Biological Sciences: Cell Biology and Genetics CEBG (0404A)

A minimum of 120 credits earned, and a 2.0 cumulative GPA is needed to meet University graduation requirements. Major courses (Basic, Supporting, and Advanced) require a C- or better in each and a 2.0 average GPA.

Basic Program: 14-16 credits

Credits	Basic Program Courses
3	BSCI160 Ecology and Evolution [1]
3	BSCI170 Molecular and Cellular Biology [1]
1-2	BSCI180 Principles of Biology Lab [1] **OR** BSCI161 **AND** BSCI171 [1]
3	BSCI207 Organismal Biology [2]
4	BSCI222 Principles of Genetics [2, 3]
1-2	CMNS100 [4] **OR** UNIV100 **OR** HLSC100 **OR** HACS100 **OR** HDCC105 **OR** HHUM105

Supporting Courses: 32 credits

Credits	Supporting Courses
3	CHEM131 General Chemistry I Lecture [1]
1	CHEM132 General Chemistry I Lab [1]
3	CHEM231 Organic Chemistry I Lecture [1]
1	CHEM232 Organic Chemistry I Lab [1]
3	CHEM241 Organic Chemistry II Lecture [2]
1	CHEM242 Organic Chemistry II Lab [2]
2	CHEM271 General Chemistry II Lecture [2]
2	CHEM272 General Chemistry II Lab [2]
8	MATH135 Discrete Mathematics [1] (4) **AND** MATH136 **OR** MATH140 Calculus [2] (4)
	OR MATH140 Calculus I [1] (4) **AND** MATH141 Calculus II [2] (4)
4	PHYS131 Physics I
4	PHYS132 Physics II

General Education Requirements: 40 credits minimum

For more information on General Education visit gened.umd.edu. Courses may double or triple count among DS, SC, and DV.

Fundamental Studies (FS)	Course
Math (MA)	MATH135 **OR** 140
Analytic Reasoning (AR)	MATH135 **OR** 140
Natural Sciences (NS)	BSCI160 **OR** 170
Natural Sciences Lab (NL)	BSCI180 w/ BSCI160 **OR** 170
Academic Writing (AW)	
Professional Writing (PW)	
Oral Communication (OC)	

Distributive Studies (DS)	Course
History and Social Sciences (HS)	
History and Social Sciences (HS)	
Humanities (HU)	
Humanities (HU)	
Scholarship in Practice (SP) [5]	
Scholarship in Practice (SP) out of major	

Signature Courses (SC)	Course
Big Question (IS) [5]	
Big Question (IS)	

Diversity (DV)	Course
Understanding Plural Societies (UP)	
DVUP **OR** Cultural Competence (CC)	

Cell Biology and Genetics (CEBG) Advanced Program: 27 credits minimum

A minimum of 27 credits including at least:

- 16 credits of required courses
- Eight credits of area courses
- Three credits of enrichment
- Two courses designated as **Lab**

Please see page two for a list of specific courses and other details.

NOTE: The curriculum in Biological Sciences changes as our faculty improve the program. Any questions can be referred to your academic advisor or the Undergraduate Academic Programs Office by emailing BSCIque@umd.edu or calling 301-405-6892.

[1] Part of Benchmark One, see bsci.umd.edu/benchmarks
[2] Part of Benchmark Two, see bsci.umd.edu/benchmarks
[3] Students in ILS Honors should take HLSC322 instead of BSCI222.
[4] All BSCI majors must take CMNS100 or another approved freshman seminar during their first semester.
[5] Some BSCI courses have been approved to fulfill this Gen Ed requirement. See page 2 for details.

Cell Biology and Genetics (0404A) Advanced Program

27 credits, including two courses designated as **Lab**[6].

Required Courses: 16 credits

Credits	Required Courses
3	BCHM461 Biochemistry I
3	BCHM462 Biochemistry II
3	BSCI331 Cell Biology & Physiology
1	BSCI332 Cell Biology & Physiology **Lab** [7]
3	BSCI410 Molecular Genetics
3	BSCI420 Cell Biology Lectures

Area Courses: 8 credits

Including at least one (3 credits) from the Cell Biology group and one (3 credits) from the Genetics Group.

Cell Biology Course Group

Credits	Cell Biology Area Courses
3	BSCI343 Cellular Mechanisms of Aging and Disease
3	BSCI353 Cellular and Molecular Neuroscience
3	BSCI404 Cell Biology from a Biophysical Perspective
3	BSCI406 Membranes and Biological Interfaces
3	BSCI417 Microbial Pathogenesis
3	BSCI422 Principles of Immunology
2	BSCI423 Immunology **Lab** [7]
3	BSCI430 Developmental Biology
3	BSCI432 Systems View of Cell Biology
3	BSCI433 Biology of Cancer
3	BSCI436 RNA Biology and Therapeutics
4	BSCI442 Plant Physiology w/ **Lab**
3	BSCI443 Microbial Physiology
4	BSCI455 Neuroscience **Lab** [7] (DSSP)

Optional Statistics Courses (no more than one)

Credits	Statistics Area Courses
3	BIOM301 Introduction to Biometrics
3	STAT400 Applied Probability & Statistics
3	STAT464 Introduction to Biostatistics

Genetics Course Group

Credits	Genetics Area Courses
3	BSCI381 Molecular Neuroethology
3	BSCI382 Forensic Genetics
3	BSCI405 Pop. and Evol. Genetics w/ **Lab**
4	BSCI411 Bioinformatics & Genomics w/ **Lab**
4	BSCI412 Microbial Genetics w/ **Lab**
3	BSCI414 Recombinant DNA **Lab**
3	BSCI415 Molecular Genetics **Lab**
3	BSCI416 Human Genetics (DSSP)
3	BCHM465 Biochemistry III

Optional Additional Courses

Credits	Additional CEBG Area courses
4	BSCI223 General Microbiology [8] (SCIS) **OR** BSCI283 Princip. of Microbiology [8] (SCIS)
4	BSCI374 Math. Modeling in Biol w/ **Lab**
2	BSCI425 Advanced Cell Biol Practices **Lab** [7]
2	BSCI427 Principles of Microscopy
4	BSCI435 Quant. and Comp. Biology w/ **Lab**
3	BSCI437 General Virology
3	BCHM464 Biochemistry **Lab**
Var	BSCI328, 338, 339, 348, 439 Spec. Top. Courses [9]
1	BSCI378H, BSCI398H Dept Honors Seminars [10]

Enrichment: 3 credits

- **Three credits from *any* 300- or 400-level BSCI, CHEM, or BCHM course.** Area courses may be used to fulfill Enrichment if they are not used to satisfy the area credit requirement. Courses counted as Enrichment do not satisfy the **Lab** requirement.
- Three credits[10] of BSCI349 (Research Internship), BSCI359 (Teaching Practicum), or BSCI379, 389, or 399 (Departmental Research)[11] credit may be used. Independent study or research courses from other departments may be used with the permission of the department.

---

[6] Multiple semesters in BSCI379, 389, or 399 research credits may fulfill one of the two required **Labs**. See ter.ps/reslabcredit for details.
[7] Requires a C- or better in the prerequisite or corequisite lecture to count as a **Lab** or to satisfy the course requirement.
[8] BSCI223 or BSCI283 may count as CEBG Area but NOT as an upper-level lab.
[9] Special Topics courses allowed if specifically approved for Advanced Program in CEBG. See your advisor or Testudo for applicability.
[10] The maximum number of credits in these repeatable courses that may count towards the advanced program.
[11] A maximum of eight credits may count towards one or more undergraduate degrees, any additional research credits will be included in the total earned credits and factored into the GPA but **not** applied to any undergraduate degree.