

**Lock Haven University**  
**Business & Computer Science Department**  
**Bachelor of Science**  
**Applied Computer Science and Information Systems Major**

Effective: Fall 2017

GENERAL EDUCATION REQUIREMENTS	42 sh			MAJOR REQUIREMENTS	60 sh
<b>INTELLECTUAL FOUNDATION</b>	9 sh	Taken	Grade	<i>A GPA of 2.0 or higher is required for graduation, both overall and in the major.</i>	
<b>Written Communication</b>	3 sh				
ENGL100					
<i>WC Competency 1: COMP220</i>					
<i>WC Competency 2: COMP340 or COMP405 or COMP335</i>					
<b>Oral Communication</b>	3 sh				
<b>Mathematical and Computational Thinking</b>	3 sh				
MATH107 #					
<b>Critical Thinking</b>					
<i>CT Competency 1: COMP160</i>					
<i>CT Competency 2: COMP220</i>					
<b>KNOWLEDGE &amp; INQUIRY</b>		21 sh			
<b>Natural Science Inquiry</b> <i>(at least 1 lab science)</i>	6 sh				
_____					
_____					
<b>Historical, Behavioral, and Social Science Inquiry</b>	6 sh				
_____					
_____					
<b>Philosophical, Literary, and Aesthetic Inquiry</b>	9 sh				
<i>(at least 1 from Visual or Performing Arts &amp; and</i>					
<i>1 from Philosophy or Literature)</i>					
_____					
_____					
<b>PERSONAL &amp; SOCIAL RESPONSIBILITY</b>		12 sh			
<b>Global Awareness &amp; Citizenship</b> <i>(at least 1 GAC-H)</i>	9 sh				
_____					
_____					
<b>Wellness</b>	3 sh				
_____					
<b>Experiential Learning</b>					
<i>EL Competency 1 (1 unit)</i>					
<i>EL Competency 2 (1 unit)</i>					
<i>OR Internship (1 credit = 2 units)</i>					
_____					
<b>ELECTIVES</b>		18 sh			
<i>NOTE: Either ENGL345 or ENGL360 is recommended</i>					
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_____					
_____					
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_____					
<b>MAJOR CORE</b> <span style="float: right;">30 sh</span>					
<b>When Taken Grade</b>					
COMP119	Intro to Comp & Prob Solv	3 sh	F	_____	
<i>Transfer Students may substitute a major elective</i>					
<i>Meets FYS requirement</i>					
COMP150	Introduction to Computers	3 sh	F&S	_____	
COMP160	Programming I #	3 sh	F&S	_____	
<i>Prerequisite: Appropriate Math Placement/MATH112</i>					
COMP200	Fundamentals of Networking #	3 sh	S	_____	
<i>Prerequisite: COMP150 or COMP119</i>					
COMP202	Op Sys Concepts and Sys Admin #	3 sh	F	_____	
<i>Corequisite: COMP160</i>					
COMP205	Web-Based Application Dev. #	3 sh	S	_____	
<i>Prerequisite: COMP160</i>					
COMP220	Contemp Issues in Comp #	3 sh	F	_____	
<i>Prerequisite: COMP150</i>					
COMP255	Database Design #	3 sh	F	_____	
<i>Prerequisite: COMP160 or COMP250</i>					
COMP230	Discrete Struc & Formal Lang #	3 sh	S	_____	
<i>Prerequisite: COMP160 and MATH107</i>					
COMP475	Senior Capstone #	3 sh	S	_____	
<i>Prerequisite: COMP200, COMP230 and COMP255</i>					
<b>MAJOR TRACKS</b> <span style="float: right;">30 sh</span>					
<i>Each student is required to complete a track within the major.</i>					
<i>Current options are:</i>					
<i>Mobile and Game Application Development Track</i>					
<i>Networking and Cybersecurity Track</i>					
<i>Data Science Track</i>					
<i>Interdisciplinary Computing Track</i>					
<i>Requirements for our tracks are provided on the next page.</i>					

*Note: The # symbol indicates advanced coursework.*

**NOTE: MATH COURSES MAY BE REQUIRED**

If math placement score is BELOW 9 in:  
 Cat. 1, MATH 009 is required as a 0 credit course  
 Cat. 2, MATH100 is required as a gen ed elective  
 Cat. 3, MATH112 is required as a gen ed elective

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<b>Mobile and Game Application Development Track (30 credits)#</b>		<b>Hrs</b>	<b>When</b>	<b>Taken</b>	<b>Grade</b>
COMP161	Programming II # (Prerequisite: COMP160)	3	F	_____	_____
COMP225	Mobile Device Programming # (Prerequisite: COMP161)	3	F	_____	_____
COMP240	Game Programming # (Prerequisite: COMP161)	3	S	_____	_____
COMP300	Data Structures and Algorithms # (Prerequisite: COMP161)	3	S	_____	_____
COMP302	C/C++ for Systems Programming # (Prerequisite: COMP161)	3	F	_____	_____
COMP405	Software Engineering # (WC, Prerequisite: COMP300)	3	F	_____	_____
COMP430	Computer Graphics # (Prerequisite: COMP300)	3	F	_____	_____
MATH141	Calculus I # (Prerequisite: Appropriate Math Placement/MATH113)	3	F&S	_____	_____
_____	Major Elective	3		_____	_____
_____	Major Elective	3		_____	_____

<b>Data Science Track (30 credits)#</b>		<b>Hrs</b>	<b>When</b>	<b>Taken</b>	<b>Grade</b>
COMP235	Intro to Data Science # (Prerequisite: Math107 and Math180)	3	F	_____	_____
COMP305	Database Application Development # (Prerequisite: COMP255)	3	S	_____	_____
COMP325	Advanced SQL # (Prerequisite: COMP255)	3	F	_____	_____
COMP340	Data Mining # (Prerequisite: COMP235 and COMP255)	3	S	_____	_____
COMP345	Advanced Programming for Data Analysis # (Prerequisite: COMP255, COMP160 or COMP245 -Intro Prog for DS, and Math 180/141)	3	F	_____	_____
COMP425	Advanced DB Architectures # (Prerequisite: COMP255)	3	F	_____	_____
MANG342	Fundamentals of Management Science #	3	S	_____	_____
MATH180	Math for Management # (Prerequisite: MATH107 and Appropriate Math Placement/MATH112)	3	F&S	_____	_____
_____	Major Elective	3		_____	_____
_____	Major Elective	3		_____	_____

<b>Networking and Cybersecurity Track (30 credits)#</b>		<b>Hrs</b>	<b>When</b>	<b>Taken</b>	<b>Grade</b>
COMP212	Data and Computer Communications # (Prerequisite: MATH112)	3	S	_____	_____
COMP308	Wireless Networking # (Prerequisite : COMP200 and COMP212)	3	S	_____	_____
COMP312	Intro to Cybersecurity # (Prerequisite : COMP200)	3	F	_____	_____
COMP335	Advanced Networks # (WC, Prerequisite : COMP200 and COMP212)	3	S	_____	_____
COMP407	Network Systems and Security Administration # (Prerequisite: COMP335, COMP312, COMP308)	3	S	_____	_____
COMP412	Advanced Network Security # (Prerequisite: COMP335, COMP312, COMP308)	3	F	_____	_____
COMP435	Next Generation Networks and Services # (Prerequisite: COMP200, COMP212)	3	F	_____	_____
MATH113	PreCalculus # (Prerequisite: Appropriate Math Placement/MATH112) or substitute major elective based on math placement score	3	F&S	_____	_____
_____	Major Elective	3		_____	_____
_____	Major Elective	3		_____	_____

**Interdisciplinary Computing Track (30 credits)#**

Note: The Interdisciplinary Computing track requires the student, with guidance from the advisor, to develop a detailed study plan prior to declaring this track. This plan must be approved by the Departmental Interdisciplinary Committee and two consulting faculty members from a second discipline prior to the final three semesters of study. It is suggested that courses in the track consist of at least 4 COMP classes and an additional MATH or COMP class. Please refer to the Interdisciplinary Track approval form for course tracking.

**Major Elective Requirements**

Major electives include courses in other tracks as well as COMP369 (Internship), COMP499 (Independent Study), and any 200, 300 or 400-level COMP course not in the core such as those listed above and COMP402 Algorithm Design and Analysis, COMP415 Structures of Programming Languages, COMP480 Special Topics, etc. .

The following courses can also count towards the major elective requirement: ART217, ART308, MANG101, MANG305, MRKT305, BIOL106, BIOL107, CHEM120, CHEM121, PHYS170, PHYS171, PHYS290, MATH142, MATH205, MATH211, MATH243, MATH244 or any 300 or 400 level MATH course aside from 316, 359, 415, 416, 493, 494.

Classes that satisfy a general education requirement cannot be used as a major elective.