

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

*Math 1110 will meet the Quantitative Literacy general education requirement.*

**II. MAJOR REQUIREMENTS (not including 4 s.h. counted in Area I, above)..... 61**

**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   | <b>AND</b> | MAT 4011 _____ (1) Current Topics in Math [CAP]         |
| MAT 4140 _____ (3) Differential Geometry ( <i>Pre: MAT 2130; Co: MAT 2240</i> )            | <b>AND</b> | MAT 4141 _____ (1) Differential Geometry [CAP]          |
| MAT 4220 _____ (3) Intro to Real Analysis II ( <i>Pre: MAT 3220</i> )                      | <b>AND</b> | MAT 4221 _____ (1) Intro to Real Analysis II [CAP]      |
| MAT 4340 _____ (3) Intro to Operations Research ( <i>Pre: MAT 2240, STT 3850; Sr st</i> )  | <b>AND</b> | MAT 4341 _____ (1) Intro to Oper Research [CAP]         |
| MAT 4420 _____ (3) Dynamical Systems Theory ( <i>Pre: MAT 3130 or 3310</i> )               | <b>AND</b> | MAT 4421 _____ (1) Dynamical Systems Theory [CAP]       |
| MAT 4590 _____ (3) Adv Topics in Differential Equations ( <i>Pre: MAT 3130; Sr st</i> )    | <b>AND</b> | MAT 4591 _____ (1) Adv Topics in Diff Equations [CAP]   |
| MAT 4710 _____ (3) Intro to Topology ( <i>Pre: MAT 3220; St st</i> )                       | <b>AND</b> | MAT 4711 _____ (1) Introduction to Topology [CAP]       |
| MAT 4720 _____ (3) Abstract Algebra ( <i>Pre: MAT 3110; Sr st</i> )                        | <b>AND</b> | MAT 4721 _____ (1) Abstract Algebra [CAP]               |
| MAT 4990 _____ (3) Numerical Linear Algebra ( <i>Pre: MAT 4310; Sr. st</i> )               | <b>AND</b> | MAT 4991 _____ (1) Numerical Linear Algebra [CAP]       |
| STT 4820 _____ (3) Design & Analysis of Experiments ( <i>Pre: STT 3820; Sr st</i> )        | <b>AND</b> | STT 4821 _____ (1) Design & Analysis of Exper [CAP]     |
| STT 4830 _____ (3) Linear Regression Models ( <i>Pre: MAT 2240; STT 3830; Sr. st</i> )     | <b>AND</b> | STT 4831 _____ (1) Linear Regression Models [CAP]       |
| STT 4840 _____ (3) Regression & Time Series Forec ( <i>Pre: MAT 2240; STT 3250, 3850</i> ) | <b>AND</b> | STT 4841 _____ (1) Regression & Time Series Forec [CAP] |

**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) ..... 17**

**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.