

Lock Haven University
Geology & Physics Department
Bachelor of Science

Physics Major; Applied Physics (Nanotechnology) Track

Effective Fall 2016

Intellectual Foundation	9 sh
Written Communication	3 sh
ENGL100: Composition	3 sh
WC Competency 1	
WC Competency 2	
Oral Communication	3 sh
Mathematical and Computational Thinking	3 sh
Math141: Calculus I	3 sh
Critical Thinking	
CT Competency 1	
CT Competency 2	

Knowledge and Inquiry	21 sh
Natural Sciences Inquiry	6 sh
PHYS170: Intermediate General Physics I	4 sh
PHYS171: Intermediate General Physics II	4 sh
Historical, Behavioral, and Social Science Inquiry	6 sh
Philosophical, Literary, and Aesthetic Inquiry	9 sh

Personal and Social Responsibility	12 sh
Global Awareness and Citizenship	9 sh
Wellness	3 sh
Experiential Learning	
EL Competency 1	
EL Competency 2	

Electives	17 sh

First Year Student Seminar	1 sh
SCI119: First Year Student Seminar	

Major Area and Cognate Courses	60 sh
<i>PHYS170/PHYS171 NSI credits</i>	2 sh
NANO105: Intro to Nanoscale Science	3 sh
#NANO210: Tools & Techniques	3 sh
#NANO304: Generation & Modification	3 sh
#NANO3XX: Characterization	3 sh
#PHYS290: Electronics	4 sh
#NANO458: Advanced Applied Nanotechnology Laboratory	6 sh
total	22
MATH142: Calculus II	3 sh
#MATH243: Calculus III	3 sh
CHEM120: Principles of Chemistry I	4 sh
total	10
#PHYS315: Modern Physics	4 sh
#PHYS330: Mechanics I	3 sh
#PHYS350: Quantum Mechanics	3 sh
#PHYS370: Electricity & Magnetism	3 sh
total	13
<i>Physics/Nano/Technical Electives (13 sh from the list of courses below)</i>	
#PHYS250: Heat	3 sh
#PHYS325: Optics	4 sh
#PHYS331: Mechanics II	3 sh
#PHYS345: Math. Methods of Physics	2 sh
#PHAP400: Modern Optoelectronics	3 sh
#PHAP410: Material Science	3 sh
#MATH301: Differential Equations	3 sh
total	13
# advanced level courses	

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Suggested Course Sequence

Fall Freshman (example)

ENGL100: Composition (3)
 SCII19: First Year Student Seminar (1)
 MATH141: Calculus I (3)
 NANO105: Intro to Nanoscale Science (3)
 CHEM120: Principles of Chemistry I (4)
 Credit Total: 14

Spring Freshman (example)

MATH142: Calculus II (3)
 Wellness (3)
 PHYS170: Intermed. General Physics I (4)
 NANO210: Tools & Techniques (3)
 Elective (4)
 Credit Total: 17

Fall Sophomore (example)

PHYS171: Intermed. General Physics II (4)
 NANO304: Generation & Modification (3)
 or NANO 3XX Characterization (3)
 MATH243: Calculus III (3)
 Philosophical, Literary, and Aesthetic
 Inquiry (3)
 Historical, Behavioral, and Social Science
 Inquiry (3)
 Credit Total: 16

Spring Sophomore (example)

PHYS330: Mechanics I (3)
 PHYS290: Electronics (4)
 Historical, Behavioral, and Social Science
 Inquiry (3)
 Philosophical, Literary, and Aesthetic
 Inquiry (3)
 Global Awareness and Citizenship (3)
 Credit Total: 16

Fall Junior (example)

PHYS315: Modern Physics (4)
 NANO3XX: Characterization (3) or
 NANO304: Generation & Modification (3)
 Philosophical, Literary, and Aesthetic
 Inquiry (3)
 Elective (3)
 Credit Total: 13

Spring Junior (example)

PHYS350: Quantum Mechanics (3)
 NANO458: Advanced Applied
 Nanotechnology Laboratory (3)
 Physics/Nano/Technical Elective (3)
 Electives (6)
 Credit Total: 15

Fall Senior (example)

PHYS370 Electricity & Magnetism (3)
 NANO458: Advanced Applied
 Nanotechnology Laboratory (3)
 Physics/Nano/Technical Elective (3)
 Physics/Nano/Technical Elective (3)
 Global Awareness and Citizenship (3)
 Credit Total: 15

Spring Senior (example)

Physics/Nano/Technical Elective (4)
 Global Awareness and Citizenship (3)
 Oral Communication (3)
 Elective (4)
 Credit Total: 14