Bachelor of Science in Chemistry

Howard University

College of Arts & Sciences

Catalog: Fall 2023 – Present

Quick Summary - What You Need to Graduate

Total Credits	Minimum GPA	Chemistry Credits	Last 30 Credits
120	2.0	45	At Howard

Your Degree Breakdown:

- ☐ Major Requirements:45 credits (approximately 17 courses)
- ☐ General Education: 30 credits (approximately 15 courses)
- ☐ Physics: 10 credits (2-4 courses)
- ☐ Math Requirements: 16 credits (4 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 (9 Credits / 3 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)
- ☐ **Principles of Speech (AS) -** (3 credits)

Health & Wellness (2 Credits / 2 Courses)

2 courses needed (each 1 credit)

- ☐ **Two HHPL Courses -** Health, Human Performance, and Leisure (1 credit each)

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)
    - 3 credits can be an intercultural knowledge

Humanities & Social Sciences (9 Credits / 3 Courses)

- ☐ **Any 3 courses**

Mathematics Requirements (16 Credits / 4 Courses)

- ☐ **MATH 007 –** Pre-Calculus (4 credits)
- ☐ **MATH 156 -** Calculus (4 credits)
- ☐ **Math 157 -** Calculus II (4 credits)
- ☐ **Math 158 -** Calculus III (4 credits)

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)

Free Electives

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

COAS Special Requirements

Experiential Learning (1 course required)

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

- ☐ Any 890 course
- ☐ Internships
- ☐ 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

Total Chemistry Major Requirements (45 Credits / ~17 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)
- **CHEM 141 -** Organic Chemistry I (3 credits)
- **CHEM 142 -** Organic Chemistry II (3 credits)
- **CHEM 145 -** Organic Chemistry Lab (3 credits)
- **CHEM 151 -** Biochemistry I
- **CHEM122 -** Analytical Chemistry
- **CHEM 123 -** Analytical Chemistry Lab
- **CHEM 126 -** Instrumental Methods of Analysis
- **CHEM 127 -** Instrumental Methods of Analysis Lab
- **CHEM 171 -** Physical Chemistry Lecture I
- **CHEM 172 -** Physical Chemistry Lecture II
- **CHEM 173 -** Physical Chemistry Lab
- **CHEM 174 -** Physical Chemistry Lab II
- **CHEM 101 -** Inorganic Chemistry

Always consult with your academic advisor for personalized guidance.

Sample Degree Progress Checklist

Always consult with your academic advisor for personalized guidance

Freshman Year (34 Credits)

Fall Semester (16 Credits)

FRSM 001 – Freshman Seminar (1 credit)
ENGW 101/102/104 – First-Year Writing I (3 credits)
CHEM 003 – General Chemistry I (3 credits)
CHEM 005 – General Chemistry Lab I (1 credit)
MATH 007 – Pre-Calculus (4 credits)
Foreign Language I (3 credits)
One HHPL course (1 credit)

Spring Semester (18 Credits)

ENGW 103/105 – First-Year Writing II (3 credits)
CHEM 004 – General Chemistry II (3 credits)
CHEM 006 – General Chemistry Lab II (1 credit)
MATH 156 – Calculus I (4 credits)
Foreign Language II (3 credits)
Humanities/Social Science Course (3 credits)
One HHPL course (1 credit)

Sophomore Year (33 Credits)

Fall Semester (18 Credits)

CHEM 141 – Organic Chemistry I (3 credits)
MATH 157 – Calculus II (4 credits)
Physics I – Lecture & Lab (5 credits)
Foreign Language III (3 credits)
Humanities/Social Science Course (3 credits)

Spring Semester (15 Credits)

CHEM 142 – Organic Chemistry II (3 credits)
CHEM 145 – Organic Chemistry Lab (3 credits)
MATH 158 – Calculus III (4 credits)
Physics II – Lecture & Lab (5 credits)

Junior Year (31 Credits)

Fall Semester (15 Credits)

CHEM 171 – Physical Chemistry Lecture I (3 credits)
CHEM 173 – Physical Chemistry Lab (2 credits)
CHEM 122 – Analytical Chemistry (3 credits)
CHEM 123 – Analytical Chemistry Lab (1 credit)
SLMC 101 – Principles of Speech (3 credits)
Humanities/Social Science Course (3 credits)

Spring Semester (15 Credits)

CHEM 172 – Physical Chemistry Lecture II (3 credits)
CHEM 174 – Physical Chemistry Lab II (2 credits)
CHEM 126 – Instrumental Methods of Analysis (3 credits)
CHEM 127 – Instrumental Methods of Analysis Lab (1 credit)
CHEM 151 – Biochemistry I (3 credits)
Free Elective (3 credits)

Senior Year (24 Credits)

Fall Semester (12 Credits)

CHEM 101 – Inorganic Chemistry Lecture (3 credits)
African American Cluster Course (3 credits)
COAS Experiential Learning (if not completed)
Free Electives (6 credits)
Take Undergraduate Comprehensive Exam

Spring Semester (9-12 Credits)

Free Electives To reach 120
Complete any remaining ELO requirements
Apply for graduation

Key Requirements Summary

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

Important Notes for Success

- **Experiential Learning:** Can often be satisfied through 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 successfully 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:** Chemistry 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