

# REAL Curriculum Program Alignment Proposal

Department or School: Department of Geology

Date: October 27, 2020

Degree type: BS BA BBA BSN BM BFA BSW Minor Certificate

Program: Global Environmental Change minor

REAL Area Program Designation Sought (check all that apply): R E A L

Dept/School Contact: Ryan Sincavage, rsincavage@radford.edu

BS/BA Requirements: N/A

- Any degree program that fulfills a REAL area must include at least 9 unique credit hours for each area covered. At least 3 of these 9 credit hours must be at the 300 level or above
- A single major degree program may fulfill no more than three REAL areas for any one student, unless all four REAL areas are fulfilled by accreditation or licensure requirements.
- A single minor or certificate degree program may fulfill no more than two REAL areas.
- Degree program may cover up to two REAL areas using a single prefix.
- All courses documenting the coverage of a REAL area must fulfill all learning outcomes and be designated in that area.
- All courses that document fulfillment of a REAL area within a degree program of study are NOT required to be taught by the department/school. However, departments/schools are expected to formally communicate with other departments about reliance on and inclusion of courses in their degree program plans of study. Indicate this through signature of chair or director of the partnering department or school in the areas below.
- Departments or schools that seek to fulfill REAL areas must acknowledge assessment requirements for those areas. Assessment of degree seeking students is required to be conducted yearly by the department or school offering the degree program.
- If departments or schools want to use a menu of courses to fulfill a particular area, please duplicate the sections below for each REAL area and include information for each course included in the menu of options.
- Please save this file for submission as PROGRAM NAME\_ProgramType.docx (Example: Criminal Justice\_BS.docx)

By signing, the department/school acknowledges the above conditions and considerations:

Dept/School Signature	Date:
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**Official Program Description:**

The Department of Geology at Radford University proposes a new minor in Global Environmental Change. Natural hazards, climate change, and resource depletion are becoming increasingly interrelated issues that impact society. To identify these changes to the global environment, it is critical to understand the history of these phenomena as recorded in the geologic record, the ways in which humans (past and present) interact with the natural world, and the means by which we can use science and engineering to mitigate possible future scenarios of change. This program will provide undergraduate students a firm grounding in how science and engineering hold the keys to deep understanding of the natural processes (across a wide range of spatial and temporal scales) that directly influence our daily lives, and offer a pathway to responsible stewardship of natural resources toward a sustainable future. Courses applicable to the program represent a diverse array of disciplines focused on climate change, Earth Systems Science, science and the media, natural hazards, human impacts on the environment, and science and engineering of remedial systems.

**Global Environmental Change minor (minimum 15 credits)**

**GOAL:** To understand the mechanisms and rates of environmental change that directly impact human society across a spectrum of spatial and temporal scales.

**TARGET:** Majors outside of the natural sciences with an interest in environmental science and climate change.

Required core courses (11 credits):

**GEOL 105** (4): Exploring Earth

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**GEOL 106** (4): It's About Time: A History of Earth, Life, and Global Change (*prerequisite- GEOL 105 or permission of instructor*)

**GEOL 120** (3): Earth Science and Society

**GEOL 365** (4): Earth's Ocean and Climate Systems (*prerequisite - 7 credits in natural sciences*)

Electives (choose **one or more** additional courses from the following, for a **minimum of 15 credits total**):

**ANSC 361** (3): Human Impacts on the Prehistoric Environment (*prerequisite- ANSC 101 and sophomore standing, or permission of the instructor*)

**GEOG 140** (3): Introduction to Environmental Studies

**GEOL 104** (3): Geosciences and the Media

**GEOL 121** (1): Earth Science and Society Lab

**GEOL 481** (3): Travel Study: Patagonia

**GEOS 241** (3): Environmental Regulation (*prerequisite- GEOG 140 or permission of instructor*)

**PHYS 324** (1): Geophysical Field Research Introductory Seminar (*prerequisite- permission of instructor*)

**PHYS 325** (4): Geophysical Field Research (*prerequisite- permission of instructor*)

**PHYS 326** (1): Geophysical Field Research Capstone Seminar (*prerequisite- permission of instructor*)

## SCIENTIFIC AND QUANTITATIVE REASONING

<p><b>R Area:</b>  Course Prefix: GEOL  Course Number: 120  Course Title: Earth Science and Society  Credit Hours: 3  New course: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  Revised course: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Projected student enrollment per academic year: 200</p>	<p>Is this course required or an elective for your degree program? <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective  Is this course offered within your dept/school? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  If no, collaborating dept/school must also complete the remaining elements, and must sign below.</p> <p>Course Rotation: <input checked="" type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring <input type="checkbox"/> Intersession <input type="checkbox"/> Other (Explain below)</p> <p>Intended Frequency: <input checked="" type="checkbox"/> Every academic year <input type="checkbox"/> Every semester <input type="checkbox"/> Every other year  <input type="checkbox"/> At least once every three years <input type="checkbox"/> Other</p> <p>Signature of collaborating chair/director indicating acknowledgement for inclusion and designation if not offered in dept/school:</p>
<p><b>R Area:</b>  Course Prefix: GEOL  Course Number: 365  Course Title: Earth's Ocean and Climate Systems  Credit Hours: 4  New course: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  Revised course: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Projected student enrollment per academic year: 30</p>	<p>Is this course required or an elective for your degree program? <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective  Is this course offered within your dept/school? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  If no, collaborating dept/school must also complete the remaining elements, and must sign below.</p> <p>Course Rotation: <input type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring <input type="checkbox"/> Intersession <input type="checkbox"/> Other (Explain below)</p> <p>Intended Frequency: <input type="checkbox"/> Every academic year <input type="checkbox"/> Every semester <input checked="" type="checkbox"/> Every other year  <input type="checkbox"/> At least once every three years <input type="checkbox"/> Other</p> <p>Signature of collaborating chair/director indicating acknowledgement for inclusion and designation if not offered in dept/school:</p>
<p><b>R Area:</b>  Course Prefix: GEOL  Course Number: 105  Course Title: Exploring Earth  Credit Hours: 4  New course: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  Revised course: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Projected student enrollment per academic year: 120</p>	<p>Is this course required or an elective for your degree program? <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective [Required OR GEOL106]  Is this course offered within your dept/school? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  If no, collaborating dept/school must also complete the remaining elements, and must sign below.</p> <p>Course Rotation: <input checked="" type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring <input type="checkbox"/> Intersession <input type="checkbox"/> Other (Explain below)</p> <p>Intended Frequency: <input checked="" type="checkbox"/> Every academic year <input type="checkbox"/> Every semester <input type="checkbox"/> Every other year  <input type="checkbox"/> At least once every three years <input type="checkbox"/> Other</p> <p>Signature of collaborating chair/director indicating acknowledgement for inclusion and designation if not offered in dept/school:</p>
<p><b>R Area:</b>  Course Prefix: GEOL  Course Number: 106  Course Title: It's About Time: A History of Earth, Life, and Global Change  Credit Hours: 4  New course: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  Revised course: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Projected student enrollment per academic year: 25</p>	<p>Is this course required or an elective for your degree program? <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective [Required OR GEOL105]  Is this course offered within your dept/school? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  If no, collaborating dept/school must also complete the remaining elements, and must sign below.</p> <p>Course Rotation: <input type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring <input type="checkbox"/> Intersession <input type="checkbox"/> Other (Explain below)</p> <p>Intended Frequency: <input checked="" type="checkbox"/> Every academic year <input type="checkbox"/> Every semester <input type="checkbox"/> Every other year  <input type="checkbox"/> At least once every three years <input type="checkbox"/> Other</p> <p>Signature of collaborating chair/director indicating acknowledgement for inclusion and designation if not offered in dept/school:</p>
<p><b>R Designated Course Required within the Program of Study Approved for Inclusion in the General Education Coursework:</b> (please list at least one, can also be listed above but does not need to be):  GEOL 105, GEOL 106</p>	

**R Area:**

Learning Goal: To apply scientific and quantitative reasoning to questions about the natural world, mathematics, or related areas.

<p>Learning Outcome 1: Students apply scientific and quantitative information to test problems and draw conclusions.</p>	<p>Description of learning outcome assessment plan:  Data will be collected from the REAL General Studies Minor assessments conducted by the university in the student's senior year. Once the data is received in the department the department's assessment committee will review the data to determine if corrective action is necessary. If needed the assessment committee will develop an improvement plan in combination with faculty teaching classes in this area and the department's curriculum committee. The agreed upon changes will be incorporated into the classes. The department's assessment committee will then continue monitoring the collected assessment data to determine the effectiveness of the corrective action and determine further actions if necessary.</p>
<p>Learning Outcome 2:  Students evaluate the quality of data, methods, or inferences used to generate scientific and quantitative knowledge.</p>	<p>Description of learning outcome assessment plan:  Data will be collected from the REAL General Studies Minor assessments conducted by the university in the student's senior year. Once the data is received in the department the department's assessment committee will review the data to determine if corrective action is necessary. If needed the assessment committee will develop an improvement plan in combination with faculty teaching classes in this area and the department's curriculum committee. The agreed upon changes will be incorporated into the classes. The department's assessment committee will then continue monitoring the collected assessment data to determine the effectiveness of the corrective action and determine further actions if necessary.</p>
<p>Additional information for REAL Council consideration:</p>	

Are existing material resources adequate to support this program alignment proposal?

Yes  No If not, what additional material resources would be needed?

Are existing space resources adequate to support this program alignment proposal?

Yes  No If not, what additional space resources would be needed?

Are existing human resources adequate to support this program alignment proposal?

Yes  No If not, what additional human resources would be needed?

Department Curriculum Committee Recommendation:	Signature:	Date:
Chair/Dean on Behalf of Dept/School:	Signature:	Date:
College Curriculum Committee Approval:	Signature:	Date:
Dean/AVP Approval:	Signature:	Date:
REAL Council Recommendation:	Signature:	Date:
Faculty Senate Curriculum Committee Recommendation:	Signature:	Date:
Faculty Senate Approval:	Signature:	Date:
Provost Approval:	Signature:	Date: