College of Health, Science and Technology
Department of Biological and Health Sciences

Bloomsburg LOCK HAVEN MANSFIELD
COMMONWEALTH UNIVERSITY

MEDICAL GENOMICS AND COUNSELING

Bachelor of Science (BS) – Biomedical Sciences

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**
BIOL 110 Principles of Biology 1	4	BIOL 111 Principles of Biology 2	4
CHEM 121 General Chemistry 1	4	CHEM 122 General Chemistry 2	4
MATH 118 College Algebra or MATH 140 Pre-Calculus or MATH 150 Essentials of Calculus	3	WRIT 103 Foundations in Composition	3
FYS 100 First Year Seminar	3	PSYC 100 Introduction to Psychology	3
Semester Total	14	Semester Total	14

Second Year			
Fall Courses	**Credits**	**Spring Courses**	**Credits**
BIOL 180 Anatomy & Physiology 1	4	BIOL 181 Anatomy & Physiology 2	4
BIOL 208 Human Genetics	3	BIOL 211 Cell Biology	4
STAT 141 Introduction to Statistics	3	PSYC 212 Lifespan Development	3
PHIL 205 Medical Ethics	3	General Education	3
General Education	3		
Semester Total	16	Semester Total	14

Third Year			
Fall Courses	**Credits**	**Spring Courses**	**Credits**
BIOL 209 Genetics	3	BIOL 466 Bioinformatics	3
BIOL 210 Genetics Lab	1	CHEM 231 Condensed Organic Chemistry	4
BIOL 340 Microbiology	4	BIOL 310 Biomedical Sciences Seminar	1
General Education	3	General Education	3
General Education	3	General Education	3
Semester Total	17	Semester Total	14

Fourth Year			
Fall Courses	**Credits**	**Spring Courses**	**Credits**
BIOL 465 Medical Genomics	3	BIOL 443 Molecular Biology	3
CHEM 351 Biochemistry	4	Biology elective	3
BIOL 493 Research or BIOL 498 Internship	3	Biology elective	3
Biology Elective	3	Free Elective	3
Free Elective	3	Free Elective	3
Semester Total	16	Semester Total	15

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

Biology Core Requirements (41 credits)

___ BIOL 110 Principles of Biology 1 (4)
___ BIOL 111 Principles of Biology 2 (4)
___ BIOL 180 Anatomy and Physiology 1 (4)
___ BIOL 181 Anatomy and Physiology 2 (4)
___ BIOL 208 Human Genetics (3)*
___ BIOL 209 Genetics (3)*
___ BIOL 210 Genetics Laboratory (1)*
___ BIOL 211 Cell Biology (4)*
___ BIOL 310 Biomedical Sci Seminar (1)*
___ BIOL 340 Microbiology (4)*
___ BIOL 443 Molecular Biology (3)*
___ BIOL 465 Medical Genomics (3)*
___ BIOL 466 Bioinformatics (3)*

Related Core Requirements (31 credits)

___ CHEM 121 General Chemistry 1 (4)^
___ CHEM 122 General Chemistry 2 (4)*
___ CHEM 231 Condensed Organic Chemistry (4)*
___ CHEM 351 Biochemistry (4)*
___ MATH 118 College Algebra (3)
(MATH 120, MATH 140^, OR MATH 150^ can be substituted for MATH118)
___ STAT 141 Introduction to Statistics (3)
___ PHIL 205 Medical Ethics (3)
___ PSYC 101 Introduction to Psychology (3)
___ PSYC 212 Lifespan Development (3)

^ Enrollment in course is contingent on an ALEKS math placement score >61 or successful completion of MATH118 College Algebra with a grade of C or better. Note: Progression through the sequence of all chemistry courses requires achievement of a minimum grade of C in pre-requisite courses.

Electives (9 credits)

At least 3 credits each from Block A and B required, remaining credits can be selected from any block.

BLOCK A Physiology Courses

___ BIOL 474 Human Physiology (3)*
___ BIOL 475 Animal Cell Physiology (3)*
___ BIOL 476 Neurophysiology (3)*
___ BIOL 477 Plant Physiology (3)*
___ BIOL 479 Comparative Animal Physio (3)*

BLOCK B Practical Application

___ BIOL 493 Independent Research (1-6 crs)*
___ BIOL 498 Internship in Biology (3-6 crs)*

BLOCK C Free Elective

___ BIOL 206 Botany (3)*
___ BIOL 207 Zoology (3)
___ BIOL 213 Intro to Parasitology (3)
___ BIOL 215 Investigations in Genetics and Molecular Biology
___ BIOL 301 Ecology (4)*
___ BIOL 314 Comparative Bio of Inverts (3)*
___ BIOL 315 Comparative Vert. Anat. (3)*
___ BIOL 316 Vertebrate Histology (3)*
___ BIOL 337 Basic Virology (3)*
___ BIOL 354 Medical Microbiology (3)*
___ BIOL 350 Plant Pathology (3)*
___ BIOL 400 Dendrology (3)*
___ BIOL 401 Entomology (3)*
___ BIOL 430 Evolution (3)*
___ BIOL 431 Mycology (3)*
___ BIOL 432 Ornithology (3)*
___ BIOL 433 Ichthyology (3)*
___ BIOL 434 Herpetology (3)*
___ BIOL 435 Conservation Genetics (3)*
___ BIOL 442 Advanced Virology (3)*
___ BIOL 444 Molecular Biology lab (1)*
___ BIOL 445 Pharmacology (3)*
___ BIOL 446 Immunology (3)*
___ BIOL 447 Immunology Lab (1)*
___ BIOL 448 Advanced Parasitology (3)*
___ BIOL 450 Developmental Biology (3)*

BLOCK C Free Elective cont.

___ BIOL 451 Conservation Biology (3)*
___ BIOL 452 Freshwater Ecology (3)*
___ BIOL 453 Freshwater Entomology (3)*
___ BIOL 454 Algae of Freshwater Eco (3)*
___ BIOL 455 Community Ecology (3)*
___ BIOL 456 Enviro Toxicology (3)*
___ BIOL 461 Animal Behavior (3)*
___ BIOL 462 Cancer Biology (3)*
___ BIOL 470 Tissue Culture (1)*
___ BIOL 480 Integrated Physiology lab (1)*
___ BIOL 485 Senior Seminar (1)*
___ BIOL 486 Analysis & Comm of Bio Data (3)*
___ BIOL 489 Special Topics in Biology (3)*

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)
  - STAT 141 (3)
- Interconnections (9 credits)
- Citizenship & Responsibility
  (6 credits from at least two goals)
  - Directed Gen Ed, if applicable
- Natural World & Technologies (9 credits)
  - BIOL 110 Principles of Biology 1 (4)
  - BIOL 180 Anatomy and Physiology 1 (4)
  - CHEM 121 General Chemistry 1 (4)
- Creativity & Expression (6 credits)

Degree Requirements

All students must obtain a minimum of 120 credits (A minimum of 42 credits must be advanced course work), 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.

*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.