Biological Sciences: Physiology & Neurobiology PHNB (0404E) *effective August. 2023*

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.

1. Basic Program 15-16 credits

Sem	Gr	Cr	
		3	BSCI160 Ecology and Evolution ∗
		1	BSCI161 Ecology and Evolution Lab ∗
		3	BSCI170 Molecular and Cellular Biology ∗
		1	BSCI171 Molecular and Cellular Biology Lab ∗
		3	BSCI207 Principles of Biology III ∗
		4	BSCI222 Principles of Genetics ∗
		1	Freshmen seminar: UNIV100[1], HONR100, GEMS100, HLSC100, HACS100[2], HDCC105[2], HEIP143, HHUM105[3], BSCV181, IDEA101, BSGC100

[1] All Biological Sciences majors must take UNIV100 or another approved freshman seminar from the list above in their first semester.
[2] Two-credit course. [3] Three-credit course.
NOTE: Students enrolled in the Integrated Life Sciences Honors program will complete the following courses in lieu of the parenthetical courses: HLSC322 (BSCI222) and HLSC374 (BSCI374).
∗ These are required benchmark courses, see:
http://bsci.umd.edu/benchmarks

2. Supporting Courses 32 credits

Sem	Gr	Cr	
		4	MATH135 Discrete Mathematics ∗
		4	MATH136 Calculus ∗ **OR**
		4	MATH140 Calculus I ∗
		4	MATH141 Calculus II ∗ **OR**
		4	MATH140 Calculus I ∗
		4	MATH135 Discrete Mathematics ∗
		3	CHEM131 General Chemistry I ∗
		1	CHEM132 General Chemistry I Lab ∗
		3	CHEM231 Organic Chemistry I ∗
		1	CHEM232 Organic Chemistry I Lab ∗
		3	CHEM241 Organic Chemistry II ∗
		1	CHEM242 Organic Chemistry II Lab ∗
		2	CHEM271 Gen Chem & Energetics ∗
		2	CHEM272 Bioanalytical Chem Lab ∗
		4	PHYS131 OR PHYS141 Physics I
		4	PHYS132 OR PHYS142 Physics II

3. General Education Requirements (at least 27 credits)

(For more information on General Education, visit: www.gened.umd.edu.)
Fundamental Studies Math (MA), Analytic Reasoning (AR), Natural Sciences (NS) & Natural Sci. Lab (NL) are satisfied by major requirements.
Courses may double or triple count among Distributive Studies, I-Series, and Diversity.

Sem	Gr	Course	
			Fundamental Studies
			Academic Writing (AW) (ENGL101)
			Professional Writing (PW)
			Oral Communication (OC)
			Distributive Studies
			History and Social Sciences (HS)
			History and Social Sciences (HS)
			Humanities (HU)
			Humanities (HU)
			Scholarship in Practice (SP)
			Scholarship in Practice (SP) outside major
			I-Series
			I-Series (IS)
			I-Series (IS)
			Diversity
			Understanding Plural Societies (UP)
			Understanding Plural Societies (UP) **or** Cultural Competence (CC) (1–3 credits)

Summary of credits

Required	Completed
Basic Program (15–16)	_____
Supporting Courses (32)	_____
Gen. Ed. (27+)	_____
Advanced Program (27)	_____
Elective	_____
Subtotal	_____
Duplicate credits	_____
(Subtract from subtotal)	
Total Credits	_____

4. Advanced Program courses: Please see reverse page.

NOTES:

Student name _____ UID _____

Advisor's signature _____ Date of audit _____

NOTE: The curriculum in Biological Sciences changes as faculty review and improve the program. The curriculum descriptions provided here are the latest versions. Your curriculum may look slightly different depending on when you declared the Biological Sciences major. Your academic advisor can provide you with the most accurate information on which curriculum you are under. Any questions can be referred to the Undergraduate Academic Programs Office, 301-405-6892.

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Physiology & Neurobiology PHNB (0404E) Advanced Program

27 credits minimum ◆ At least two courses designated as **Lab** must be taken

1. Required courses: 13 credits

Sem	Gr	Cr	
		3	BCHM461 Biochemistry I **OR** BCHM463 Biochemistry of Physiology
		4	BSCI330 Cell Biology & Physiology w/**Lab**
		3	BSCI353 Principles of Neuroscience
		3	BSCI450 Mammalian Systems Physiology [1]

2. PHNB Area courses: 11 credits

Sem	Gr	Cr		Sem	Gr	Cr	
		3	BSCI338O Readings in Developmental Biology			4	BSCI442 Plant Physiology w/**Lab**
		3	BSCI338R Darwinian Medicine			3	BSCI443 Microbial Physiology
		3	BSCI339F Neurophysiology of Cells & Circuits			3	BSCI446 Neural Systems
		3	BSCI339G Advanced Physiology			3	BSCI447 Endocrinology
		2	BSCI339Q Diseases Due to Dysfunctional Cell Organelles			2	BSCI451 Mammalian Systems Physiology **Lab** [1 2]
		3	BSCI343 Cellular Mechanisms of Aging and Disease			3	BSCI452 Diseases of the Nervous System
						3	BSCI453 Biology of Hearing
		3	BSCI355 Neurobiology of Extraordinary Senses			3	BSCI455 Neuroscience **Lab**
		3	BSCI357 Neurobiology of Chemosensory Systems			3	BSCI456 Advanced Cellular Neuroscience
		3	BSCI360 Animal Behavior			3	BCHM462 Biochemistry II
		3	BSCI370 Principles of Evolution			3	BCHM464 Biochemistry **Lab**
		4	BSCI374 Mathematical Modeling in Biology w/**Lab**			3	BCHM465 Biochemistry III
		3	BSCI381 Molecular Neuroethology				
		3	BSCI401 Animal Communication				
		3	BSCI402 Genomics of Sensory Systems				**Statistics, one course maximum**
		3	BSCI403 Biology of Vision			3	BIOM301 Introduction to Biometrics
			BSCI404 Cell Biology from a Biophysical Perspective			3	STAT400 Applied Probability & Statistics
		3	BSCI406 Membranes and Biological Interfaces			3	STAT464 Introduction to Biostatistics
		3	BSCI410 Molecular Genetics				
		3	BSCI414 Recombinant DNA **Lab**			var.	**Special Topics Courses**[3]
		3	BSCI416 Human Genetics				BSCI328 Special Topics ENTM Depart.
		3	BSCI420 Cell Biology Lectures				BSCI338 Special Topics BIOL Depart.
		3	BSCI422 Principles of Immunology				BSCI339 Selected Topics BIOL Depart.
		2	BSCI423 Immunology **Lab** [2]				BSCI348 Special Topics CBMG Depart.
		2	BSCI425 Advanced Cell Biology Lab Practices **Lab** [2]				BSCI439 Adv. Special Topics BIOL Depart.
		3	BSCI430 Developmental Biology				
		3	BSCI431 The Origin and Evolution of Nervous Systems				**Departmental Honors Seminars** [4]
		3	BSCI433 Biology of Cancer			1	BSCI378H and BSCI398H

Total PHNB Area credits_____

[1] Formerly BSCI440 (4 credits) and BSCI441 (2 credits), respectfully. Credit is only granted for BSCI338L, BSCI440, or BSCI450, and BSCI441 or BSCI451.
[2] Requires a "C–" or better in the pre-/co-requisite lecture to count as a **Lab**.
[3] Special Topics courses are allowed if approved for Advanced Program in PHNB. See Testudo or your advisor for applicability.
[4] One credit of the Departmental Honors seminar may be applied to major requirements. Additional Departmental Honors seminar credits count as electives.

3. Enrichment 3 credits Enrichment Course: _____ Credits:_____ Semester:_____ Grade:_____

Minimum 3 credits from any 300- or 400-level BSCI, CHEM, or BCHM course.
Independent study or research courses from other departments can be used with the permission of your advisor.
Courses listed in the Advanced Program above can be used if they are not used to satisfy any category above.
Courses counted as Enrichment do not satisfy the 300- or 400-level laboratory requirement.
Independent study or research credits, including H and L versions, are accepted up to a maximum of 3 credits overall in the Advanced Program.
Multiple semesters in research courses can possibly count for one of the two required lab courses. See your advisor for more details or ter.ps/reslabcredit
A maximum of 8 credits of any version of research credits (e.g., BSCI379, BSCI389, BSCI399) can be applied to one or more undergraduate degrees.
Any research credits completed beyond the first 8 will be included in the total earned credits and factored into the GPA but **not applied to any undergraduate degree.**

Total credits in Advanced Program: _____

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