College of Health, Science, and Technology
Department of Physical and Environmental Sciences: Biochemistry, Chemistry, Engineering, Geography, Geology, and Physics

Bloomsburg   LOCK HAVEN   MANSFIELD

COMMONWEALTH UNIVERSITY

ENVIRONMENTAL, GEOGRAPHICAL & GEOLOGICAL SCIENCES: GIS & SPATIAL ANALYSIS

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**
EGGS 120 – Physical Geology	4	EGGS 242 – Mapping and GIS Fundamentals	3
Core Requirements – Choose 1 (EGGS 100/105/140)	3	Core Requirements – Choose 1 (EGGS 102/104)	3
EGGS 160 – Digital Earth	3	General Education	3
General Education	3	General Education	3
General Education	3	General Education	3
Semester Total	16	Semester Total	15

Second Year			
Fall Courses	**Credits**	**Spring Courses**	**Credits**
EGGS 360 – Principles of GIS I	3	CMSC 150 – Principles of Database Design	3
CMSC 115 – Python Programming	3	CMSC 215 – Advanced Python	3
STAT 141 – Introduction to Statistics	3	Ethics Requirement – Choose 1	3
General Education	3	General Education	3
General Education	3	General Education	3
Semester Total	15	Semester Total	15

Third Year			
Fall Courses	**Credits**	**Spring Courses**	**Credits**
EGGS 381 – Programming in GIS	3	EGGS 361 – Principles of GIS II	3
EGGS 325 – UAV Applications	3	EGGS 364 – Digital Cartography	3
Technical Elective A (Choose 1)	3	Technical Elective B (Choose 1)	3
General Education	3	General Education	3
General Education	3	General Education	3
Semester Total	15	Semester Total	15

Fourth Year			
Fall Courses	**Credits**	**Spring Courses**	**Credits**
EGGS 320 – Remote Sensing	3	EGGS 492 – EGGS Capstone Seminar	3
EGGS 440 – Advanced Topics in GIS	3	EGGS 498 – EGGS Internship (9-12 credits)	11
Degree Elective (Choose 2)	3		
Optional Elective/General Education	3		
Degree Elective (Choose 2)	3		
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.

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Curriculum Checklist

Total of 60 credits excluding Directed General Ed
Core Requirements (6 credits)

Required
___ EGGS 120 Physical Geology* (4)
___ EGGS 242 Mapping and GIS Fundamentals (3)

Choose 1
___ EGGS 100 Environmental Sciences (3)
___ EGGS 105 Environmental Issues and Choices (3)
___ EGGS 140 Environmental Sustainability (3)

Choose 1 (Global Perspectives)
___ EGGS 102 World Cultural Geography* (3)
___ EGGS 104 World Regional Geography* (3)

Ethics Requirement (Choose 1): (0 Credits)
___ PHIL 203 Business Ethics (3)
___ PHIL 302 Ethics (3)*
___ PHIL 204 Environmental Ethics (3)

Math Requirement: (0 Credits)*
___ STAT 141 Introduction to Statistics (3)

Spatial Analysis Requirements: (24 Credits)
___ EGGS 160 Digital Earth (3)
___ EGGS 320 Remote Sensing of the Earth (3)*
___ EGGS 325 UAV Applications (3)*
___ EGGS 360 Principles of GIS 1 (3)*
___ EGGS 361 Principles of GIS 2 (3)*
___ EGGS 364 Digital Cartography (3)*
___ EGGS 381 Programming in GIS (3)*
___ EGGS 440 Advanced Topics in GIS (3)*

Technical Requirements: (12 credits)
Required
___ CMSC 115 Python Programming* (3)
___ CMSC 150 Principles of Database Design (3)
___ CMSC 215 Advanced Python (3)

Choose 1
___ CMSC 125 Fundamentals of Web Development (3)
___ INDT 470 Introduction to Website Development (3)*

Choose 1
___ CMSC 120 Object-Oriented Programming with Java (4)
___ CMSC 155 Introduction to JavaScript (3)
___ DATS 275 Introduction to Networks (3)
___ ENGT 180 Computer Aided Design and Eng. Graphics (3)
___ GRDS 200 (Introduction to Graphic Design (3)

Degree Electives: (Choose at least 2, 6 credits)
Geospatial Concentration Course Options
___ CMSC 225 Advanced JavaScript (3)
___ DATS 210 Data Visualization (3)
___ DATS 310 Databases for Big Data (3)*
___ GRDS 202 Typography and Logo Design (3)
___ GRDS 378 Web and Social Media Design (3)*
___ ARVR 200 Introduction to Virtual and Augmented Reality (3)

Environmental & Demographic Analysis Course Options
___ CRJ/EGGS 370 GIS for the Social Sciences (3)*
___ EGGS 221 Economic Geography (3)
___ EGGS 250 Elements of Planning (3)
___ EGGS 275 Introduction to Surveying (3)
___ EGGS 342 Geostatistics (3)*
___ EGGS 410 GIS for Environmental Research (3)*

Computer Science Course Options
___ CMSC 130 Graphical User Interfaces in Java (4)
___ CMSC 230 Advanced Java (4)
___ CMSC 345 Mobile Device Application Development (3)*

Major Capstone (12+ credits)
___ EGGS 492 EGGS Internship Capstone Seminar (3)*
___ EGGS 498 Internship in EGGS (9-12)*

General Education Requirements
(45 credits)

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

- Foundations (15 credits)
  - FYS100 First Year Seminar
  - STAT 141 Introduction to Statistics (Q)
  - Written Communication
  - History
  - Oral Communication
- Interconnections (9 credits)
  - Global Perspectives
  - Diversity
  - Foreign Language
- Citizenship & Responsibility (6 credits from at least two goals)
  - Ethical Reasoning
  - Critical Reasoning
  - Citizenship
- Natural World & Technologies (9 credits)
  - Technologies
  - Natural World
- Creativity & Expression (6 credits)
  - Creativity
  - Arts
  - Literature

*Counts as General Education Credit

( )*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.

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.