Bachelor of Science (BS)  2017-2018  Program of Study for Mathematics Majors
Degree Code 260*  Concentration Code 260F  LIFE SCIENCES

I. GENERAL EDUCATION CURRICULUM .................................................................................................................. 44

CHE 1101/1110 & 1102/1120 fulfill the Science Inquiry perspective. MAT 1110 fulfills the Quantitative Literacy requirement.

II. MAJOR REQUIREMENTS (not including 12 s.h. counted in Area I, above)................................................................. 58

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 (15 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 _____ (4) Techniques of Proof (Pre: MAT 1120)
MAT 2240 _____ (3) Introduction to Linear Algebra (Pre: MAT 1120)

B. Mathematics Courses for the Concentration (19 hours)

MAT 2310 _____ (3) Computational Mathematics (Pre: MAT 1120)
MAT 3130 _____ (3) Introduction to Differential Equations (Pre: MAT 1120)
MAT 3220 _____ (3) Intro to Real Analysis [WID] (Pre: RC 2001, MAT 2110 or 2510)
MAT 3350 _____ (3) Intro to Mathematical Biology (Pre: MAT 1120; Jr. standing)
MAT 4420 _____ (3) Dynamical Systems Theory (Pre: MAT 3130 or 3310)
STT 3850 _____ (4) Statistical Data Analysis I (Pre: MAT 1110)

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

OPTION 1: 4 hours
MAT 4421 _____ (1) Capstone: Dynamical Systems Theory [CAP] (Co: MAT 4420)
3 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 AND MAT 4011 (1) Current Topics in Math [CAP]
MAT 4140 (3) Differential Geometry (Pre: MAT 2130; Co: MAT 2240) AND MAT 4141 (1) Differential Geometry [CAP]
MAT 4220 (3) Intro to Real Analysis II (Pre: MAT 3220) AND MAT 4221 (1) Intro to Real Analysis II [CAP]
MAT 4310 (3) Numerical Meth (Pre: MAT 2310, 2240; rec: MAT 2130 or 3130) AND MAT 4311 (1) Numerical Methods [CAP]
MAT 4340 (3) Intro to Operations Research (Pre: MAT 2240, STT 3850; Sr st) AND MAT 4341 (1) Intro to Oper Research [CAP]
MAT 4590 (3) Adv Topics in Differential Equations (Pre: MAT 3130; Sr st) AND MAT 4591 (1) Adv Topics in Diff Equations [CAP]
MAT 4710 (3) Intro to Topology (Pre: MAT 3220; St st) AND MAT 4711 (1) Introduction to Topology [CAP]
MAT 4720 (3) Abstract Algebra (Pre: MAT 3110; Sr st) AND MAT 4721 (1) Abstract Algebra [CAP]
MAT 4990 (3) Numerical Linear Algebra (Pre: MAT 4310; Sr st) AND MAT 4991 (1) Numerical Linear Algebra [CAP]
STT 4820 (3) Design & Analysis of Experiments (Pre: MAT 2240; Sr st) AND STT 4821 (1) Design & Analysis of Exper [CAP]
STT 4830 (3) Linear Regression Models (Pre: MAT 2240; STT 3850; St st) AND STT 4831 (1) Linear Regression Models [CAP]
STT 4840 (3) Regression & Time Series Forec (Pre: MAT 2240; STT 3250, 3850) AND STT 4841 (1) Regression &Time Series Forec [CAP]

D. Life Sciences Concentration (30 hours)

CHE 1101/1110 _____ (4) Introductory Chemistry I & Lab (Pre: MAT 1020 or higher)
CHE 1102/1120 _____ (4) Introductory Chemistry II & Lab (Pre: CHE 1101 & 1110; MAT 1020 or higher)
CHE 2101/2102_____ (4) Fundamentals of Organic Chemistry & Lab (Pre: CHE 1102 & 1120)
BIO 1801 _____ (4) Biological Concepts I (Co: CHE 1101)
BIO 1802 _____ (4) Biological Concepts II (Pre: BIO 1801 w/min grade C)

AND 10 hours of approved electives in BIO, CHE, GHY (at least one lab class; at least one class at 3000 level or higher)

E. Approved Major Electives: (2 hours)

2 hours in mathematical sciences to bring total hrs in AREA II to 70 hours: ____________________________

III. MINOR (optional)

IV. ELECTIVES (taken to total 122 hours for the degree) .............................................................................................................. 20

2 semester hours of free electives must be outside the major discipline. 122