College of Health, Science and Technology
Department of Mathematics, Computer Science, and Digital Forensics

Bloomsburg LOCK HAVEN MANSFIELD
COMMONWEALTH UNIVERSITY

Applied Computer Science - Data Science

Bachelor of Science (BS)

This degree map is based on the current Academic Catalog and is subject to change. Please note that the degree map is designed to give you a sense of roughly how courses might be distributed over a 4-year degree. Your exact schedule will differ depending on a range of factors though we recommend taking a minimum of 15 credits each fall and spring semester. Regular consultation with your academic advisor is the best way to make sure that you are taking the courses you need in the right order to ensure efficient progress through your degree program.

Sample 4-Year Plan

First Year			
Fall Courses	**Credits**	**Spring Courses**	**Credits**
CMSC 115 – Python Programming	3	CMSC 125 – Fundamentals of Web Development	3
STAT 141 – Intro to Statistics (Quantitative GenEd)	3	CMSC 150 – Principles of Database Design	3
COMM 101 – Public Speaking (Oral Communications General Education)	3	General Education Course (D, G, or F)	3
General Education Course – First Year Seminar	3	Writing General Education Course	3
General Education Course (D, G, or F)	3	DATS 110 – Introduction to Data Science	3
Semester Total	15	Semester Total	15

Second Year			
Fall Courses	**Credits**	**Spring Courses**	**Credits**
CMSC 120 – OOP with Java (Technology General Education)	4	DGFR 275 – Introduction to Networks	3
CMSC 215 – Advanced Python	3	DATS210 – Data Visualization	3
Natural World General Education Course	3	Natural World General Education Course	3
MATH 230 – Discrete Structures	3	DATS 320 – Data Mining	3
History General Education Course	3	General Education Course (D, G, or F)	3
Semester Total	16	Semester Total	15

Third Year			
Fall Courses	**Credits**	**Spring Courses**	**Credits**
Literature General Education Course	3	DATS410 – Machine Learning	3
Arts or Creative General Education	3	Data Science Track Elective	3
DATS 310 -Databases for Big Data	3	STAT 240 – Statistical Methods	3
CMSC 320 – Computer Ethics Social Impact and Security	3	Elective	3
CMSC 325 – Advanced SQL	3	Critical Reasoning General Education Course	3
Semester Total	15	Semester Total	15

Fourth Year			
Fall Courses	**Credits**	**Spring Courses**	**Credits**
DATS 420 – Advanced Data Science	3	CMSC 485 – Senior Capstone	3
Elective	3	Elective	3
Data Science Track Elective	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	2
Semester Total	15	Semester Total	14

Winter/Summer College - Optional

While not required, Winter and Summer sessions are offered each year and may help you stay on track or get ahead. You may take up to seven (7) credits during Winter College and up to 14 credits during Summer College.

Revised Mar 2025

Applied Computer Science - Data Science

Bloomsburg LOCK HAVEN MANSFIELD
COMMONWEALTH UNIVERSITY

Curriculum Checklist

Core Courses (28 credits) – All Tracks

___ CMSC 120 – Objected-Oriented Programming with Java (4)
___ CMSC 125 – Fundamentals of Web Development (3)
___ CMSC 150 – Principles of Database Design (3)
___ DGFR 275 – Introduction to Networks (3)*
___ CMSC 310 – Software Development Methods (3)*
___ CMSC 320 – Computer Ethics, Social Impact & Security (3)*
___ CMSC 485 – Senior Capstone (3)*
___ STAT 141 – Introduction to statistics (3)
___ MATH 230 – Discrete Structures (3)*

Data Science Track Requirements (33 credits)

___ DATS 110 – Introduction to Data Science (3)
___ CMSC 115 – Python Programming (3)
___ CMSC 215 – Advanced Python (3)*
___ DATS 210 – Data Visualization (3)
___ DATS 310 – Databases for Big Data (3)*
___ DATS 320 – Data Mining (3)*
___ DATS 410 – Machine Learning (3)*
___ DATS 420 – Advanced Data Science (3)*
___ STAT 240 - Statistical Methods (3)*
___ Elective - Any STAT, CMSC or DATS course numbers 200 or above (3)
___ Elective – Any STAT, CMSC or DATS course numbers 200 or above (3)

*Denotes advanced coursework
Students must take a minimum of 42 credits of advanced coursework. Advanced coursework can be met in major courses, minor courses, free elective courses, and general education courses. Courses that meet this requirement are designated in Banner.

General Education Requirements (45 credits)

Note: Some requirements may be fulfilled by coursework in your major program including directed Gen Ed courses noted below

Note: Applied Computer Science students are required to take a class from each Ethical Reasoning (E) and Critical Reasoning (R) as part of their general education program.

- Foundations (15 credits)
  - STAT 141 Introduction to Statistics (3)
  - COMM 101 Public Speaking (3)
- Interconnections (9 credits)
- Citizenship & Responsibility
  (6 credits from at least two goals)
- Natural World & Technologies (9 credits)
  - CMSC 120 – OOP with Java (4)
- Creativity & Expression (6 credits)

Degree Requirements

All students must obtain a minimum of 120 credits, (a minimum of 42 credits must be advanced coursework), complete all General Education requirements, and all requirements for the selected major. Meet with your advisor and consult Degree Works to monitor your progress and for all graduation requirements.

A minimum GPA of 2.0 in the major and overall are required.