

College of Science
Bachelor of Science in NANOSCIENCE
Major in NANOMEDICINE

For students graduating in calendar year 2022 and for student date of entry under UG catalog 2020-2021

I. Pathways to General Education (47 credit hours)

All courses used for the Pathways to General Education must be on the University's approved list.

Pathway 1f – Foundational Discourse (6 credit hours)

_____ 3__ _____ 3__

Pathway 1a – Advanced Discourse (3 credit hours)

_____ 3__

Pathway 2 – Critical Thinking in the Humanities (6 credit hours)

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Pathway 3 – Reasoning in the Social Sciences (6 credit hours)

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Pathway 4 – Reasoning in the Natural Sciences (8 credit hours)

¹PHYS 2205 General Physics* 3__ ¹PHYS 2206 General Physics* 3__

¹PHYS 2215 General Physics Lab* 1__ ¹PHYS 2216 General Physics Lab* 1__

Pathway 5f – Foundational Quantitative and Computational Thinking (6 credit hours)

MATH 1025 Elementary Calculus* 3__ ¹MATH 1026 Elementary Calculus* 3__

Pathway 5a – Advanced Quantitative and Computational Thinking (3 credit hours)

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Pathway 6a – Critique and Practice in the Arts (3 credit hours)

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Pathway 6d – Critique and Practice in Design (3 credit hours)

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Pathway 7 – Critical Analysis and Equity and Identity in the United States (3 credit hours)

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II. Nanoscience Degree Core Requirements (34 credit hours)

FALL#	SPRING#
NANO 1015 Introduction to Nanoscience* 3__	¹ NANO 1016 Introduction to Nanoscience* 3__
¹ NANO 2114 Nanoscience Research Seminar* 1__	¹ NANO 2024 Quantum Physics of Nanostructures* 4__
¹ NANO 3015 Nanoscale Synthesis, Fabrication, and Characterization* 4__	¹ NANO 3016 Nanoscale Synthesis, Fabrication, and Characterization* 4__
¹ NANO 3114 Professional Dissemination of Nanoscience Research* 1__	¹ NANO 3124 Nanoscience and the Environment* 3__
¹ NANO 4324 Introduction to Nanomedicine* 3__	
NANO 4994 Undergraduate Research*^ 8__	

III. Nanomedicine Major Requirements (26 credit hours)

FALL#		SPRING#	
BIOL 1105 Principles of Biology*	3__	BIOL 1106 Principles of Biology*	3__
¹ BIOL 1115 Principles of Biology Laboratory*	1__	¹ BIOL 1116 Principles of Biology Laboratory*	1__
¹ CHEM 1035 General Chemistry*	3__	¹ CHEM 1036 General Chemistry*	3__
¹ CHEM 1045 General Chemistry Lab*	1__	¹ CHEM 1046 General Chemistry Lab*	1__
¹ CHEM 2535 Organic Chemistry	3__	¹ CHEM 2536 Organic Chemistry	3__
¹ CHEM 2545 Organic Chemistry Lab	1__	¹ CHEM 2546 Organic Chemistry Lab	1__
¹ BIOL 2124 Cell and Molecular Biology for Engineers	2__		

IV. Restricted Electives (9 credit hours):

Pick 3 of the following courses.

¹ BCHM 3114 Biochemistry for Biotechnology & the Life Sciences*	3__	¹ BCHM/BIOL 4784 Applications in Molecular Life Science*	3__
¹ BIOL 3404 Introductory Animal Physiology* [∞]	3__	¹ BIOL 3774 Molecular Biology* [∞]	3__
¹ BIOL 4664 Virology* [∞]	3__	¹ BIOL 4674 Pathogenic Bacteriology* [∞]	3__
¹ BIOL 4704 Immunology* [∞]	3__	¹ BIOL 4874 Cancer Biology* [∞]	3__
¹ BIOL 4884 Cell Biology* [∞]	3__	¹ CHEM 4514 Green Chemistry*	3__
¹ CHEM 4554 Drug Chemistry*	3__	¹ NEUR 2025 Introduction to Neuroscience*	3__
¹ NEUR 2026 Introduction to Neuroscience*	3__	¹ NEUR 3914 Neuroscience of Drug Addiction*	3__
¹ NEUR 4034 Diseases of the Nervous System*	3__	¹ SYSB 2026 Introduction to Systems Biology*	3__
¹ SYSB 3035 Systems Biology of Genes & Proteins*	4__	¹ SYSB 3036 Systems Biology of Genes & Proteins*	4__
¹ SYSB 3115 Network Dynamics & Cell Physiology*	4__	¹ SYSB 3116 Network Dynamics & Cell Physiology*	4__

V. Free Electives (4 credit hours)

¹Prerequisites

Some courses on this checksheet have pre-/co-requisites. Students are required to double check course pre-/co-requisites and equivalents. Please see your advisor or consult the Undergraduate Course Catalog for more information.

Acceptable Substitutions

BIOL 2124: BIOL 2104 Cell & Molecular Biology OR BIOL 2134 Cell Function Differentiation OR
NEUR 3044 Cell Molecular Neuroscience

CHEM 1035/1036: CHEM 1055/1056 General Chemistry for Majors

CHEM 1045/1046: CHEM 1065/1066 General Chemistry Lab for Majors

CHEM 2535/2536: CHEM 2565/2566 Principles of Organic Chemistry

CHEM 2545/2546: CHEM 2555/2556 Organic Synthesis & Techniques Lab

MATH 1025/1026: MATH 1225/1226 Calculus of a Single Variable

NANO 2024: PHYS 3324 Modern Physics OR NANO 2324 Quantum Mechanics for Nanomedicine

NANO 3016: NANO 4334 Advanced Nanomedicine AND NANO 4354 Advanced Nanomedicine Lab

PHYS 2205/2215: PHYS 2305 Foundations of Physics

PHYS 2206/2216: PHYS 2306 Foundations of Physics

BIOL 1105, BIOL 1115-1116, CHEM 1035-1036, CHEM 1045-1046, MATH 1025-1026, PHYS 2205-2206, PHYS 2215-2216:

ISC 1105-1106, ISC 1115-1116, ISC 2105-2106, ISC 2115-2116 Integrated Science I-II and Integrated Science Lab I-II

Foreign Language Requirement

Students who did not successfully complete at least two years of a single foreign, classical, or sign language during high school must successfully complete six semester hours of a single foreign, classical, or sign language at the college level. Courses taken to meet this requirement do not count toward the hours required for graduation. Please consult the Undergraduate Catalog for details.

Satisfactory Progress Towards Degree

Upon having attempted 72 credit hours, the student will have completed NANO 1015-1016, MATH 1025-1026, CHEM 1035-1036, CHEM 1045-1046, PHYS 2205-2206, PHYS 2215-2216, BIOL 1105, BIOL 1106, BIOL 1115, & BIOL 1116

Graduation Requirements

120 credit hours are required for graduation. These credits must include the courses required for the major (see above sections). To graduate, a student must have at least a 2.0 in-major GPA and overall GPA.

* *In Major GPA: Courses marked with * will be used for computing the "in major" GPA.*

Fall/Spring Course Offerings: Please consult with your advisor to ensure the courses are offered in the semester you intend to take them.

^ *Undergraduate Research: All 8 credits are not taken in one semester. They are often split among different semesters.*

∞ *BIOL 2124 is not an accepted prerequisite for BIOL courses that require BIOL 2134. Students wishing to take BIOL courses from the restricted electives list should take BIOL 2134. Please consult your advisor as to which course is right for you.*