Bachelor of Science (BS) **2016-2017** **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 <u>all</u> 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)*

<u>HONORS STUDENTS</u>
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 70 hours in Area II. Please see your advisor for approval and more information.

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:

<u>OPTION 1</u>: 4 hours

MAT 4421	_____	(1)	Capstone: Dynamical Systems Theory **[CAP]** *(Co: MAT 4420)*
3 hours MAT	_____	(3)	MAT course: _____

<u>OPTION 2</u>: 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; 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: 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)*

Student Signature:_____
Advisor Signature:_____
Chairperson Signature:_____
Date:_____**Date sent to Dean's Office**_____

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

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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) ..... <u>20</u>
2 semester hours of free electives must be outside the major discipline. **122**