Department of Earth Sciences and Science Education
MAJOR PROGRAM ASSESSMENT PLAN: Earth Sciences (0737) and Geology (0727)

Student Learning Outcome	Courses Associated with the Outcome *	Activities Resulting in the Outcome	Assessment Measures/Criteria/Rubrics **	Timetable (5-yr. cycle)
Demonstrate knowledge of fundamental concepts and principles of in Earth Sciences and Geology	GES 101, 102, 103, 111,131, 303, 307, 408	Examinations & application of fundamental concepts ex. tectonics, surficial processes, Earth history, the fossil record, Earth materials & Earth's relation w/ Solar System	Course exams: >80 % exceeds; 70 – 79% meets; 60 – 69% approaching; < 60% does not meet	2018-2019
Demonstrate ability to work as part of a team and to communicate results	GES 303, 307, 408	Data collection, analysis and synthesis laboratories, topic research and oral presentations	Laboratory reports, oral presentations	2018-2019
Demonstrate ability to work independently	GES 103, 303, 307, 408	Laboratory assignments, final project presentations in 303 and 308, term paper	Laboratory reports, term paper, oral presentations	2019-2020
Demonstrate critical thinking skills in environmental and other disciplines of geology	GES 101, 103	Position topics on examinations	Examinations: >80 % exceeds; 70 – 79% meets; 60 – 69% approaching; < 60% does not meet	2019-2020
Demonstrate proficiency in scientific writing	GES 303, 408	Laboratory notebooks, term paper and presentation of the topic	Notebooks, term paper	2020-2021
Demonstrate ability to analyze and interpret quantitative data	GES 103, 307, 408	Map, table, graph and computer model laboratories	Laboratory reports, oral presentations	2020-2021
Demonstrate proficiency in appropriate computer hardware and software in the geological sciences	GES 131, 303, 408	Problem solving laboratories using geological data provided and retrieved from various sources	Laboratory reports	2021-2022
Demonstrate proficiency in locating and evaluating geological literature	GES 303, 307, 408	Research of topics including a term paper in GES 308, and oral reports	Oral presentations and term paper	2021-2022
Demonstrate ability to represent geological data	GES 103, 303, 307, 408	Presented analysis and interpretation of quantitative data appropriate methods	Laboratory reports and oral presentations	2017-2018
Demonstrate ability to collect quality field and laboratory data, including sampling	GES 307, 408	Laboratories in the collection of data in the field and in the laboratory using appropriate techniques and strategies	Laboratory reports, field reports	2017-2018

* Course titles: GES 101 – Introductory Geology; GES 102 – Historical Geology; GES 103 – Introductory Geology Laboratory; GES 111 – Oceanography; GES 131 – Introductory; Astronomy; GES 303 – Mineralogy and Petrology; GES 307 – Geomorphology; GES 408 – Structural Geology

** Assessment based upon 20% of the student products for each course, ranked according to a 4-point rubric by the department Undergraduate Committee.