

The Huck Institutes of the Life Sciences is a transformative endeavor that builds bridges between departments and colleges. We drive interdisciplinary research, craft innovative graduate programs, enhance the quality and diversity of life sciences faculty, and support researchers with the world's best scientific equipment. Through our six intercollege graduate degree programs, we link eight colleges and hundreds of faculty working across the university to change the world. Our highly competitive programs are built from the student up to provide rigorous academic training, outstanding mentoring, unsurpassed equipment/technology, and a culture of support and professional development that will take you wherever your imagination leads.

	Bioinformatics and Genomics	Ecology	Integrative and Biomedical Physiology	Molecular, Cellular, and Integrative Biosciences	Neuroscience	Plant Biology
<b>About the program</b>						
Major research focus areas	Algorithms and Computation; Statistical Genomics; Systems Biology; Data Integration; Epigenetic Regulation; Chromatin Remodeling; Environmental Stress; Fly Comparative Genomics; Primate Evolutionary Genomics; Anthropological Genomics and Paleogenomics; Mitochondrial Heteroplasmy; Neurodevelopmental Genomics	Organismal Ecology; Populations and Communities; Ecosystems and Landscapes	Aging, Exercise, and Muscle Biology; Biophysics; Immunology and Inflammation; Cardiovascular Regulation and Disease; Nutrient Regulation, Obesity, and Metabolic Disease; Reproductive Biology	Cancer Biology; Cellular and Developmental Biology; Immunology and Infectious Disease; Molecular and Evolutionary Genetics; Molecular Toxicology; Neurobiology	Molecular Neurobiology and Developmental Neuroscience; Cognitive Neuroscience and Behavioral Neurobiology; Neuroendocrinology and Neurotoxicology; Neural Engineering; Systems Neuroscience; Clinical Neuroscience	Environment and Stress Plant Physiology; Photosynthesis; Phytobiomes; Plant Biochemistry; Plant Cell Biology; Plant Chemical Ecology; Plant Developmental Biology; Plant Ecophysiology; Plant Molecular Biology and Biotechnology; Root Biology; Whole Plant Physiology
Size of program	Graduate students – 50 Faculty – 74	Graduate students – 50 Faculty – 59	Graduate students – 24 Faculty – 44	Graduate students – 90 Faculty – 126	Graduate students – 16 Faculty – 50	Graduate students – 46 Faculty – 40
Application requirements	Transcript CV Five Program-Specific Questions Three Letters of Recommendation	Transcript CV Statement of Purpose Three Letters of Recommendation	Transcript CV Statement of Purpose GRE General Test scores Three Letters of Recommendation	Transcript CV Three Program-Specific Questions Three Letters of Recommendation	Transcript CV Four Program-Specific Questions Three Letters of Recommendation	Transcript CV Statement of Purpose GRE General Test scores Three Letters of Recommendation
<b>Program requirements</b>						
Number of classes	10 required plus relevant electives	7 required plus relevant electives	10 required plus relevant electives	6 required plus relevant electives	7 required plus relevant electives	8 required plus relevant electives
Number of rotations	3 rotations completed in first year	No rotations; mentor match made during admissions process	4 eight-week or 2 sixteen-week rotations completed in first year	3 five-week rotations completed in first semester	3 four-week rotations completed in first semester	1-3 rotations completed in first year
Teaching requirements	1 semester	1 semester	Not Required	1 semester	Not Required	Not Required
<b>What makes each program unique</b>						
Travel awards	Huck Travel Award	Huck Travel Award Graduate School Professional Meeting Travel Award Frank A. Andersen Travel Award	Huck Travel Award Graduate School Professional Meeting Travel Award	Huck Travel Award	Huck Travel Award	Huck Travel Award Graduate School Professional Meeting Travel Award
Professional development	Huck Graduate Student Professional Development System Huck Graduate Student Advisory Committee Individual development plan (required)	Huck Graduate Student Professional Development System Huck Graduate Student Advisory Committee Individual development plan	Huck Graduate Student Professional Development System Huck Graduate Student Advisory Committee Individual development plan (required) Student meetings	Huck Graduate Student Professional Development System Huck Graduate Student Advisory Committee Individual development plan	Huck Graduate Student Professional Development System Huck Graduate Student Advisory Committee Individual development plan	Huck Graduate Student Professional Development System Huck Graduate Student Advisory Committee Individual development plan
Graduate Student Association (GSA) and Student Organizations	Huck Graduate Student Advisory Committee (HGSAC) LinkedIn: Penn State Huck Institutes Graduate Network Minority Graduate Students in STEM The BRIDGE Center for Infectious Disease Dynamics Graduate Student Association (CGSA) GenoMIX: Graduate Student Organization for Genomics	Huck Graduate Student Advisory Committee (HGSAC) LinkedIn: Penn State Huck Institutes Graduate Network Minority Graduate Students in STEM The BRIDGE Center for Infectious Disease Dynamics Graduate Student Association (CGSA) Ecology Graduate Student Organization (EGSO)	Huck Graduate Student Advisory Committee (HGSAC) LinkedIn: Penn State Huck Institutes Graduate Network Minority Graduate Students in STEM The BRIDGE Physiology Student Organization	Huck Graduate Student Advisory Committee (HGSAC) LinkedIn: Penn State Huck Institutes Graduate Network Minority Graduate Students in STEM The BRIDGE Center for Infectious Disease Dynamics Graduate Student Association (CGSA) Center for Molecular Immunology and Infectious Disease (CMIID) Group MCIBS Graduate Student Association	Huck Graduate Student Advisory Committee (HGSAC) LinkedIn: Penn State Huck Institutes Graduate Network Minority Graduate Students in STEM The BRIDGE	Huck Graduate Student Advisory Committee (HGSAC) LinkedIn: Penn State Huck Institutes Graduate Network Minority Graduate Students in STEM The BRIDGE
Peer mentoring	Yes, every first-year student is paired with mentor	Yes, every first-year student is paired with mentor	Yes, every first-year student is paired with mentor	Yes, every first-year student is paired with mentor	Yes, every first-year student is paired with mentor	Yes, every first-year student is paired with mentor
Outreach	Intercollege Graduate Student Outreach Achievement Award Program Retreat Workshop GenoMIX Club workshops Individual lab opportunities	Intercollege Graduate Student Outreach Achievement Award; awarded to an Ecology student in 9 of the past 15 years Science Pub Nights Exploration-U Individual and program-related opportunities	Intercollege Graduate Student Outreach Achievement Award Physiology Understanding (PHUN) Week, sponsored by the American Physiological Society (APS)	Intercollege Graduate Student Outreach Achievement Award Opportunities through Eberly College of Science and Graduate Women in Science	Intercollege Graduate Student Outreach Achievement Award Departmental and individual outreach opportunities available	Intercollege Graduate Student Outreach Achievement Award Opportunities through Eberly College of Science and Graduate Women in Science
Placement after graduation	Fairly evenly split between academia and industry	Academia and government	Primarily academia	Primarily academia with some industry	Primarily academia with some industry	Primarily academia with some industry

At the Eberly College of Science, we further scientific knowledge to build a better future for our students and for society. Through collaborative learning, intensive research, and a strong diverse community, we are dedicated to making a meaningful impact. Our graduate degree programs are highly competitive, intensely collaborative, and fiercely committed to the type of interdisciplinary study that advances scientific progress. No matter which path you choose, you will be on your way to strengthening your research skills, solidifying your scientific knowledge interests, and expanding your capacity as a scientist.

	Department of Biochemistry, Microbiology, & Molecular Biology	Department of Biology	Department of Chemistry
<b>About the program</b>			
Major research focus areas	Bioinformatics and Genomics; Biophysics and Structural Biology; Cancer Biology; Cell and Developmental Biology; Energy Research; Enzymology; Microbiology and Infectious Disease; Neurobiology; Plant Sciences; RNA Biology and Gene Regulation	Cell and Developmental Biology; Computational Biology; Ecology; Evolutionary Biology; Genetics; Genomics; Infectious Disease Dynamics; Mathematical Biology; Neurobiology; Organismal Biology; Physiology; Plant Biology; Theoretical Biology	Analytical Chemistry; Biological Chemistry; Inorganic Chemistry; Materials Chemistry; Organic Chemistry; Physical Chemistry; Computational and Theoretical Chemistry; Chemical Biology; Nanoscience; Bioinorganic Chemistry; Biophysical Chemistry
Size of program	Graduate students – 64 Faculty – 54	Graduate students – 42 Faculty – 52	Graduate students – 203 Faculty – 37
Application requirements	Transcript CV Four Program-Specific Questions Three Letters of Recommendation	Transcript CV Five Program-Specific Questions Three Letters of Recommendation	Transcript CV Five Program-Specific Questions General GRE Test scores Three Letters of Recommendation
<b>Program requirements</b>			
Number of classes	4 required plus 3 to 4 relevant electives	3 required plus relevant electives	5 required plus relevant electives
Number of rotations	3 - 6 five-week rotations completed in first year	3 five-week rotations completed in first semester, strongly encouraged	3 rotations completed in first semester, suggested
Teaching requirements	2 semesters after taking pedagogy course	2 semesters	2 semesters
<b>What makes each program unique</b>			
Travel awards	Two \$1500 awards per student for national or international conferences	\$350 award per year for national conferences One time \$700 award for an international conference	\$400 award per year for national conferences Up to \$1000 award for international conferences
Professional development	Career and professional development seminar series in collaboration with Huck	Two individual development plan workshops per year Monthly colloquia based on student interests such as mental health resources, financial planning, and teaching at primarily undergraduate institutions	Student-run research seminar series Department of Chemistry Sponsors Days — a two-day recruitment opportunity with industry representatives
Graduate Student Association (GSA) and Student Organizations	BMMB Graduate Student Association Minority Graduate Students in STEM Graduate Women in Science Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)	Biology Graduate Student Association Minority Graduate Students in STEM Graduate Women in Science Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)	Chemistry GSA — organizes social events, town hall meetings, and has a representative attend faculty meetings Minority Graduate Students in STEM Graduate Women in Science Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)
Peer mentoring	Yes, every first-year student is paired with mentor Hosts special mentor-mentee events sponsored by BMMB GSA	Yes, every first-year student is paired with mentor	Yes, every first-year student is paired with a mentor by Chemistry GSA
Outreach	Opportunities through Office of Science Outreach and Graduate Women in Science Science Outreach and Communications class	Opportunities through Office of Science Outreach and Graduate Women in Science Science Outreach and Communications class	Chemistry GSA organizes outreach activities in local schools and chemistry related summer camps Opportunities through Office of Science Outreach and Graduate Women in Science Science Outreach and Communications class
Placement after graduation	Post-doctoral Fellowships Industry Teaching Federal lab or other	Post-doctoral Fellowships Industry	Industry (chemical companies and biotech) Post-doctoral Fellowships Government Law

# Life Sciences Program Options



PennState

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