

THE UNIVERSITY OF RHODE ISLAND

Interdisciplinary Neuroscience-BS

120 Credits Total

- **General Ed Courses (40 cr)**

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Effective Fall 2024

Class of 2028

ABOUT THE INTERDISCIPLINARY NEUROSCIENCE BS DEGREE:

The B.S. program in interdisciplinary neuroscience will provide students with foundational knowledge of the nervous system including a broad array of areas such as development of the nervous system, brain structure and function, cellular and molecular biology, neuropharmacology, neuroethics, research methods, as well as knowledge of neurodegenerative disease and psychological/psychiatric disorders. The undergraduate program offers three major options (tracks): a B.S. degree with a major in Clinical Neuroscience from the College of Health Sciences, a B.S. degree with a major in Molecular Neuroscience from the College of Environment and Life Sciences, and a B.S. degree with a major in Neuropharmacology from the College of Pharmacy. The option for different neuroscience majors is unique and makes this URI major truly distinct with regard to undergraduate education. Please note students may only earn a Neuroscience degree in one track due to the overlapping of preparation and core courses needed for the major.

GENERAL EDUCATION GUIDELINES: General education is 40 credits. Each of the twelve outcomes (A1-D1) must be met by at least 3 credits. A single course may meet more than one outcome but cannot be double counted towards the 40 credit total. At least one course must be a Grand Challenge (G). No more than twelve credits can have the same course code (note- HPR courses may have more than 12 credits). General education courses may also be used to meet requirements of the major or minor when appropriate.

General Education Credit Count			
At least 40 cr., No more than 12 credits with the same course code. (Note: Not all boxes need to be filled to add to 40 credits)			
Course	Cr.	Course	Cr.
BIO101	3		
BIO103	1		
BIO 102	3		
BIO 104	1		
CHM101	3		
COM100	3		
MTH103 (n/a if placed in MTH131)	3 (or N/A)		
MTH131	3		
WRT104 OR 106	3		
PHY 111	3		
PHY 185	1		
PSY 113	3		
		Total Gen Ed credits	≥ 40

General Education Outcome Audit	
	Course
KNOWLEDGE	
A1. STEM CHM101, MTH 103, MTH131	BIO101, 103
A2. Social & Behavioral Sciences	PSY 113
A3. Humanities	
A4. Arts & Design	
COMPETENCIES	
B1. Write effectively	WRT104 or 106
B2. Communicate effectively	COM100
B3. Mathematical, statistical, or computational strategies	MTH103/131
B4. Information literacy	WRT104 or 106
RESPONSIBILITIES	
C1. Civic knowledge & responsibilities	COM100
C2. Global responsibilities	
C3. Diversity and inclusion	
INTEGRATE & APPLY	
D1. Ability to synthesize	
GRAND CHALLENGE	
G. Check that at least one course of your 40 credits is an approved "G" course	

THE UNIVERSITY OF RHODE ISLAND**Interdisciplinary Neuroscience-BS
Class of 2028**

- 120 Credits Total
- **Preparation Classes** (required for all Neuroscience tracks) (40-43 cr)

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Preparation Courses (*these courses also fulfill 23-26 cr. of general education requirements)	Course	Grade	Cr		Semester
General Biology *A1	BIO 101		3		FR F
General Biology Lab *A1	BIO 103		1		FR F
General Biology II *A1	BIO 102		3		FR SP
General Biology II Lab *A1	BIO 104		1		FR SP
Human Anatomy & Physiology I	BIO 220		3		SOPH F
Human Anatomy and Physiology I lab	BIO 221		1		SOPH F
Human Anatomy and Physiology II	BIO 222		3		SOPH SP
Human Anatomy and Physiology II lab	BIO 223		1		SOPH SP
General Chemistry I *A1	CHM 101		3		FR F
General Chemistry I Lab	CHM 102		1		FR F
General Chemistry II	CHM 112		3		FR SP
General Chemistry II Lab	CHM 114		1		FR SP
Organic Chemistry I or Intro to Organic Chemistry**	CHM 227 or 124**		3	Pre-Med students should take CHM 227	SOPH F
Applied Precalculus I (if needed) and Applied Calculus I *A3	MTH 103/131		3		FR F OR SP
General Psychology, *A2	PSY 113		3		SOPH F OR SP
Communication *B2, C1	COM 100		3		FR F
Research Writing or Writing to Inform *B1, B4	WRT 104 OR 106		3		FR SP
Introduction to URI	URI 101		1		FR F
PREPARATION COURSES SUBTOTAL			40-43		

* Course approved for General Education

**As noted above, Pre-Med or PreHealth students should take CHM 227. If students take CHM 124 first, they can count CHM 227 in their track courses.

Interdisciplinary Neuroscience-BS Class of 2028

- 120 credits total
- **Core Classes** (required for all Neuroscience tracks) (31-36 cr)

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Core Courses (*these courses also fulfill 4 credits of general education requirements)	Course	Grade	Cr		Suggested Semester
Foundations of Neuroscience	NEU 101		3		FR SP
Neuroscience Seminar	NEU 110		1		SOPH Or JR F
Neuroethics and Diversity	NEU 210		3		SOPH SP
Neuroscience Research Methods	NEU 262		4		SOPH OR JR SP
Neuroscience Professional Development	NEU 230		1		SOPH or JR F
Cellular & Molecular Neuroscience	NEU 301		3		JR F
Developmental Neurobiology	NEU 310		3		JR SP
Clinical Neuroscience	NEU 320		3		JR F
Biostatistics OR Introductory Statistics	STA 307 or STA 308		4		JR F or SP
General Physics I *A1, B3	PHY 111		3		SOPH F or SP
General Physics 1 Lab *A1, B3	PHY 185		1		SOPH F or SP
Experiential Neuroscience	NEU 410 or ITR 302 & 304		1-6		SR F or JR SP
Neuroscience Journal Club	NEU 460		1		SR F
CORE COURSES SUBTOTAL			31-36		

- ITR 302 & 304 will total 6 credits and cannot be taken for fewer credits. ITR approval is required by INP Director and Coordinator.
- NEU 410 can be taken for 1-6+ credits- varies on the hours worked in the lab/office setting.
- Either NEU 410 or ITR 302/304 will need approval from INP Administration. Emails will be sent out to students regarding the requirements and approval process.
- To transfer out of University College for Academic Success and enter the student's selected degree granting college, students must complete a minimum of 56 credits of the following courses with a 2.0 GPA average: BIO 101/103, BIO 102/104, BIO 220/221, BIO 222/223, CHM 101/102, CHM 112/114, CHM 124 or 227, PHY 111/185, MTH 103/131, PSY 113, COM 100, WRT 104 or 106, URI 101, NEU 101, NEU 110, NEU 210, NEU 262, and NEU 230.

MOLECULAR NEUROSCIENCE MAJOR TRACK REQUIREMENTS

- Preparation and Core classes required

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Molecular Neuroscience Major Course List: Choose 15 credits from the following list.						
Course Code	Course Name			Credits	Semester	Grade
CSC/DSP 310	Programming for Data Science			4		
CMB 311	Biochemistry			3		
CMB/BIO 352	Genetics			4		
CMB/BIO 341	Cell Biology			3		
BIO/CMB 437	Fundamentals of Molecular Biology			3		
CMB 460	Experimental Approaches in Molecular and Cell Biology			3		
CHM 227*	Organic Chemistry I			3		<i>*Required for pre-med. Can only be counted if student takes CHM 124 first. Otherwise, it will count for the Prep coursework.</i>
CHM 228 & 226	Organic Chemistry II & Lab			5	Required for pre-med	
PHY 112	Physics II lecture			3	Required for pre-med	
PHY 186	Physics II lab			1	Required for pre-med	
Track Subtotal				15		
Molecular Neuroscience Major Electives List: Choose a minimum of 3 credits from the following list.						
CMB 333	Immunology and Serology			3		
CMB 312 or 412	Advanced Biochemistry Lab			2		
CMB 320	Computational Biology			3		
CMB 353	Genetics Laboratory			1		
CMB 435	Introduction to the Biology and Genetics of Cancer			3		
CMB 482	Proteins and Enzymes: Mechanisms of Disease			3		
Track Subtotal				3+		

CLINICAL NEUROSCIENCE MAJOR TRACK REQUIREMENTS

- Preparation and Core classes required

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Clinical Neuroscience Major Course List: Choose 15 credits from the following list.

Course Code	Course Name	Credits	Semester	Grade
BPS 321	Principles of Pharmacology and Autonomic Pharmacology	3		
PSY 232	Developmental Psychology	3		
PSY 254	Behavior Problems and Personality Disorders	3		
PSY 301	Research methods and Design in the Behavioral Sciences	4		
PSY 381	Physiological Psychology	3		
PSY 385	Perception	3		
PSY 434	Psychological Testing	3		
HDF 357	Family and Community Health	3		
KIN 300	Physiology of Exercise	3		
MUS 438	Music, Mind and Body	3		
PHY 112 & 186	Physics II and lab	4	Required for pre-med.	
CHM 227*	Organic Chemistry I	3	<i>*Required for pre-med. Can only be counted if student takes CHM 124 first. Otherwise, it will count for the Prep coursework.</i>	
CHM 228 & 226	Organic Chemistry II and lab	5	Required for Pre-Med	
Track Subtotal		15		

Clinical Neuroscience Major Electives List: Choose a minimum of 3 credits from the following list.

CMB 210	Biochemical Aspects of Nutrition and Physiology	3		
CMD 494	Autism and Pervasive Developmental Disorders	3		
CMD 492	Interprofessional Clinical Research of Neurological Disorders	3		
BPS 313	Principles of Medicinal Chemistry	2		
BPS 401	Pharmaceutical Pharmacology I	3		
PSY 276G	"High" Society: The Use of Psychoactive Drugs	3		
PSY 460	The Substance Troubled Person	3		
PHP 336G	Exploring Interdisciplinary Healthcare Solutions for Opioid Use Disorder	3		
PHP 405	Epidemiology in Health Care	4		
PHP 555	Advanced Neuropsychiatric Pharmacotherapy	3		
Track Subtotal		3+		

NEUROPHARMACOLOGY MAJOR TRACK REQUIREMENTS

- Preparation and Core classes required

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Neuropharmacology Major Course List: Choose 15 credits from track requirements from the following list						
Course Code	Course Name			Credits	Semester	Grade
BPS 313	Principles of Medicinal Chemistry			2		
BPS 321	Principles of Pharmacology and Autonomic Pharmacology			3		
BPS 345	Introduction to Pharmaceutical Research			3		
BPS 401	Pharmaceutical Pharmacology I			3		
BPS 432	CNS Drug Pharmacology and Medicinal Chemistry			3		
BPS 442	Pharmacogenomics and Pharmacogenetics			3		
BPS/CMB 450	Practical Tools for Molecular Sequence Analysis			3		
CMB 311	Biochemistry			3		
CMB 426	Structural Biochemistry			3		
BIO/CMB 437	Fundamentals of Molecular Biology			3		
CMB 460	Experimental Approaches in Molecular and Cell Biology			3		
CHM 227*	Organic Chemistry I			3	*Required for pre-med. Can only be counted if student takes CHM 124 first. Otherwise, it will count for the Prep coursework.	
CHM 228 & 226	Organic Chemistry II & Lab			5		
PHY 112 & 186	General Physics II & lab			4		
Track Subtotal				15		
Neuropharmacology Major Electives List: Choose a minimum of 3 credits from the following list.						
BIO 482G*	Evolutionary Medicine of Human Health and Disease			3		
BME 281	Biomedical Engineering Seminar II			1		
BME 307	Bioelectricity			3		
BME 360	Biomeasurement			3		
BPS 201	How Drugs Work			3		
BPS/PSY 205G	The Challenged Brain			3		
BPS 402	Pharmaceutical Pharmacology II			3		
BPS/PSY 436	Psychotropic Drugs and Therapy			3		

CMB 464	Biochemistry of Metabolic Disease	3		
CMB 482	Proteins and Enzymes: Mechanisms of Disease	3		
CMD 280G	The Real Reason for Brains	3		
NEU 502	Introduction to Neurobiology	4		
NEU 503	Introduction to the Neurosciences	3		
PSY/NEU 381	Physiological Psychology	3		
PHP 336G	Exploring Interdisciplinary Healthcare Solutions for Opioid Use Disorder	3		
PHP 405	Epidemiology in Health Care	4		
PHP 555	Advanced Neuropsychiatric Pharmacotherapy	3		
Track Subtotal		3+		

Interdisciplinary Neuroscience-BS**Class of 2028****Pg. 8****GENERAL CURRICULUM MAP***

*See previous pages for "Track" courses. Always consult academic advisor for long-term planning and course choices.

Interdisciplinary Neuroscience Major

<u>Freshman Fall Credits</u>		<u>Freshman Spring</u>		<u>Credits</u>
URI 101*	1	BIO 102/104		4
BIO 101/103	4	CHM 112/114		4
CHM 101/102	4	MTH 131 (if needed)		3
MTH 103 or 131	3	NEU 101 (Foundations)		3
COM 100	3	WRT 104 or 106		3
Total= 15				Total= 17

<u>Sophomore Fall</u>		<u>Credits</u>	<u>Sophomore Spring</u>		<u>Credits</u>
PSY 113	3		BIO 222/223		4
CHM 124 OR 227**	3		NEU 210 Neuroethics		3
BIO 220/221	4		NEU 262 Research Methods		4
PHY 111/185	4		Gen Ed/Track/PHY 111/185		3/4
NEU 110 Seminar	1		Gen Ed/Track		3
NEU 230 Pro Dev	1		Choose track		
Total= 16					Total= 15-18

<u>Junior Fall</u>		<u>Credits</u>	<u>Junior Spring</u>		<u>Credits</u>
NEU 301 Cellular	3		NEU 310 Neuro Dev		3
NEU 320 Clinical	3		STA 307 or 308 or Gen Ed		3/4
STA 308 or Gen Ed	3/4		or NEU 262 Research Methods		4
Gen Ed/Track	3		Gen Ed/Track		3
Gen Ed/Track	3		Gen Ed/Track		3
Total= 15-16					Total= 16-18

<u>Senior Fall</u>		<u>Credits</u>	<u>Senior Spring</u>		<u>Credits</u>
NEU 410 or ITR 302/304	1-6		GenEd/Track		3
NEU 460 or GenEd/Track	1-3		Gen Ed/Track		3
Track or Elective	3		Track or Elective		3
Track or Elective	3		Track or Elective		3
Track or Elective	3		NEU 410 or ITR 302/304		1-6
Total= 13-18					Total= 13-18

* Will be taught by INP faculty

** Pre-Med students should take CHM 227. If student takes CHM 124 first, they can count CHM 227 in their track courses.

Exactly which electives students take in a track will depend on their career goals.

ITR 302-304 will total 6 credits. NEU 410 credit hours are determined by hours worked in lab.