2016-2017 (Revised 3/2017)

Program of Study for Mathematics Majors

PHYSICAL SCIENCES

122

II. MAJOR REQUIREMENTS (not including 4 s.h. counted in Area I, above)	I.	GENERAL EDUCATION CURRICULUM			44	
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 fuffill major requirements must be courses offered by Appalachian. A. Mathematics Common Core (14 hours) MAT 1110 (4) Calculus with Analytic Geometry II (Pre: MAT 1205 w/min grade C-) MAT 1210 (3) Techniques of Proof (Pre: MAT 1120) MAT 2210 (3) Introduction to Uniear Algebra (Pre: MAT 1110 w/min grade C-) MAT 2130 (4) Calculus with Analytic Geometry III (Pre: MAT 1120 w/min grade C-) MAT 2130 (5) Computational Mathematics (Pre: MAT 1120) MAT 3130 (6) Calculus with Analytic Geometry III (Pre: MAT 1120 w/min grade C-) MAT 3130 (7) Numerical Methods (Pre: MAT 1120) MAT 3130 (8) Introduction to Differential Equations (Pre: MAT 1120) MAT 3130 (9) Statistical Data Analysis (Pre: MAT 1120) MAT 3130 (3) Introduction to Real Analysis (Pre: MAT 1110) MAT 3110 (3) Introduction to Real Analysis (Pre: MAT 1110) MAT 3120 (3) Introduction to Real Analysis (Pre: MAT 1110) MAT 3110 (3) Introduction to Real Analysis (Pre: MAT 1110) MAT 3110 MAT 3110 (1) Capstone: Numerical Methods [CAP] (Co: MAT 2310) MAT 3110 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 4111 (1) Capstone: Numerical Methods [CAP] (Co: MAT 2310) MAT 4220 (3) Intro to Real Analysis (Pre: MAT 2130, Co: MAT 2240) MAT 4340 (3) Intro to Real Analysis (Pre: MAT 2130, Co: MAT 2240) MAT 4340 (3) Intro to Real Analysis (Pre: MAT 2130, Co: MAT 2240) MAT 4340 (3) Intro to Real Analysis (Pre: MAT 2130, Co: MAT 2240) MAT 4340 (3) Intro to Real Analysis (Pre: MAT 2130, So: MAT 2240) MAT 4340 (3) Intro to Real Analysis (Pre: MAT 2130, So: MAT 2240) MAT 4340 (3) Intro to Topics in Mathematics MAT 4211 (1) Intro to Topics in Math [CAP] MAT 4340 (3		Match 1110 will meet the Quantitative Literacy general education requirement.			61	
MAT 1110 (4) Calculus with Analytic Geometry (Pre: MAT 1202 sw/min grade C-) MAT 1210 (3) Techniques of Proof (Pre: MAT 1120) MAT 2120 (3) Techniques of Proof (Pre: MAT 1120) MAT 2120 (3) Techniques of Proof (Pre: MAT 1120) B. Mathematics Courses for the Concentration (20 hours) MAT 2130 (4) Calculus with Analytic Geometry (Pre: MAT 1120 w/min grade C-) MAT 2130 (5) Computational Mathematics (Pre: MAT 1120) MAT 2130 (5) Computational Mathematics (Pre: MAT 1120) MAT 2310 (6) Calculus with Analytic Geometry (Pre: MAT 1120) MAT 2310 (7) Computational Mathematics (Pre: MAT 1120) MAT 330 (8) Introduction to Differential Equations (Pre: MAT 1120) MAT 3310 (9) Statistical Data Analysis (Pre: MAT 1120) MAT 3310 (1) Introduction to Real Analysis (Pre: MAT 1120) MAT 3220 (3) Introduction to Real Analysis (Pre: MAT 1120) MAT 3220 (3) Introduction to Real Analysis (Pre: MAT 1120) MAT 3220 (3) Introduction to Real Analysis (Pre: MAT 120) MAT 44000-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 4400 - (1-3) Current Topics in Mathematics MAT 4400 - (1-3) Current Topics in Mathematics MAT 4410 - (1-3) Optiferential Geometry (Pre: MAT 2130; Ce: MAT 2240) MAT 4400 - (1-3) Current Topics in Mathematics MAT 4410 - (1-3) Optiferential Geometry (Pre: MAT 2130; Ce: MAT 2240) MAT 4420 - (3) Differential Geometry (Pre: MAT 3130; S31) MAT 4420 - (3) Unramical Systems Theory (Pre: MAT 3130; S31) MAT 4420 - (3) Optimerial Geometry (Pre: MAT 3130; S31) MAT 4420 - (3) Optimerial Geometry (Pre: MAT 3130; S31) MAT 4420 - (3) Optimerial Geometry (Pre: MAT 3130; S31) MAT 4420 - (3) Optimerial Geometry (Pre: MAT 3130; S31) MAT 4420 - (3) Optimerial Geometry (Pre: MAT 3130; S31) MAT 4420 - (3) Optimerial Geometry (Pre: MAT 3130; S31) MAT 4420 - (3) Optimerial Geometry (Pre: MAT 3130; S31) MAT 4420 - (3) Optimerial Geometry (Pre: MAT 3130; S31) MAT 4420 - (3) Optimerial Geometry (Pre: MAT 3130; S31) MAT 44		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				
MAT 1120 (4) Calculus with Analytic Geometry (Pre: MAT 1120) MAT 2240 (3) Introduction to Linear Algebra (Pre: MAT 1120) B. Mathematics Courses for the Concentration (20 hours) MAT 2310 (3) Computational Mathematics (Pre: MAT 1120) MAT 2310 (3) Computational Mathematics (Pre: MAT 1120) MAT 2310 (3) Introduction to Differential Equations (Pre: MAT 1120) MAT 3130 (3) Introduction to Differential Equations (Pre: MAT 1120) MAT 3130 (3) Introduction to Modern Algebra (WID) (Pre: Rc 2001, MAT 2110 or 2510; Co: 2240) MAT 3110 (3) Introduction to Modern Algebra (WID) (Pre: Rc 2001, MAT 2110 or 2510; Co: 2240) MAT 3110 (3) Introduction to Real Analysis (Pre: MAT 1110) C. Capstone Requirements (4 hours) Choose one option: OPTION 1: 4 hours MAT 3111 (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 3010 (3) Intro date Analysis (Pre: MAT 2130, Co: MAT 230) MAT 4100 (3) Differential Geometry (Pre: MAT 2130, Co: MAT 2240) MAT 4100 (3) Differential Geometry (Pre: MAT 2130, Co: MAT 2240, ST 3850; Sr st) AND MAT 4210 (3) Differential Geometry (Pre: MAT 2130, Co: MAT 220, ST 3850; Sr st) AND MAT 4340 (3) Intro to Operations Research (Pre: MAT 2130, Co: MAT 230) MAT 4340 (3) Intro to Operations Research (Pre: MAT 2300, ST 3850; Sr st) AND MAT 4341 (1) Intro to Oper Research (CAP) MAT 4340 (3) Intro to Topoles in Differential Equations (Pre: MAT 3300, Sr st) AND MAT 4341 (1) Intro to Oper Research (CAP) MAT 430 (3) Intro to Topoles in Differential Equations (Pre: MAT 330, Sr st) AND MAT 4341 (1) Intro to Oper Research (CAP) MAT 430 (3) Intro to Topoles (Pre: MAT 330, Sr st) AND MAT 4311 (1) Introduction to Topoles (CAP) MAT 430 (3) Intro to Topoles (Pre: MAT 330, Sr st) AND MAT 4311 (1) Introduction to Topoles (CAP) MAT 430 (3) Intro to Topoles (Pre: MAT 330, Sr st) AND MAT 4311 (1) Introduction to Topoles (CAP) MAT 430 (3) Intro to Topoles (Pre:	Α.	Mathematics Common Core (14 hours)				
MAT 2110		MAT 1110 (4) Calculus with Analytic Geometry I (Pre: MAT 1025 w	v/min grade C-)		HONORS STUDENTS	
MAT 2120 (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 3130 (3) Introduction I Mathematics (Pre: MAT 1120) MAT 3130 (3) Introduction to Differential Equations (Pre: MAT 1120) 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 Modern Algebra (WID) (Pre: RC 2001, MAT 2110 or 2510; Co: 2240) MAT 3220 (3) Introduction to Rodern 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; Co: 2240) MAT 3220 (3) Introduction to Real Analysis [WID] (Pre: RC 2001, MAT 2110 or 2510; Co: 2240) MAT 34311 (1) Capstone: Numerical Methods [CAP] (Co: MAT 4310) MAT 4000-level course (3) OPTION 1: 4 hours MAT 41311 (1) Capstone: Numerical Methods [CAP] (Co: MAT 4310) MAT 4001 (1-3) Current Topics in Mathematics MAT 4010 (1-3) Differential Geometry (Pre: MAT 2120, Co: MAT 2240) MAT 4010 (3) Differential Geometry (Pre: MAT 2120, Co: MAT 2240) MAT 4220 (3) Intro to Real Analysis II (Pre: MAT 2320) MAT 4340 (3) Intro to Operations Research (Pre: MAT 2330 or 3310) MAT 4340 (3) Intro to Operations Research (Pre: MAT 3310 or 3310) MAT 4340 (3) Intro to Operations Research (Pre: MAT 3310 or 3310) MAT 4350 (3) Intro to Operations Research (Pre: MAT 3310 or 3310) MAT 4350 (3) Intro to Operations Research (Pre: MAT 3310 or 3310) MAT 4350 (3) Intro to Operations Research (Pre: MAT 3310 or 3310) MAT 4350 (3) Intro to Operations Research (Pre: MAT 3310 or 3310) MAT 4350 (3) Intro to Operations Research (Pre: MAT 3310 or 3310) MAT 4350 (3) Intro to Operations Research (Pre: MAT 3310 or 3310) MAT 4350 (3) Intro to Operations Research (Pre: MAT 3310 or 3310) MAT 4350 (3) Intro to Operations Research (Pre: MAT 3330 or 3310) MAD MAT 4451 (1) Intro to Operations Research (Pre: MAT 3330 or		MAT 1120 (4) Calculus with Analytic Geometry II (Pre: MAT 1110 v	w/min grade C-	.)	•	
B. Mathematics Courses for the Concentration (20 hours) B. Mathematics Courses for the Concentration (20 hours) MAT 2310		MAT 2110 (3) Techniques of Proof (<i>Pre: MAT 1120</i>)				
MAT 2310 (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 3130 (3) Numerical Methods (Pre: MAT 2320) STT 3850 (4) Statistical Data Analysis (Pre: MAT 1210) Choose one: MAT 3110 (3) Introduction to Modern Algebra [WID] (Pre: RC 2001, MAT 2110 or 2510; Co: 2240) MAT 3320 (3) Introduction to Real Analysis [WID] (Pre: RC 2001, MAT 2110 or 2510; Co: 2240) MAT 3320 (3) Introduction to Real Analysis [WID] (Pre: RC 2001, MAT 2110 or 2510; Co: 2240) MAT 3320 (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 4331 (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 AND MAT 4011 (1) Current Topics in Math [CAP] MAT 4220 (3) Intro to Real Analysis II (Pre: MAT 2230; Co: MAT 2240) AND MAT 4420 (3) Intro to Departions Research (Pre: MAT 2330; or 3310) MAT 4340 (3) Intro to Operations Research (Pre: MAT 2330; or 3310) MAT 4420 (3) Dynamical Systems Theory (Pre: MAT 3330 or 3310) MAT 4430 (3) Intro to Topical pre: MAT 3320; or 3310) MAT 4430 (3) Intro to Topical pre: MAT 3320; or 3310) MAT 4430 (3) Intro to Topical pre: MAT 3320; or 3310) MAT 4470 (3) Intro to Topical pre: MAT 3320; or 3310) MAT 4471 (1) Introduction to Topical pre: MAT 3320; or 3310) MAT 4471 (1) Introduction to Topical pre: MAT 3320; or 3310) MAT 4470 (3) Introduction to Topical pre: MAT 3320; or 3310) MAT 4470 (3) Introduction to Topical pre: MAT 3320; or 3310) MAT 4471 (1) Introduction to Topical pre: MAT 3320; or 3310) MAT 4471 (1) Introduction to Topical pre: MAT 3320; or 3310) MAT 4471 (1) Introduction to Topical pre: MAT 3320; or 3310) MAT 4471 (1) Introductio		MAT 2240 (3) Introduction to Linear Algebra (Pre: MAT 1120)				
MAT 2130 (3) Computational Mathematics (<i>Pre: MAT 1120</i>) (but in the same semester); (CAP) is Capstone course: each has CO: of first course in each pair below MAT 4000-level course (3) Introduction to mathematics (<i>Pre: MAT 210</i>) (3) Introduction to Modern Algebra [WID] (<i>Pre: Rc 2001, MAT 2110 or 2510</i>) (5) CC 2240) (3) Introduction to Modern Algebra [WID] (<i>Pre: Rc 2001, MAT 2110 or 2510</i>) (5) CC 2240) (3) Introduction to Real Analysis [WID] (<i>Pre: Rc 2001, MAT 2110 or 2510</i>) (6) CC Capstone Requirements (4 hours) Choose one option: OPTION 1: 4 hours MAT 4311 (1) Capstone: Numerical Methods [CAP] (<i>Co: MAT 4310</i>) 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 (<i>Pre: Mat 2130, Co: MAT 2240</i>) AND MAT 4141 (1) Differential Geometry (<i>CAP</i>) (MAT 4340 (3) Intro to Real Analysis II (<i>Pre: MAT 3200, ST 3300, ST ST</i>) AND MAT 4341 (1) Intro to Real Analysis II (CAP) (MAT 4340 (3) Dynamical Systems Theory (<i>Pre: MAT 3230, ST </i>	В.	Mathematics Courses for the Concentration (20 hours)			•	
MAT 3130 (3) Introduction to Differential Equations (Pre: MAT 1120)		MAT 2130 (4) Calculus with Analytic Geometry III (Pre: MAT 1120	w/min grade C	·-)		
MAT 4310 (3) Numerical Methods (Pre: MAT 2310) STT 3850 (4) Statistical Data Analysis I (Pre: MAT 1110) MAT 3110 (3) Introduction to Modern Algebra (WID) (Pre: RC 2001, MAT 2110 or 2510; Co: 2240) MAT 3110 (3) Introduction to Real Analysis [WID] (Pre: RC 2001, MAT 2110 or 2510; Co: 2240) MAT 3110 (3) Introduction to Real Analysis [WID] (Pre: RC 2001, MAT 2110 or 2510; Co: 2240) MAT 3110 (3) Introduction to Real Analysis [WID] (Pre: RC 2001, MAT 2110 or 2510; Co: 2240) MAT 3110 (3) Introduction to Real Analysis [WID] (Pre: RC 2001, MAT 2110 or 2510; Co: 2240) MAT 4311 (1) Capstone: Numerical Methods [CAP] (Co: MAT 4310) MAT 4490-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 MAD MAT 4011 (1) Differential Geometry [CAP] MAT 4140 (3) Differential Geometry (Pre: MAT 2130; Co: MAT 2240) MAT 4340 (3) Intro to Real Analysis II (Pre: MAT 2120; St 51) MAT 4340 (3) Intro to Operations Research (Pre: MAT 2240; ST 3850; St 81) MAT 4340 (3) Intro to Operations Research (Pre: MAT 2240; ST 3850; St 81) MAT 4340 (3) Dynamical Systems Theory (Pre: MAT 3130; or 331) MAT 4340 (3) Dynamical Systems Theory (Pre: MAT 3130; St 81) MAT 4459 (3) Abd Topics in Differential Equations (Pre: MAT 3130; St 81) MAT 44710 (3) Intro to Topology (Pre: MAT 310; St 81) MAT 4710 (3) Intro to Topology (Pre: MAT 310; St 81) MAT 4721 (1) Introduction to Topology (Pre: MAT 310; St 81) MAT 4721 (1) Introduction to Topology (Pre: MAT 310; St 81) MAT 4720 (3) Observate Algebra (Pre: MAT 310; St 81) MAT 4721 (1) Abstract Algebra (Pre: MAT 310; St 81) MAT 4721 (1) Introduction to Topology (Pre: MAT 310; St 81) MAT 4721 (1) Introduction to Topology (Pre: MAT 310; St 81) MAT 4721 (1) Introduction to Topology (Pre: MAT 310; St 81) MAT 4721 (1) Introduction to Topology (Pre: MAT 320; St 81) MAD MAT 4721 (1) Introduction to Topology (Pre: MAT 320; St 81) MAD MAT 4721 (1) Introduction to Topology		MAT 2310 (3) Computational Mathematics (Pre: MAT 1120)			•	
MAT 4310 (3) Numerical Methods (Pre: MAT 2320) and more information. Choose one: MAT 3110 (3) Introduction to Modern Algebra [WID] (Pre: RC 2001, MAT 2110 or 2510; Co: 2240) MAT 3120 (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 4010 (3) Differential Geometry (Pre: MAT 2130; Co: MAT 2240) MAT 4020 (3) Intro to Real Analysis II (Pre: MAT 2130; Co: MAT 2240) MAT 4220 (3) Intro to Operations Research (Pre: MAT 2240) MAT 4340 (3) Differential Geometry (Pre: MAT 3220) MAT 4340 (3) Dynamical Systems Theory (Pre: MAT 3230; 3530) MAT 4341 (1) Intro to Depresser (CAP) MAT 4350 (3) Adv Topics in Differential Equations (Pre: MAT 3330; Sr. st) AND MAT 4421 (1) Dynamical Systems Theory (CAP) MAT 4450 (3) Dynamical Systems Theory (Pre: MAT 3230; Sr. st) AND MAT 44710 (3) Intro to Topology (Pre: MAT 3210; Sr. st) AND MAT 44710 (3) Intro to Topology (Pre: MAT 3210; Sr. st) AND MAT 4470 (3) Abstract Algebra (Pre: MAT 3210; Sr. st) AND MAT 4470 (3) Dynamical Systems Theory (Pre: MAT 320; Sr. st) AND MAT 44710 (1) Advanced the state of the		MAT 3130 (3) Introduction to Differential Equations (Pre: MAT 1120)				
STT 3850					1 .	
MAT 3110					and more imprination.	
C. Capstone Requirements (4 hours) Choose one option: OPTION 1: 4 hours MAT 4311						
C. Capstone Requirements (4 hours) Choose one option: OPTION 1: 4 hours MAT 4311						
OPTION 1: 4 hours MAT 4311		MAT 3220 (3) Introduction to Real Analysis [WID] (Pre: RC 2001, MAT 2110 or 2510)				
MAT 4311	C.					
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						
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						
course in each pair below MAT 4010		MA1 4000-level course (3)				
MAT 4010 (1-3) Current Topics in Mathematics		·	er); [CAP] is	Capstone course: e	each has CO: of first	
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, ST 3850; ST st) AND MAT 4221 (1) Intro to Real Analysis II (CAP] MAT 4340 (3) Intro to Operations Research (Pre: MAT 2240, STT 3850; ST st) AND MAT 4341 (1) Intro to Oper Research [CAP] MAT 4340 (3) Dynamical Systems Theory (Pre: MAT 3130 or 3310) AND MAT 4421 (1) Dynamical Systems Theory (CAP] MAT 4450 (3) Adv Topics in Differential Equations (Pre: MAT 3130; ST st) AND MAT 4451 (1) Intro duction to Topology (Pre: MAT 3220; St st) AND MAT 4711 (1) Introduction to Topology (CAP] MAT 4710 (3) Intro to Topology (Pre: MAT 3110; ST st) AND MAT 4711 (1) Introduction to Topology (CAP] MAT 4720 (3) Abstract Algebra (Pre: MAT 3110; ST st) AND MAT 4721 (1) Abstract Algebra (CAP] MAT 4990 (3) Numerical Linear Algebra (Pre: MAT 3110; ST st) AND MAT 4991 (1) Numerical Linear Algebra (CAP] STT 4820 (3) Design & Analysis of Experiments (Pre: STT 3820; ST 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 4831 (1) Linear Regression Models (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 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)		·	NAAT 4011	(1) Current Ter	sics in Math [CAD]	
MAT 4220 (3) Intro to Real Analysis II (Pre: MAT 3220) MAT 4340 (3) Intro to Operations Research (Pre: MAT 3220, STT 3850; Sr st) MAT 4340 (3) Intro to Operations Research (Pre: MAT 3130 or 3310) MAT 4420 (3) Dynamical Systems Theory (Pre: MAT 3130 or 3310) MAT 4420 (1) Dynamical Systems Theory (CAP] MAT 4590 (3) Adv Topics in Differential Equations (Pre: MAT 3130; Sr st) MAT 44710 (3) Intro to Topology (Pre: MAT 3220; St st) MAT 4710 (3) Intro to Topology (Pre: MAT 3220; St st) MAD MAT 4711 (1) Introduction to Topology (CAP) MAT 4720 (3) Abstract Algebra (Pre: MAT 3110; Sr st) MAT 4990 (3) Numerical Linear Algebra (Pre: MAT 4310; Sr. st) MAT 4990 (3) Numerical Linear Algebra (Pre: MAT 4310; Sr. st) MAT 4990 (3) Design & Analysis of Experiments (Pre: STT 3820; Sr st) STT 4820 (3) Design & Analysis of Experiments (Pre: MAT 2240; 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) AND 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 II (Pre: PHY 1104 or 1151, MAT 1120) PHY 2020 (4) Intermediate Physics II (Pre: PHY 1104 or 1151, MAT 1120) PHY 2010 (5) Modern Physics II (Pre: PHY 1104 or 1151, MAT 1120) PHY 3210 (3) Modern Physics or technology (100, MAT 2130) PHY 3210 (3) Modern Physics or technology (100, MAT 2130) ** Must be approved by math sciences advisor. III. MINOR (optional)		 : - :				
MAT 4340 (3) Intro to Operations Research (<i>Pre: MAT 2240, STT 3850; Sr st</i>) AND MAT 4341 (1) Intro to Oper Research [CAP] MAT 4420 (3) Dynamical Systems Theory (<i>Pre: MAT 3130 or 3310</i>) AND MAT 4421 (1) Dynamical Systems Theory [CAP] MAT 4590 (3) Adv Topics in Differential Equations (<i>Pre: MAT 3130; Sr st</i>) AND MAT 4591 (1) Adv Topics in Diff Equations [CAP] MAT 4710 (3) Intro to Topology (<i>Pre: MAT 3120; St st</i>) AND MAT 4711 (1) Introduction to Topology [CAP] MAT 4720 (3) Abstract Algebra (<i>Pre: MAT 3110; Sr st</i>) AND MAT 4721 (1) Abstract Algebra (<i>Pre: MAT 3110; Sr st</i>) AND MAT 4990 (3) Numerical Linear Algebra (<i>Pre: MAT 4310; Sr. st</i>) AND MAT 4991 (1) Numerical Linear Algebra (<i>Pre: MAT 4310; Sr. st</i>) AND STT 4820 (3) Design & Analysis of Experiments (<i>Pre: STT 3820; Sr st</i>) AND STT 4821 (1) Design & Analysis of Exper [CAP] STT 4830 (3) Linear Regression Models (<i>Pre: MAT 2240; STT 3830; Sr. st</i>) AND STT 4831 (1) Linear Regression Models [CAP] STT 4840 (3) Regression & Time Series Forec (<i>Pre: MAT 2240; STT 3250, 3850</i>) AND STT 4831 (1) Regression & Time Series Forec CAP] D. Approved Electives: 10 hours in mathematical sciences to bring total hrs in AREA II to 65 hrs (<i>At least 3 hours in MAT if STT combination was chosen in Area C. Capstone</i>) E. Physical Sciences Concentration (17 hours) PHY 2010 (4) Intermediate Physics I (<i>Pre: PHY 1104 or 1151, MAT 1120</i>) PHY 2020 (4) Intermediate Physics I (<i>Pre: PHY 1151 or Co: PHY 2010</i>) 3 hours of approved electives** in physics at or above 2000 level ** ** Must be approved by math sciences advisor. III. MINOR (optional)		 · ·		:		
MAT 4420 (3) Dynamical Systems Theory (Pre: MAT 3130 or 3310) AND MAT 4421 (1) Dynamical Systems Theory [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 4710 (3) Abstract Algebra (Pre: MAT 3110; Sr st) AND MAT 4721 (1) Abstract Algebra [CAP] MAT 4790 (3) Numerical Linear Algebra (Pre: MAT 4310; Sr. st) AND MAT 4721 (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. 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 I (Pre: PHY 1151 or Ca: 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)						
MAT 4590						
MAT 4710(3) Intro to Topology (Pre: MAT 3220; St st) MAT 4720(3) Abstract Algebra (Pre: MAT 3110; Sr st) MAT 4720(3) Abstract Algebra (Pre: MAT 3110; Sr st) MAT 4990(3) Numerical Linear Algebra (Pre: MAT 4310; Sr. st) MAT 4990(3) Design & Analysis of Experiments (Pre: STT 3820; 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) AND STT 4821						
MAT 4720(3) Abstract Algebra (Pre: MAT 3110; Sr st) MAT 4990(3) Numerical Linear Algebra (Pre: MAT 4310; Sr st) MAT 4990(3) Numerical Linear Algebra (Pre: MAT 4310; Sr st) 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 (Pre: MAT 2240; STT 3830; Sr. st) STT 4840(3) Regression & Time Series Forec (Pre: MAT 2240; STT 3250, 3850) AND 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						
MAT 4990						
STT 4820		,				
STT 4830(3) Linear Regression Models (<i>Pre: MAT 2240; STT 3830; Sr. st</i>) AND STT 4831(1) Linear Regression Models [CAP] STT 4840(3) Regression & Time Series Forec (<i>Pre: MAT 2240; STT 3250, 3850</i>) AND 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 (<i>At least 3 hours in MAT if STT combination was chosen in Area C. Capstone</i>) E. Physical Sciences Concentration (17 hours) PHY 2010(4) Intermediate Physics I (<i>Pre: PHY 1104 or 1151, MAT 1120</i>) PHY 2020(4) Intermediate Physics II (<i>Pre: PHY 2010, MAT 2130</i>) PHY 3210(3) Modern Physics I (<i>Pre: PHY 1151 or Co: PHY 2010</i>) 3 hours of approved electives** in physics at or above 2000 level** * Must be approved by math sciences advisor. III. MINOR (optional)						
STT 4840 (3) Regression & Time Series Forec (Pre: MAT 2240; STT 3250, 3850) AND 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)						
(At least 3 hours in MAT if STT combination was chosen in Area C. Capstone) 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 ** Must be approved by math sciences advisor. III. MINOR (optional)			_			
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 ** Must be approved by math sciences advisor. III. MINOR (optional)	D.	Approved Electives: 10 hours in mathematical sciences to bring total hrs in ARI	EA II to 65 h	rs		
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)		(At least 3 hours in MAT if STT combination was chosen in Area C. Capstone)				
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)	Ε.	Physical Sciences Concentration (17 hours)				
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 ** Must be approved by math sciences advisor. III. MINOR (optional)						
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 ** Must be approved by math sciences advisor. III. MINOR (optional)						
3 hours of approved electives** in physics at or above 2000 level ** Must be approved by math sciences advisor. III. MINOR (optional)						
III. MINOR (optional)						
III. MINOR (optional)		3 hours of approved electives** in physics or technology		- _ ** Must be approve	d by math sciences advisor.	
IV. ELECTIVES (taken to total 122 hours for the degree)	III.					
IV. ELECTIVES INDICTIVE TOTAL IN LOCAL TO A STATE OF THE	IV	FLECTIVES (taken to total 122 hours for the degree)			17	

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