Bachelor of Science (BS)                2016-2017  Program of Study for Mathematics Majors
Degree Code 260*                      (Revised 3/2017)  LIFE SCIENCES
Concentration Code 260F

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 (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 (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 1210; Jr. standing)
MAT 4420 _____ (3) Differential Geometry (Pre: MAT 2130 or 3310)
STT 3850 _____ (4) Statistical Systems Theory (Pre: MAT 3130 or 3310)

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

OPTION 1: 4 hours
MAT 4421 _____ (1) Capstone: Dynamical Systems Theory [CAP] (Co: MAT 4420)
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 Methods (Pre: MAT 2310) 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; Sr 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: STT 3820; Sr st) AND STT 4821__ (1) Design & Analysis of Exper [CAP]
STT 4830__ (3) Linear Regression Models (Pre: MAT 2240; STT 3830; Sr 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
CHE 1102/1120____ (4) Introductory Chemistry II & Lab (Pre: CHE 1101 & 1110)
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: (3 hours)
3 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.