

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

Effective: Fall 2017

<b>GENERAL EDUCATION REQUIREMENTS</b>	<b>42 sh</b>
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<b>INTELLECTUAL FOUNDATION</b>	<b>9 sh</b>	<b>Taken</b>	<b>Grade</b>
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**Written Communication** 3 sh

ENGL100 \_\_\_\_\_

*WC Competency 1: COMP220*  
*WC Competency 2: COMP304 or COMP405*

**Oral Communication** 3 sh \_\_\_\_\_

**Mathematical and Computational Thinking** 3 sh \_\_\_\_\_

MATH107 # \_\_\_\_\_

**Critical Thinking** \_\_\_\_\_

*CT Competency 1: COMP160*  
*CT Competency 2: COMP220*

<b>KNOWLEDGE &amp; INQUIRY</b>	<b>21 sh</b>
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**Natural Science Inquiry** (at least 1 lab science) 6 sh \_\_\_\_\_

**Historical, Behavioral, and Social Science Inquiry** 6 sh \_\_\_\_\_

**Philosophical, Literary, and Aesthetic Inquiry** 9 sh \_\_\_\_\_

*(at least 1 from Visual or Performing Arts & and  
1 from Philosophy or Literature)*

<b>PERSONAL &amp; SOCIAL RESPONSIBILITY</b>	<b>12 sh</b>
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**Global Awareness & Citizenship** (at least 1 GAC-H) 9 sh \_\_\_\_\_

**Wellness** 3 sh \_\_\_\_\_

**Experiential Learning** \_\_\_\_\_

EL Competency 1 (1 unit)  
EL Competency 2 (1 unit)  
OR Internship (1 credit = 2 units)

<b>ELECTIVES</b>	<b>18 sh</b>
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*NOTE: Either ENGL345 or ENGL360 is recommended*

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<b>NOTE: MATH COURSES MAY BE REQUIRED</b>
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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

<b>MAJOR REQUIREMENTS</b>	<b>60 sh</b>
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*A GPA of 2.0 or higher is required for graduation, both overall and in the major.*

<b>MAJOR CORE</b>	<b>30 sh</b>
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**When Taken Grade**

COMP119 Intro to Comp & Prob Solv 3 sh F \_\_\_\_\_  
*Transfer Students may substitute a major elective  
Meets FYS requirement*

COMP150 Introduction to Computers 3 sh F&S \_\_\_\_\_

COMP160 Programming I # 3 sh F&S \_\_\_\_\_  
*Prerequisite: Appropriate Math Placement/MATH112*

COMP200 Fundamentals of Networking # 3 sh S \_\_\_\_\_  
*Prerequisite: COMP150 or COMP119*

COMP202 Op Sys Concepts and Sys Admin # 3 sh F \_\_\_\_\_  
*Corequisite: COMP160*

COMP205 Web-Based Application Dev. # 3 sh S \_\_\_\_\_  
*Prerequisite: COMP160*

COMP220 Contemp Issues in Comp # 3 sh F \_\_\_\_\_  
*Prerequisite: COMP150*

COMP255 Database Design # 3 sh F \_\_\_\_\_  
*Prerequisite: COMP160 or COMP250*

COMP230 Discrete Struc & Formal Lang # 3 sh S \_\_\_\_\_  
*Prerequisite: COMP160 and MATH107*

COMP475 Senior Capstone # 3 sh S \_\_\_\_\_

<b>MAJOR TRACKS</b>	<b>30 sh</b>
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*Each student is required to complete a track within the major.*

*Current options are:*

- Mobile and Game Application Development Track*
- Networking and Cybersecurity Track*
- Data Science Track*
- Interdisciplinary Computing Track*

*Requirements for our tracks are provided on the next page.*

*Note: The # symbol indicates advanced coursework.*

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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 # ( <i>Prerequisite: COMP160</i> )	3	F	_____	_____
COMP225	Mobile Device Programming # ( <i>Prerequisite: COMP161</i> )	3	F	_____	_____
COMP240	Game Programming # ( <i>Prerequisite: COMP161</i> )	3	S	_____	_____
COMP300	Data Structures and Algorithms # ( <i>Prerequisite: COMP161</i> )	3	S	_____	_____
COMP302	C/C++ for Systems Programming # ( <i>Prerequisite: COMP161</i> )	3	F	_____	_____
COMP405	Software Engineering# ( <i>WC, Prerequisite: COMP300</i> )	3	F	_____	_____
COMP430	Computer Graphics # ( <i>Prerequisite: COMP300</i> )	3	F	_____	_____
MATH141	Calculus I # ( <i>Prerequisite: Appropriate Math Placement/MATH113</i> )	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	3	F	_____	_____
COMP305	Database Application Development # ( <i>Prerequisite: COMP255</i> )	3	S	_____	_____
MANG342	Fund of Mang Science	3	S	_____	_____
COMP325	Advanced SQL # ( <i>Prerequisite: COMP255</i> )	3	F	_____	_____
COMP340	Data Mining ( <i>Prerequisite: COMP235 and COMP255</i> )	3	S	_____	_____
COMP345	Advanced Programming for Data Analysis ( <i>Prerequisite : COMP255, COMP160 or COMP245 -Intro Prog for DS, and Math 180/141</i> )	3	F	_____	_____
COMP425	Advanced DB Architectures ( <i>Prerequisite: COMP255</i> )	3	F	_____	_____
MATH180	Math for Management # ( <i>Prerequisite: MATH107 and Appropriate Math Placement/MATH112</i> )	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 # ( <i>Prerequisite: MATH112</i> )	3	S	_____	_____
COMP308	Wireless Networking ( <i>Prerequisite : COMP200 and COMP212</i> )	3	S	_____	_____
COMP335	Advanced Networks ( <i>Prerequisite : COMP200 and COMP212</i> )	3	F	_____	_____
COMP312	Intro to Cybersecurity ( <i>WC, Prerequisite : COMP200</i> )	3	S	_____	_____
COMP435	Next Generation Networks and Services ( <i>Prerequisite : COMP200, COMP212</i> )	3	F	_____	_____
COMP407	Network Systems and Security Administration # ( <i>Prerequisite: COMP335, COMP312, COMP308</i> )	3	S	_____	_____
COMP412	Advanced Network Security # ( <i>Prerequisite: COMP335, COMP312, COMP308</i> )	3	F	_____	_____
MATH113	PreCalculus ( <i>Prerequisite: Appropriate Math Placement/MATH112</i> ) 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, 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.