Bachelor of Science (BS) Non-Teaching **2017-2018** **Program of Study for Geology Majors**
Degree Code 259* **QUANTITATIVE GEOSCIENCE**
Concentration Code 259E

I. GENERAL EDUCATION CURRICULUM 44
Chemistry 1101/1110 & 1102/1120 fulfill the Science Inquiry. MAT 1110 fulfills Quantitative Literacy.

II. MAJOR REQUIREMENTS *(not including 12 hours counted in Area I, above)* **..... 76**
2.0 major GPA is required for graduation. Major GPA calculation will include all courses taken in the major department, plus any other courses under II. Minimum of 18 semester hours of courses taken to fulfill major requirements must be courses offered by Appalachian.

A. Geology (31 semester hours):
Choose one 1000-level geology course:

GLY 1101_____ (4)	Introduction to Physical Geology		GLY 1104_____ (4)	Water: Mountains to Sea	
GLY 1102_____ (4)	Introduction to Historical Geology		GLY 1105_____ (4)	Oceanography	
GLY 1103_____ (4)	Environmental Change, Hazards, & Resources				

GLY 2250 _____ (4) Evolution of the Earth *(Pre: GLY 1101, 1102, 1103, 1104, or 1105)*
GLY 2745 _____ (4) Preparation of Geologic Reports **[WID]** *(Pre: RC 2001; GLY 2250)*
GLY 3150 _____ (3) Principles of Structural Geology and Tectonics *(Pre: GLY 2250, 2745)*
GLY 3220 _____ (3) Fundamentals of Mineralogy *(Pre/Co: GLY 2745; CHE 1101 & 1110)*
GLY 3715 _____ (3) Petrology and Petrography *(Pre: CHE 1101 & 1110; GLY 2250, 2745, 3220)*
GLY 3800 _____(3) Sedimentology and Stratigraphy *(Pre: GLY 2250 & 2745)*
GLY 4210 _____ (1) Geology Seminar **[CAP]** *(Pre: Senior Standing)*
GLY 4835 _____ (6) Summer Field Geology or other approved field course *(Pre: GLY 3150, 3715, 3800)*

B. Quantitative Geoscience concentration (18 semester hours)
GLY 3131 _____ (3) Environmental Geochemistry *(Pre: GLY 2250; CHE 1101 & 1110; MAT 1110)*
PHY/GLY 3160 _____ (3) Introduction to Geophysics *(Pre: 1 intro GLY; PHY 1103/1150; MAT 1110)*
ENV/GLY 3455 _____ (3) Quantitative Data Analysis for Earth & Env Sci *(Pre: GLY 2250; MAT 1110; PHY 1150)*
GLY 4630 _____ (3) Hydrogeology *(Pre: GLY 2250; MAT 1110; PHY 1103 or 1150)*
GLY 4705 _____ (3) Engineering Geology *(Pre: 6 s.h. GLY ≥ 2000; Jr. standing)*
Plus choose 3 s.h. from the following courses:
GLY 3025 _____ (3) Principles of Paleontology *(Pre: GLY 2250; 6 sh BIO or ANT ≥ 2000 level)*
GLY 3333 _____ (3) Geomorphology *(Pre: 6 sh GLY)*
GLY 3680 _____ (3) Geoarchaeology *(Pre: 4 sh GLY)*
GLY 4501 _____ (1-3) Senior Research *(Pre: Sr. standing; min GPA 3.25 in GLY)*
GLY 4510 _____ (3) Senior Honors Thesis *(Pre: GLY 4501; Sr. standing; min GPA 3.25 in GLY)*

C. Mathematics/Chemistry/Physics/Statistics (39 hours)
(Taking all 5 math courses will earn the math minor. The extra MAT course will count as a non-GLY course elective below.)
MAT 1110 _____ (4) Calculus with Analytic Geometry I *(Pre: MAT 1025 w/min grade C-)*
MAT 1120 _____ (4) Calculus with Analytic Geometry II *(Pre: MAT 1110 w/min grade of C-)*
MAT 2130 _____ (4) Calculus with Analytic Geometry III *(Pre: MAT 1120 w/min grade of C-)*
MAT 2240 _____ (3) Intro to Linear Algebra *(Pre: MAT 1120)* **OR** MAT 3130_____ (3) Intro to Differential Equations *(Pre: MAT 1120)*
CHE 1101/1110 _____ (4) Intro Chemistry I & Lab (*Pre: MAT 1020 or higher)*
CHE 1102/1120 _____ (4) Intro Chemistry II & Lab *(Pre: CHE 1101/1110; MAT 1020 or higher)*
PHY 1150 _____ (5) Analytical Physics I *(Co: MAT 1110)*
PHY 1151 _____ (5) Analytical Physics II *(Co: MAT 1120)*
STT 2810 _____ (3) Introduction to Statistics *(Pre: MAT 1010 or higher)*
Plus choose at least 3 hours from the following courses:
STT 3820 _____ (3) Statistical Methods I *(Pre: STT 2810/2820)*
CS 1440 _____ (4) Computer Science I *(Pre: MAT 1020/1025 w/minimum grade "C-")*
CS 1445 _____ (4) Intro to Programming w/Interdisciplinary Applications *(Pre: MAT 1020/1025 w/minimum grade "C-")*
MAT 2240 _____ (3) Intro to Linear Algebra *(Pre: MAT 1120)* **OR** MAT 3130 _____ (3) Intro to Differen Eqtns *(Pre: MAT 1120)*
Elective _____ (3) Advisor-approved computational or statistical elective _____
During the senior year the B.S. (non-teaching) student must take and achieve a satisfactory score on a COMPREHENSIVE EXAMINATION covering theoretical and practical aspects in areas of geology. Students who are unsuccessful on portions or all of the examination may retake appropriate portions up to two additional times prior to graduation.

III. MINOR (optional)

IV. ELECTIVES (taken to total 122 hours for the degree)..... 2
2 semester hours of free electives must be outside the major discipline. **122**