

College of Basic and Applied Sciences

Upper Division Form 2017-2018 Catalog

Student name _____ Student # _____

Major **PHYSICS** Minor _____ (Optional)

Concentration **APPLIED PHYSICS** E-mail _____

Instructions: For students graduating in Fall 2017 or later, one (1) copy signed by major and minor advisors should be filed in DSB 120 three (3) semesters prior to graduation. An Intent to Graduate form must be submitted with this form.

General Education Area	Course	Semester	Grade	Prerequisites/Notes	Credit Hours
COMMUNICATION (9 hours)	ENGL 1010			Must earn a grade of C- or better	3
	ENGL 1020			Must earn a grade of C- or better	3
	COMM 2200				3
HISTORY (6 hours) Choose two: HIST 2010, HIST 2020, HIST 2030	HIST ____				3
	HIST ____				3
HUMANITIES AND/OR FINE ARTS (9 hours) Choose <u>one</u> : ENGL 2020, 2030 or HUM 2610. Choose <u>two</u> with different prefixes: ANTH 2210, ART 1030, 1920, DANC 1000, HIST 1010, 1020, 1110, 1120, MUS 1030, PHIL 1030, THEA 1030					3
					3
					3
MATHEMATICS (3 hours) <i>Recommend MATH 1910 (4 credits)</i>	MATH 1910			See supporting coursework for prerequisites	3
NATURAL SCIENCES (8 hours) Recommend CHEM 1110/1111 (4 cr.) and either PHYS 2010/2011 (4 cr.) or PHYS 2110 /2111 4 cr.)	CHEM 1110/1111			High school chemistry	4
	PHYS _____			See below for prerequisites	4
SOCIAL/BEHAVIORAL SCIENCES (6 hours) Choose two (different rubrics): AAS 2100, ANTH 2010, ECON 2410, ECON 2420, EMC/JOUR/RIM 1020, GEOG 2000, GS 2010, HLTH 1530/1531, PS 1010, PS 1005, PSY 1410, RS 2030, SOC 1010, SOC 2010, WGST 2100					3
					3
Total:					41

Major Core (included in major GPA; 2.0 or better)	Course	Semester	Grade	Prerequisites/Notes	Credit Hours
Physics Colloquium (Fall only)	PHYS 1010				1
Introductory Physics I PHYS 2010/2011 or PHYS 2110/2111 (PHYS 2110/2111 is offered in the Fall only)	PHYS ____ PHYS ____			PHYS 2010/2011: MATH 1710 with minimum grade of C (2.0 GPA), MATH 1730, or MATH 1910 PHYS 2110/2111: MATH 1910 with a minimum grade of C	4
Introductory Physics II PHYS 2020/2021 or PHYS 2120/2121 (PHYS 2120/2121 is offered in the Spring only)	PHYS ____ PHYS ____			PHYS 2020/2021: PHYS 2011 PHYS 2120/2121: PHYS 2111 and MATH 1920 with a minimum grade of C	4
Modern Physics I PHYS 3100 or PHYS 3070 (Fall only)	PHYS ____			PHYS 3100: PHYS 2021 or 2121 and MATH 1920 with a minimum grade of C PHYS 3070: PHYS 2021 or 2121 and MATH 1920	3
Modern Physics II PHYS 3110 or PHYS 3080 (Spring only)	PHYS ____			PHYS 3110 Prereq: PHYS 3100 PHYS 3080 Prereq: PHYS 3070 or PHYS 3100	3
Modern Physics Lab (Spring only)	PHYS 3111			PHYS 3100 (or PHYS 3070)	1
Thermodynamics PHYS 3610 or PHYS 3510 or Intermediate Physics PHYS 3400	PHYS ____			See online catalog for prerequisites; see department schedule for course offerings	3
Physics Seminar (Spring only)	PHYS 3800			PHYS 3110 (or PHYS 3080)	1
Physics Practicum	PHYS 3900			PHYS 3110 (or PHYS 3080) and consent of instructor	1
Research (PHYS or ASTR)	____ 4850			Consent of instructor	2
Senior Thesis (PHYS or ASTR)	____ 4900			PHYS 4850 or PHYS 4860 and consent of department chair	2
Total:					25

Major/concentration requirements are continued on the next page.

Concentration (included in major GPA; 2.0 or better)	Course	Semester	Grade	Prerequisites/Notes	Credit Hours
Theoretical Physics I or Calculus III or Differential Equations	<i>PHYS 3150</i> (Fall only) <i>MATH 3110</i> <i>MATH 3120</i>			PHYS 3150: PHYS 2021 or 2121 and MATH 1920 with a minimum grade of C MATH 3110: MATH 1920 MATH 3120: MATH 1920 with a minimum grade of C	3 or 4
Computer Science I	CSCI 1170			MATH 1730 with a grade of C or better, Math ACT of 26 or better, or Calculus placement test score of 73 or better	4
Physics or Astronomy Upper Division (must total at least 5 hours)				See online catalog for prerequisites	2 or 3
Physics or Astronomy Upper Division				See online catalog for prerequisites	3 or 4
Cognate Elective (must total at least 15 hours)				See online catalog for prerequisites for all cognate electives	3 or 4
Cognate Elective (list of cognate electives on next page)					3 or 4
Cognate Elective					3 or 4
Cognate Elective					3 or 4
Cognate Elective					3 or 4
52 hours in major GPA					Total: 27

Supporting (excluded from major GPA)	Course	Semester	Grade	Prerequisites/Notes	Credit Hours
Calculus I	MATH 1910			MATH 1730 with a grade of C or better, Math ACT of 26 or better, or Calculus placement test score of 73 or better	4
Calculus II	MATH 1920			MATH 1910 with a minimum grade of C	4
General Chemistry I	CHEM 1110/1111			High school chemistry	4
General Chemistry II	CHEM 1120/1121			CHEM 1110/1111 with a minimum grade of C-	4
Total:					16

Note: At least 18 credits of elective hours must be upper division (3000/4000 level).

Minor (Minor is Optional)	Course	Semester	Grade	Notes	Credit Hours
Total:					
Signed:	Minor Advisor (if applicable)			Date	

1. Degrees require a minimum of 120 semester hours (12 of the last 18 at MTSU) with a 2.0 GPA, a minimum of 42 upper-division hours (30 at MTSU) with a 2.0 GPA, and a minimum of 60 senior college hours.
2. Learning Support courses do not count toward the 120-hour requirement or cumulative degree GPA.

Signed:	Physics Advisor			Date	
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Cognate Electives

Course	Name	Hours	Course	Name	Hours
Advanced Physics or Astronomy Any upper division PHYS or ASTR, including:					
PHYS 3000	Acoustics and Signal Analysis	3	PHYS 3600	Radiation Oncology Physics	3
PHYS 3150/3160	Topics and Methods of Theoretical Physics I / II	3	PHYS 4310/4320	Electricity and Magnetism I / II	3
PHYS 3200	Scientific Modeling	2	PHYS 4380/4390	Quantum Mechanics I / II	3
PHYS 3300	Classical Mechanics	3	ASTR 3400	Fundamentals of Astrophysics	3
PHYS 3310/3350	Digital or Analog Electronics	3 or 4	ASTR 3401	Experimental Astronomy	1
Computer Applications			Computational Methods		
INFS 2400	Web Development	3	CSCI 2170	Computer Science II	4
INFS 3100	Principles of Management Information Systems	3	CSCI 3037	Computer Languages: Visual Programming	3
INFS 3200	Business Application Development	3	CSCI 3160	Introduction to Assembly Language	3
INFS 3400	Object Oriented Programming with C#.NET	3	CSCI 3180	Introduction to Numerical Analysis	3
INFS 4300	Security Assurance for Information Systems Audit	3	CSCI 3250	Operating Systems	3
INFS 4790	Database Design and Development	3	CSCI 4330	Parallel Processing Concepts	3
Technology			Operations Research		
ET 1210	Introduction to Metals and Metallurgy	3	QM 2610	Statistical Methods I	3
ET 2310	Computer-Assisted Drafting and Design I	3	QM 3620	Statistical Methods II	3
ET 3210	Machine Tool Technology	3	MGMT 3620	Operations Management	3
ET 3360	Computer-Assisted Drafting and Design II	3	QM 4010	Decision Science Techniques	3
ET 4440	Fire Safety	3	BCEN 4670	International Business Communication	3
ET 4630	Local Area Networks	3			
Actuarial			Business Administration		
STAT 3150	Mathematical Statistics I	3	ACTG 3000	Survey of Accounting for General Business	3
STAT 4190	Mathematical Statistics II	3	FIN 3000 or 3010	Principles of Financial Management or Business Finance	3
ACSI/MATH 4140	Mathematical Foundations of Actuarial Science	3	BLAW 3400 or 3430	Legal Environment of Business or Commercial Law	3
ACSI/MATH 4200	Introduction to Mathematics of Investment	3	MGMT 3610	Principles of Management	3
ACSI 4230	Mathematics of Compound Interest	3	MKTG 3820	Principles of Marketing	3
Natural Science			Supplemental Mathematics		
BIOL 1110/1	General Biology I/Lab	4	MATH 2010	Elements of Linear Algebra	3
BIOL 1120/1	General Biology II/Lab	4	MATH 2050	Probability and Statistics	3
BIOL 2230	Microbiology	4	MATH 3260	Differential Equations II	3
CHEM 3010/1	Organic Chemistry I/Lab	4	MATH 3460	Foundations of Higher Mathematics	3
CHEM 3020/1	Organic Chemistry II/Lab	4	MATH 3070	College Geometry	3
CHEM 3530/1	Principles of Biochemistry/Lab	4			