

College of Science - Physics, BS with Concentration in Astrophysics

Catalog Year: 2019 - 2020

			Grades	
Mason Core Requirements: 27 credits	Course Information	Credits	Earned	Needed
Written Communication:	ENGH 101 (100)	3		
Oral Communication:		3		
*Quantitative Reasoning	*Satisfied by Major Requirements			
Information Technology		3		
Arts		3		
Global Understanding		3		
Literature		3		
*Natural Science	*Satisfied by Major Requirements			
Social & Behavioral Sciences		3		
Western Civilization/World History		3		
Written Communication:	ENGH 302	3		
*Synthesis/Capstone	*Satisfied by Concentration Requirement (PHYS 407)			
Major Requirements (69 - 75 credits in major including concentration)				
Students must complete a total of 75 credits in the major (69 credits if completing a second major), including at least 11 credits in mathematics, with a minimum GPA of 2.00.				
PHYS 160	University Physics I (Mason Core)	3		
PHYS 161	University Physics I Laboratory (Mason Core)	1		
PHYS 251	Introduction to Computer Techniques in Physics (Mason Core)	3		
PHYS 260	University Physics II (Mason Core)	3		
PHYS 261	University Physics II Laboratory (Mason Core)	1		
PHYS 301	Analytical Methods of Physics	3		
PHYS 303	Classical Mechanics	3		
PHYS 305	Electromagnetic Theory 1	3		
PHYS 307	Thermal Physics	3		
PHYS 308	Modern Physics	3		
PHYS 402	Introduction to Quantum Mechanics and Atomic Physics	3		
PHYS 416	Special Topics in Undergraduate Physics	1		
MATH 113	Analytic Geometry and Calculus I (Mason Core)	4		
MATH 114	Analytic Geometry and Calculus II	4		
MATH 213	Analytic Geometry and Calculus III	3		
BS with Concentration in Astrophysics (28 - 34 credits in concentration)				
Select 3 credits from the following:				
ASTR 401	Computer Simulation in Astronomy	3		
PHYS 410	Computational Physics Capstone (Mason Core)			
MATH 214	Elementary Differential Equations			
PHYS 311	Instrumentation	3		
PHYS 312	Waves and Optics	3		
Research, Internship, or Independent Study (3 credits) Select 3 credits from the following: ASTR 405, 406, 408, 409; PHYS 326, 405, 406, 408, 409				
Research, Internship or Independent Study		3		
Select 4 credits from the following:				
ASTR 402	RS: Methods of Observational Astronomy	4		
PHYS 407	Senior Laboratory in Modern Physics			
Physics and Astronomy Theory		12-18		
Students who are not completing a second major must complete the following: ASTR 210, 328, 403, 404; PHYS 306, 328				
Students who are completing a second major must complete the following:				
ASTR 210	Introduction to Astrophysics	3		
ASTR 328	Stars	3		
ASTR 403	Planetary Science or	3		
or ASTR 404	Galaxies and Cosmology			
Additionally, select 3 credits from the following:				
PHYS 306	Wave Motion and Electromagnetic Radiation	3		
PHYS 428	Relativity			
Degree Notes				
Approx. 18 - 24 credits may be completed with elective courses to bring degree to 120 with 45 credits at 300/400 level.				

FALL YEAR 1	CREDITS	SPRING YEAR 1	CREDITS	NOTES
MATH 113	4	MATH 114	4	*students who do
PHYS 122/123	2	ASTR 124	1	not place into
ENGH 101	3	PHYS 160	3	Calculus I can
Mason Core	3	PHYS 161	1	visit the physics
Mason Core	3	Mason Core	3	website for an
UNIV 100	1	Mason Core	3	alternative
Total:	16 credits	Total:	15 credits	schedule.

FALL YEAR 2	CREDITS	SPRING YEAR 2	CREDITS	NOTES
MATH 213	3	MATH 214	3	
PHYS 260	3	PHYS 307	3	
PHYS 261	1	PHYS 308	3	
PHYS 251	3	ASTR 210	3	
Mason Core	3	Elective	3	
Mason Core	3			
Total:	16 credits	Total:	15 credits	

FALL YEAR 3	CREDITS	SPRING YEAR 3	CREDITS	NOTES
PHYS 301	3	PHYS 306	3	
PHYS 303	3	PHYS 312	3	
PHYS 305	3	PHYS 402	3	
PHYS 311	3	Elective	3	
ENGH 302	3	Elective	3	
Total:	15 credits	Total:	15 credits	

FALL YEAR 4	CREDITS	SPRING YEAR 4	CREDITS	NOTES
PHYS 403	3	PHYS 412	3	
PHYS 407	4	PHYS 428	3	
PHYS 408 OR 409	3	Elective	3	
PHYS 410	3	Elective	3	
PHYS 416	1	Elective	3	
Total:	14 credits	Total:	15 credits	

*Students must earn 120 credits for graduation; 45 credits must be upper-level (courses 300+).

*Schedule will vary depending on if student began in an odd or even year; details can be found at physics.gmu.edu. Concentrations are also available in applied and engineering physics, astrophysics and computational physics