Bachelor of Science (BS)

Degree Code 260*  
Concentration Code 260G

Program of Study for Mathematics Majors

2016-2017  
(Revised 3/2017)

PHYSICAL SCIENCES

I. GENERAL EDUCATION CURRICULUM

Math 1110 will meet the Quantitative Literacy general education requirement.

II. MAJOR REQUIREMENTS

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. Mathematics Common Core (14 hours)

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 C-)
MAT 2110 (3) Techniques of Proof (Pre: MAT 1120)
MAT 2240 (3) Introduction to Linear Algebra (Pre: MAT 1120)

B. Mathematics Courses for the Concentration (20 hours)

MAT 2130 (4) Calculus with Analytic Geometry III (Pre: MAT 1120 w/min grade C-)
MAT 2310 (3) Computational Mathematics (Pre: MAT 1120)
MAT 3130 (3) Introduction to Differential Equations (Pre: MAT 1120)
MAT 4310 (3) Numerical Methods (Pre: MAT 2310)
STT 3850 (4) Statistical Data Analysis I (Pre: MAT 1110)

Choose one:

MAT 3110 (3) Introduction to Modern Algebra [WID] (Pre: RC 2001, MAT 2110 or 2510; Co: 2240)
MAT 3220 (3) Introduction to Real Analysis [WID] (Pre: RC 2001, MAT 2110 or 2510)

C. Capstone Requirements (4 hours) Choose one option:

OPTION 1: 4 hours

MAT 4311 (1) Capstone: Numerical Methods [CAP] (Co: MAT 4310)
MAT 4000-level course (3) _____________________________

OPTION 2: Choose one 4-hour combination (courses taken in the same semester); [CAP] is Capstone course: each has CO: of first course in each pair below

MAT 4010 (1-3) Current Topics in Mathematics  
MAT 4140 (3) Differential Geometry (Pre: MAT 2130; Co: MAT 2240)  
MAT 4220 (3) Intro to Real Analysis II (Pre: MAT 3220)  
MAT 4340 (3) Intro to Operations Research (Pre: MAT 2240, STT 3850; Sr st)  
MAT 4420 (3) Dynamical Systems Theory (Pre: MAT 3130 or 3310)  
MAT 4590 (3) Adv Topics in Differential Equations (Pre: MAT 3130; Sr st)  
MAT 4710 (3) Intro to Topology (Pre: MAT 3220; Sr st)  
MAT 4720 (3) Abstract Algebra (Pre: MAT 3110; Sr st)  
STT 4820 (3) Design & Analysis of Experiments (Pre: STT 3820; Sr st)  
STT 4830 (3) Linear Regression Models (Pre: MAT 2240, STT 3830; Sr st)  
STT 4840 (3) Regression & Time Series Forec (Pre: MAT 2240, STT 3250, 3850)  

D. Approved Electives: 10 hours in mathematical sciences to bring total hrs in AREA II to 65 hrs

(At least 3 hours in MAT if STT combination was chosen in Area C. Capstone)

E. Physical Sciences Concentration (17 hours)

PHY 2010 (4) Intermediate Physics I (Pre: PHY 1104 or 1151, MAT 1120)
PHY 2020 (4) Intermediate Physics II (Pre: PHY 2010, MAT 2130)
PHY 3210 (3) Modern Physics I (Pre: PHY 1151 or Co: PHY 2010)

3 hours of approved electives** in physics at or above 2000 level

3 hours of approved electives** in physics or technology ** Must be approved by math sciences advisor.

III. MINOR (optional)

IV. ELECTIVES (taken to total 122 hours for the degree)  

2 semester hours of free electives must be outside the major discipline.

HONORS STUDENTS

You may substitute MAT 2510 Sophomore Honors Seminar for MAT 2110, and MAT 4510 Senior Honors Thesis for your Capstone. This will slightly change your elective requirements to ensure you earn 65 hours in Area II. Please see your advisor for approval and more information.

** Must be approved by math sciences advisor.

3 hours of approved electives** in physics at or above 2000 level

3 hours of approved electives** in physics or technology ** Must be approved by math sciences advisor.