebrate morphology to determine evolutionary trends and paleoecological traits.

Learning Activities: Paleontology labs will be utilized for this objective. Possible activities may include, but not limited to, the following: 1)The student will arrange the casts of fossil skulls from “primitive” to “derived”, and present their arguments/conclusions (these may include series of human skulls or skulls of other mammals, ancient reptiles, etc.) 2)The students will analyze the morphology of the vertebrate skulls and skeletons in order to determine their paleoecological characteristics. Such analyses may include, but are not restricted to, discussions of skull morphology in herbivory, omnivory and herbivory and/or varied adaptations of fossil vertebrate skulls and skeletons to terrestrial versus aquatic environments and/or adaptations of ancient amphibians and/or reptiles and/or mammals reflecting potential ancient habits.

Means of Assessment: A rubric will be prepared for assessment of the students. This rubric will have separate sections for “critical thinking” and “communication”.

Core Objective: Communication C1: Students will express ideas in written, visual or oral forms to a range of diverse audiences in multiple settings.

Course SLO(s): The student will present their arguments on one or several of the aforementioned topics.

Learning Activities: See potential learning activities on CT2.

Means of Assessment: A rubric will be prepared for assessment of the students. This rubric will have separate sections for “critical thinking” and “communication”.

Core Objective: Empirical and Quantitative EQS1: Students will gather, interpret or use numerical data/observable facts to arrive at an informed conclusion.

Course SLO(s): The student will analyze field data in interpretation of ancient sedimentary facies.

Learning Activities: Two field trips are conducted during the semester. The students will analyze data involving sedimentary textures (grain size, sorting, etc.), types of sedimentary structures (their characters such as morphology, thickness and distribution), analyses of fossils (including types and abundance), and interpretation of geologic maps to arrive at an informed conclusion concerning potential ancient sedimentary environments/facies.

Means of Assessment: Imbedded questions on field trip data sheets.

Core Objective: Teamwork TW1: Students will work in coordination to complete specific tasks.

Course SLO(s): Students will work in coordination in labs to complete specific tasks.

Learning Activities: Coordination within lab groups which will be assigned for each lab.

Means of Assessment: A rubric will be used for peer evaluation during the semester. Impact of group work will be evaluated by assessing individual performance versus group performance on lab scores.

As department head, I will ensure that all faculty that teach this course are aware of the requirements that these core objectives and learning strategies be incorporated into the above referenced course. This action is taken so that Tarleton State University will be in compliance with Texas Higher Education Coordinating Board foundational component area and core objective requirements for the General Education Core Curriculum.

Signature _____

We, the undersigned faculty, support the proposed changes to this course and agree to incorporate them into our section of the above referenced course. This action is taken so that Tarleton State University will be in compliance with Texas Higher Education Coordinating Board foundational component area and core objective requirements for the General Education Core Curriculum.

(Signed document should be kept in department office, listing names below on the electronic document implies acceptance)

Phillip A. Murry