Tompkins Cortland Community College

Master Course Syllabus

Course Discipline and Number: GEOL 101 **Year: 2024-2025**

Course Title: Introductory Geology **Credit Hours: 3**

I. Course Description: This is an introductory course in physical geology. Topics include structure of the earth, rocks and minerals, weathering and erosion, glaciation, plate tectonics, earthquakes, mountain building, igneous activity, geologic time, and local geology. Laboratories include the study of rocks, minerals, fossils, and topographic maps. Substantial outside preparation for the laboratories is required. GEOL 101 fulfills the SUNY General Education Natural Sciences requirement. Prerequisites: Prior completion of, or concurrent enrollment in, ENGL 100 or ESL 120, 121, and 122. 3 Cr. (2 Lec., 2 Lab.) Fall and spring semesters.

II. Additional Course Information:

1. GEOL 101 satisfies SUNY General Education Laboratory Science requirements.
2. This course uses a free OER textbook which is accessible online.
3. Group work is required for labs.
4. Online homework may be required.
5. This course is scheduled for a minimum of 200 minutes per week for a 15-week semester, which includes both lecture and lab components.

III. Student Learning Outcomes

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

1. Describe the methods scientists use to explore geological phenomena, including observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, and employment of data analysis or mathematical modeling.
2. Apply scientific data, concepts, and models in geology.

IV. Tompkins Cortland Institutional Learning Outcomes; Program Learning Outcomes; SUNY General Education Outcomes

Tompkins Cortland ILOs

Complete this section for “service” courses only (e.g. courses that are required of all students; courses that are not program specific but satisfy liberal arts requirements; or commonly used in multiple academic programs to meet non-program-specific requirements). Check only Institutional Learning Outcomes (ILOs) that are meaningfully developed and assessed in this course. For each ILO chosen, include the SLO to which it aligns.

Students will:

☐ Communicate effectively, in oral and written forms, taking into consideration audience and purpose.

☒ Apply principles and methods of scientific inquiry and quantitative reasoning appropriate to their discipline.

SLO:
2. Apply scientific data, concepts, and models in geology.

☐ Use information, critical thinking, and the creative process to solve problems and reach conclusions.

☐ Use technology appropriate to their discipline.

☐ Describe the ways in which social, economic, or environmental sustainability depends on their own and the collective contributions of a diversity of ideas and people.

Program Learning Outcomes N/A

Complete this section for program-specific courses (e.g. those that share the same 4 letter designation as the academic program or satisfy requirements in related programs). List the academic program(s) here and note which Student Learning Outcomes align to specific Programmatic Learning Outcomes. Please see the MCS Instructions for more details.

SUNY General Education Outcomes

If this course **assesses** a SUNY GEN ED Outcome, check all that apply and indicate which course outcome(s) address each checked item:

☐ CRITICAL THINKING - Students will:

a. identify, analyze, and evaluate arguments as they occur in their own or others' work; and
b. develop well-reasoned arguments.

☐ INFORMATION MANAGEMENT - Students will:

a. perform the basic operations of personal computer use;
b. understand and use basic research techniques; and
c. locate, evaluate and synthesize information from a variety of sources.

☒ GENERAL EDUCATION CATEGORY - Area(s): **Natural Sciences (and Scientific Reasoning)**

For courses that are approved to meet one (or more) of the ten SUNY General Education categories, indicate which category the course fulfills, and which outcome(s) are aligned with the SUNY outcomes for that category:

SUNY outcomes for Natural Sciences (and Scientific Reasoning): Students will demonstrate scientific reasoning applied to the natural world including

1) an understanding of the methods scientists use to explore natural phenomena, including observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, and employment of data analysis or mathematical modeling,
2) application of scientific data, concepts, and models in one of the natural (or physical) sciences.

SLOs:

1. Demonstrate an understanding of Describe the methods scientists use to explore geological phenomena, including observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, and employment of data analysis or mathematical modeling.
2. Apply scientific data, concepts, and models in geology.

☐ This course does not address any of the above Tompkins Cortland ILOs, PLOs, or SUNY General Education Outcomes.

V. Essential Topics/Themes

1. Earth's Materials (Rocks and Minerals / Resources)
2. Earth's Surface Processes (including Stream & Glacier Geomorphology)
3. Plate Tectonics/Structural Geology
4. Natural Hazards
5. Earth's History
6. Map Skills
7. New York Geology
8. Climate Change / Sustainable Use of Resources

VI. Methods of Assessment/Evaluation

Method	% Course Grade
1. Quizzes/Homework	10-20%
2. Major Tests	30-40%
3. Final Exam	15-25%
4. Labs	15-25%
5. Attendance	Up to 10%

VII. Texts – ☒ Required ☐ Recommended ☐ Used for more than one course (list courses)

	OER
1. *An Introduction to Geology.* Johnson, Affolter, Inkenbradt & Mosher. 2017. Salt Lake Community College. (OER) https://opengeology.org/textbook/	☒
2. Geology 101 Lab Manual. Frank Bickford w/ updates by Jennifer Kidder, 2022. TC3. (provided)	☐
3. Other OER sources that support topics not covered in the required text recommended: a. *Physical Geology.* Steven Earle. *2nd Edition*, https://opentextbc.ca/physicalgeology2ed/ b. https://courses.lumenlearning.com/geo/	☒

Editions listed are current as of date of syllabus. More recent editions may be used.

VIII. Bibliography of Supplemental Materials

1. *Ithaca is Gorges*. Allmon, W. D., and R. M. Ross. 2002, Ithaca, NY, The Paleontological Research Institution.
2. *Geology of New York. A simplified Account.* Isachsen, Landing, Lauber, Rickard, & Rogers, eds. 2000. Albany, New York, NYS Museum/Geological Survey.
3. *Roadside Geology of New York.* B.B. Van Diver. 1985, Missoula, MT Mountain Press.

Editions listed are current as of date of syllabus. More recent editions may be used.

Revised 05-22/J. Kidder

IX. Other Learning Resources

Audiovisual: Cargill Salt Mine Tour (TC3 Library), Planet Earth, the Complete BBC Series (TC3 Library), How the Earth was Made, Seasons 1 & 2 (online), Volcano: Nature's Inferno, National Geographic (TC3 Library)
Electronic: Earth Science Literacy Initiative: The Big Ideas and Supporting Concepts of Earth Science (text & video links) http://www.earthscienceliteracy.org/document.html
Other:

Attendance Policy: *To maintain good grades, regular attendance in class is necessary. Absence from class is considered a serious matter and absence never excuses a student from class work. It is the responsibility of all instructors to distribute reasonable attendance policies in writing during the first week of class. Students are required to comply with the attendance policy set by each of their instructors. Students are not penalized if they are unable to attend classes or participate in exams on particular days because of religious beliefs, in accordance with Chapter 161, Section 224-a of the Education Law of the State of New York. Students who plan to be absent from classroom activity for religious reasons should discuss the absence in advance with their instructors. See college catalog for more information.*

Services for Students with Disabilities: *It is the College's policy to provide, on an individual basis, appropriate academic adjustments for students with disabilities, which may affect their ability to fully participate in program or course activities or to meet course requirements. Students with disabilities should contact the Coordinator of Access and Equity Services, to discuss their particular need for academic adjustments. All course materials are available in alternate formats upon request.*

Academic Integrity: *Every student at Tompkins Cortland Community College is expected to act in an academically honest fashion in all aspects of his or her academic work: in writing papers and reports, in taking examinations, in performing laboratory experiments and reporting the results, in clinical and cooperative learning experiences, and in attending to paperwork such as registration forms.*
Any written work submitted by a student must be his or her own. If the student uses the words or ideas of someone else, he or she must cite the source by such means as a footnote. Our guiding principle is that any honest evaluation of a student's performance must be based on that student's work. Any action taken by a student that would result in misrepresentation of someone else's work or actions as the student's own — such as cheating on a test, submitting for credit a paper written by another person, or forging an advisor's signature — is intellectually dishonest and deserving of censure.
Several degree programs offer student learning opportunities (such as internships, field work, and clinical experiences) outside the standard classroom setting. As part of the learning process, students must understand and engage in conduct that adheres to principles guiding employment within the professional workplace. These behaviors include, but are not limited to, academic integrity, accountability, reliability, respect, use of appropriate language and dress, civility, professional ethics, honesty, and trustworthiness. Disciplinary action may be initiated for inappropriate conduct occurring while participating in any course-related project or event.