

PHYSICS AND APPLIED MATHEMATICS, BACHELOR OF SCIENCE - PAM

Major Requirements (60 Hours)

Code	Title	Credits
Required		
MATH 131 & MATH 132 or MATH 133	Calculus I and Calculus II for STEM majors Theory and Application of Calculus	4-8
CPSC 207 & 207L	Computer Programming and Computer Programming Laboratory	3
MATH 225	Foundations of Higher Mathematics	3
MATH 231	Calculus III	4
MATH 326	Linear Algebra and Differential Equations	4
MATH 496	Pro-Seminar	2
PHYS 121	General Physics I: Mechanics and Waves	4
PHYS 122	General Physics II: Temperature, Electricity, and Light	4
PHYS 253	General Physics III: Modern Physics	3
Select one of the following:		1
PHYS 272L	Computational Physics Laboratory	
PHYS 282L	Modern Experimental Laboratory	
PHYS 292L	Wave Mechanics Laboratory	
Electives		
Select three of the following physics electives:		9
PHYS 205	Nuclear Science	
PHYS 323	Classical Mechanics	
PHYS 343	Thermodynamics	
PHYS 373	Fundamentals of Astrophysics	
PHYS 424	Quantum Mechanics	
PHYS 444	Electricity and Magnetism	
Select three of the following mathematics and computer science electives:		9-10
CPSC 315 or CPSC 328	Simulation: Theory and Application Data Structures	
MATH 335	Differential Equations II	
MATH 336	Numerical Analysis	
MATH 341	Analysis I	
MATH 342	Analysis II	
MATH 345	Probability	
MATH 346	Statistics	
MATH 353	Abstract Algebra I	
MATH 354	Abstract Algebra II	
MATH 381	Mathematical Modeling	
MATH 388	BIG (Business, Industry, Government) Problems in Mathematics	
Additional mathematics, computer science, or science electives to bring the total to 60 hours if needed		5-10
Total Credits		55-65

Advanced Writing Proficiency

The purpose of this requirement is to nurture the development of mathematical writing in order to deepen the student's understanding of mathematics and to enable the student to communicate technical ideas to a range of audiences. Sophomores are expected to demonstrate proficiency in expository mathematics by the submission of an acceptable portfolio. Juniors are expected to demonstrate proficiency in technical or analytical mathematical writing by the submission of an acceptable portfolio. Seniors demonstrate their ability by completing a senior comprehensive paper, which is evaluated by a committee of three faculty.

Senior Comprehensive

All mathematics majors, in Pro-Seminar (MATH 496 Pro-Seminar), independently study a mathematical topic of their choice and work with a faculty advisor. They present their work in a series of talks in the seminar. The project culminates in a paper and a formal presentation. This final presentation, followed by questioning by a faculty committee, constitutes the Senior Comprehensive in mathematics.

Faculty

S. Cox, C. Dwyer, C. Hoover, K. Kuter, E. Misiolek, P. Paranamana, C. Periton, M. Porter, R. Rohatgi, B. Vajiac, C. Wedrychowicz