Bachelor of Science in Biology

Howard University

College of Arts & Sciences

Catalog: Fall 2023 – Present

Quick Summary - What You Need to Graduate

Total Credits	Minimum GPA	Biology Credits	Last 30 Credits
120	2.0	35	At Howard

Your Degree Breakdown:

- Major Requirements: 35 Biology credits (approximately 12 courses)
- General Education: 30 credits (approximately 15 courses)
- Chemistry: 19 credits (7 courses)
- Physics: 10 credits (2-4 courses)
- Math Requirements: 4-8 credits (2 courses)
- Free Electives: Remaining credits to reach 120 (varies by track)
- Complete all 7 ELOs (can overlap with courses)
- COAS Experiential (1 course) & COAS Innovative Learning (1 course)
- Undergraduate Comprehensive Exam

Important: Double-Dipping Made Simple!

One course can fulfill BOTH a General Education requirement AND an Essential Learning Outcome (ELO) at the same time. You don't need separate courses for each! This helps you graduate efficiently without taking extra classes.

Major credits **cannot** be double dipped with minor credits. While students are not required to declare a minor, those who choose to do so must complete **15–18 credits that are not applied toward their major requirements**. Minor coursework must remain distinct and separate from major coursework.

University-Wide Requirements

- **Minimum GPA:** 2.0 for all undergraduate coursework
- **Residency:** Complete last 30 credits at Howard University
- **Exit Requirement:** Undergraduate Comprehensive Exam
- **Total Credits:** 120 credits required

General Education Requirements (30 Credits / ~15 Courses)

Essential Learning Outcomes (ELOs)

Students must complete courses covering all seven outcome areas. Remember, these can overlap with other requirements!

- **ELO 1:** U.S. and Global African Diasporic Developments
- **ELO 2:** Human Cultures and Creative Expression
- **ELO 3:** The Physical and Natural World
- **ELO 4:** Intellectual and Practical Skills
- **ELO 5:** Social Responsibility and Political Institutions
- **ELO 6:** Leadership and Applied Learning
- **ELO 7:** Comprehensive Wellness Practices

Note: ELO courses are tagged in Bison Hub under the course description

Freshman Experience (1 Credit / 1 Course)

- **FRSM 001 -** Freshman Seminar (1 credit)

Core Writing & Communication (12 Credits / 4 Courses)

4 courses needed (each 3 credits)

- **ENGW 101, 102, or 104 -** First-Year English Writing I (3 credits)
- **ENGW 103 or 105 -** First-Year English Writing II (3 credits)
- **Third Writing Course -** Upper-level writing (3 credits)
- **Principles of Speech (AS) -** (3 credits)

Health & Wellness (2 Credits / 1 Course)

- **HHPL Courses -** Health, Human Performance, and Leisure (2 credits)

Cultural and Global Awareness (12 Credits / 4 Courses)

- **African American Cluster Course -** 1 course (3 credits)
- **Foreign Language -** 3 courses (9 credits total, same language)

Humanities & Social Sciences (12 Credits / 4 Courses)

- **Two Humanities Courses -** 2 courses (3 credits each)
- **Two Social Science Courses -** 2 courses (3 credits each)

Mathematics Requirements (4-8 Credits / 2 Courses)

Required Course (1 course):

- **MATH 007 -** Pre-Calculus (4 credits)

Required, Choose ONE Additional Math Course (1 course):

- **MATH 009 -** (4 credits)
- **MATH 156 -** Calculus (4 credits)
- **BIOL 430 -** Biostatistics (4 credits)

Recommended: MATH 156 (Calculus) is recommended prior to taking Organic Chemistry.

COAS Special Requirements

Experiential Learning (1 course required)

Examples of COAS Experiential Learning Course but are not limited to:

- Biology 390
- Any 890 course
- Study abroad

Innovative Learning Requirement (1 course required)

- Complete at least one course marked as 'innovative'

Note: COAS Special Requirements courses are tagged in Bison Hub under the course description

Chemistry Requirements (19 Credits / 7 Courses)

General Chemistry Sequence (10 Credits / 4 Courses)

- **CHEM 003 -** General Chemistry I (4 credits)
- **CHEM 005 -** General Chemistry Lab I (1 credit)
- **CHEM 004 -** General Chemistry II (4 credits)
- **CHEM 006 -** General Chemistry Lab II (1 credit)

Organic Chemistry Sequence (9 Credits / 3 Courses)

- **CHEM 141 -** Organic Chemistry I (3 credits)
- **CHEM 142 -** Organic Chemistry II (3 credits)
- **CHEM 145 -** Organic Chemistry Lab (3 credits)

Important: Chemistry Sequence must be taken in order - General Chemistry before Organic Chemistry. If students declare Chemistry as a minor, a 2.0 minimum GPA is required to graduate.

Physics Requirements (8-10 Credits / 2-4 Courses)

- **PHYS 001 -** Physics I (5 credits) or PHYS 013 & PHYS 023 (4 credits)
- **PHYS 002 -** Physics II (5 credits) or PHYS 014 & PHYS 024 (4 credits)

Total Biology Major Requirements (35 Credits / ~10-12 Courses)

Foundation Courses (13 Credits / 4 Courses)

Required for all Biology students

- **BIOL 101 -** General Biology I (Lecture & Lab) (4 credits)
- **BIOL 102 -** General Biology II (4 credits)
- **BIOL 200 -** Genetics (Lecture & Lab) (4 credits)
- **BIOL 493/494 -** Senior Seminar (Required in final year) (1 credit)

Additional Biology Requirements and Electives (22 Credits / ~6-7 Courses)

Important: Must have at least one 3 or 4 credit courses in each of the following concentrations:

- Anatomy & Physiology
- Cellular & Molecular
- Ecology and Evolution

Prerequisites: Most upper-level Biology courses require completion of BIOL 101, 102, and 200.

Free Electives

Remaining credits to reach 120 total (varies based on math track and elective choices)

Sample Degree Progress Checklist

Always consult with your academic advisor for personalized guidance

Freshman Year (35 Credits)

Fall Semester

- ☐ FRSM 001 - Freshman Seminar (1 credit)
- ☐ ENGW 101/102/104 - First-Year Writing I (3 credits)
- ☐ BIOL 101 - General Biology I (4 credits)
- ☐ CHEM 003 - General Chemistry I (4 credits)
- ☐ Chem 005 - General Chem Lab (1 credit)
- ☐ MATH 007 - Pre-Calculus (4 credits)

Fall Total: 17 credits |

Spring Semester

- ☐ ENGW 103/105 - First-Year Writing II (3 credits)
- ☐ BIOL 102 - General Biology II (4 credits)
- ☐ CHEM 004 - General Chemistry II (4 credits)
- ☐ CHEM - 006 - General Chemistry II Lab (1 credit)
- ☐ MATH 156 - Calculus OR MATH 009 (4 credits) - Recommended before Organic Chem
- ☐ HHPL course (2 credit)

Spring Total: 18 credits |

Sophomore Year (30-32 Credits)

Fall Semester

- ☐ BIOL 200 - Genetics (4 credits)
- ☐ CHEM 141 - Organic Chemistry I (3 credits)
- ☐ Foreign Language I (3 credits)
- ☐ Humanities Course (3 credits)
- ☐ Social Science Course (3 credits)

Fall Total: 16 credits | High-Demand Courses: 2 (Genetics, Organic Chem)

Spring Semester

- ☐ CHEM 142 - Organic Chemistry II (3 credits)
- ☐ CHEM 145 - Organic Chemistry Lab (3 credits)
- ☐ Biology Elective (3-4 credits)
- ☐ Foreign Language II (3 credits)
- ☐ Third Writing Course (3 credits)

Spring Total: 15-16 credits | High-Demand Courses: 3 (Bio Elective, Organic Chem, Lab)

Junior Year (31-33 Credits)

Fall Semester

- ☐ PHYS 001 - Physics I (5 credits)
- ☐ Foreign Language III (3 credits)
- ☐ Biology Elective (3-4 credits)

- ☐ Humanities Course (3 credits)

Fall Total: 15-16 credits | High-Demand Courses: 2 (Physics, Bio Elective)

Spring Semester

- ☐ PHYS 002 - Physics II (5 credits)
- ☐ Biology Elective (3-4 credits)
- ☐ Principles of Speech (3 credits)
- ☐ Social Science Course (3 credits)

Spring Total: 14-15 credits | High-Demand Courses: 2 (Physics, Bio Elective)

Senior Year (26-28 Credits)

Fall Semester

- ☐ Biology Electives (6-8 credits) 2 courses
- ☐ African American Cluster Course (3 credits)
- ☐ COAS Experiential Learning (if not completed)
- ☐ COAS Innovative Learning (if not completed)
- ☐ Free Electives as needed to reach 120 credits
- ☐ Take Undergraduate Comprehensive Exam

Fall Total: 14-16 credits | High-Demand Courses: 2 (Bio Electives)

Spring Semester

- ☐ BIOL 493/494 - Senior Seminar (1 credit)
- ☐ Biology Electives (3-4 credits) - complete 22-credit requirement
- ☐ Free Electives as needed to reach 120 credits
- ☐ Apply for graduation

Spring Total: 12-14 credits | High-Demand Courses: 1 (Bio Electives)

Key Requirements Summary

- **Minimum Overall GPA:** 2.0
- **Credits in Biology:** 35 minimum
- **Residency:** Last 30 credits at Howard University
- **Laboratory Science:** Extensive lab requirements in Biology, Chemistry, and Physics

Important Notes for Success

- **Science Course Load:** Biology majors take a rigorous science curriculum. Plan your schedule carefully to balance lab courses.
- **Prerequisites:** Most upper-level Biology courses require completion of BIOL 101, 102, and 200.
- **Biology Electives:** Must have a 3 or 4 credit course in each concentration: Anatomy & Physiology, Cellular & Molecular, Ecology and Evolution. Additional Biology electives are required to meet the minimum of 22 elective credits.
- **Chemistry Sequence:** Must be taken in order - General Chemistry before Organic Chemistry.
- **Math Track:** MATH 156 (Calculus) is recommended prior to taking Organic Chemistry.

- **Experiential Learning:** Can often be satisfied through Bio 390, 890 courses, internships, etc. Please speak with your advisor for all options.
- **ELO Requirements:** Many built in general electives will automatically satisfy ELO requirements.
- **Advisor Consultation:** Consult with your academic advisor each semester for course planning.
- **Scholarship Requirements:** Students are required to successfuly pass a minimum of 15 credits each semester. There is an exception for students in their final term to take less than 15 credits and still be awarded their scholarship.
- **Freshman** 0-29 completed credits
- **Sophomore**: 30-59 completed credits
- **Junior:** 60-89 completed credits
- **Senior:** 90 or more completed credits

Resources & Support

- **Academic Advisor:** Contact Office of Undergraduate Studies for assignment
- **Department Office:** Biology Department, College of Arts & Sciences
- **Pre-Health Advising:** Available for students interested in medical/dental/veterinary school. Pre-Professional website.
- **Research Opportunities:** Speak with faculty about laboratory research positions