

# Binghamton University Integrative Neuroscience Major Requirements

<https://www.binghamton.edu/integrative-neuroscience/index.html>

72 to 78 credit hours

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Course Requirements			
	PSYC 111 General Psychology	(need a C or higher to continue as an IN major)**	
	PSYC 243 Statistical Analysis and Design (M)	(need a C or higher to continue as an IN major)**	
	PSYC 344 Research Methods (W) *		
	PSYC 362 Behavioral Neuroscience *		
	BIOL 113 Intro to Cell & Molecular Biol		
	BIOL 114 Intro to Organisms & Pops Biol		
	BIOL 115 Intro Biology Lab		
	Choose one of the following courses*: <ul style="list-style-type: none"> <li>• PSYC 327 Evolution and Behavior</li> <li>• BIOL 375 Animal Behavior - &amp;</li> </ul>	<b>Due to significant content overlap, you will not receive credit for both PSYC 327 &amp; BIOL 375 (Harpur Rule)</b>	
	CHEM 104 Intro to Chemical Principles I CHEM 105 Intro to Chemical Principles II <b>AND</b> CHEM 106 General Chemistry Lab	<b>OR</b> Chem 107 Gen Chem CHEM/BCHEM <b>AND</b> Chem 108 Gen Chem II CHEM/BCHEM	<b>OR</b> CHEM 111 Chemical Principles <i>Pre-med and pre-health candidates should not take CHEM 111</i>
	CHEM 231 Organic Chem I		
	CHEM 332 Organic Chem II		
	Approved Integrative Neuroscience Seminar *		
	<ul style="list-style-type: none"> <li>• Approved list changes each semester- see: <a href="https://www.binghamton.edu/integrative-neuroscience/courses.html">https://www.binghamton.edu/integrative-neuroscience/courses.html</a></li> <li>• 4 credit requirement: 1 approved PSYC 473 or BIOL 483 (4cr) or 2 approved BIOL 407 or 480 (2cr each)</li> </ul>		

**-Students must take the following courses in residence at Binghamton University (denoted by \*):** PSYC 344, PSYC 362, the approved seminar, one lab course, either PSYC 327 or BIOL 375, and 3 additional courses of the student's choosing.

\*\*Students are required to earn a C- or higher for all core courses (except PSYC 111 and 243) to count in the major (if matriculated fall 2014 or later). \*\*

-Due to significant overlap in course requirements, it is not possible to double major in Psychology, Biology, or Biochemistry and Integrative Neuroscience.

## ELECTIVES

Course	Course	Course Requirements
		MATH/CHEM/PHYSICS ELECTIVES 6 credits
		RELATED SUBJECTS ELECTIVES 4 credits
		TYPE A BIOLOGY ELECTIVES 4 credits
		TYPE B BIOLOGY ELECTIVES 4 credits
		PSYCHOLOGY ELECTIVES 6 credits

Note: Lab and Upper level requirements come from the above elective categories as long as they meet the criteria below.

		Three Labs (as indicated by & symbol) <ul style="list-style-type: none"> <li>• Must be 200-level or above, at least one in residence*</li> <li>• 4 credits of <i>approved</i> research can substitute for 1 of these</li> </ul>
		16 credits of Upper Level Electives <ul style="list-style-type: none"> <li>• Must be at or above 300-level</li> <li>• <b>Core courses do not count here. Courses can be core OR elective, NOT both.</b></li> <li>• 8 credits of research can count here (Integrative Neuroscience, Psychology, or Biology)</li> </ul>

\*\*Students are required to pass (earn a D or higher) for all elective courses to count in the major.\*\*

MATH/CHEM/PHYSICS ELECTIVES				
Course #	Name	cr	Attr	
CHEM 221	Intro Analytic Chem	(4)	&	
CHEM 335	Org Chem Lab	(2)	&	
CHEM 341	Inorganic Chem	(4)		
CHEM 434	Bioorganic Chem	(4)		
MATH 224 & 225	Calculus I (both classes)	(4)		
MATH 226 & 227	Calculus II (both classes)	(4)		
MATH 323	Calculus III	(4)		
CS 140	Programming w/ Obj.	(4)		
CS 240	Data Structures	(4)		
PHYS 121 or 131	Physics I	(4)		
PHYS 122 or 132	Physics II	(4)		

RELATED SUBJECTS ELECTIVES				
Course #	Name	cr	Attr	
ANTH 111	Intro to Anthropology	(4)		
ANTH 168	Intro to Biological Anthropology	(4)		
ANTH 242	Biology, Culture, and Lifestyle	(4)		
ANTH 243	Medical Anthro: Humn Bio & Hlth	(4)		
ANTH 244	Plagues, Culture, and History	(4)		
ANTH 247	The Science of Skeletons	(4)		
ANTH 248	Evolutionary Medicine	(4)		
ANTH 249	Intro to Epidemiology & Biostats	(4)		
ANTH 330	Neuroanthropology	(4)		
ANTH 333	Human Genetics	(4)		
ANTH 334	Comp. Aspects of Human Growth	(4)		
ANTH 335	Human Origins	(4)		
ANTH 336	Human Skeleton	(4)	&	
ANTH 337	Human Biological Variation	(4)		
ANTH 338	Survey of Primates	(4)		
BIOL 105	Evolution for Everyone	(4)		
CS 105	Intro to Computing	(4)		
CS 110	Programming Concepts & Appli	(4)		
GEOG 422	Biogeography	(4)		
HARP 325	Data & Society	(4)		
HIST 230	History of Modern Medicine	(4)		
HIST 238	Sci &Tech in the Modern World	(4)		
HWS 410	Pathophys Nutrition Disease	(4)		
PHIL 121	Methods of Reasoning	(4)		
PHIL 122	Elementary Logic	(4)		
PHIL 148	Medical Ethics	(4)		
SLP 408	Anat&Phys of Speech/Lang/Hear	(4)		
SLP 414	Intro Communication Disorders	(4)		
SLP 415	Normal & Abnml Spch & Lang Dev	(4)		

PSYCHOLOGY ELECTIVES				
Course #	Name	cr	Attr	
PSYC 220	Developmental Psych	(4)	(S)	
PSYC 223	Behavior Disorders	(4)	(S)	
PSYC 330	Drugs and Behavior	(4)	(S)	
PSYC 350	Human Memory	(4)		
PSYC 351	Perception	(4)		
PSYC 352	Perception Lab	(4)	(C) &	
PSYC 355	Applied Behavioral Analysis Lab	(4)	(C) &	
PSYC 356	Learning	(4)		
PSYC 357	Learning Lab	(4)	(C) &	
PSYC 358	Cognition	(4)		
PSYC 359	Cognition Lab	(4)	(C) &	
PSYC 360	Psychotherapy	(4)		
PSYC 363	Behavioral Neuroscience Lab	(4)	(C) &	
PSYC 385	Psychological Tests	(4)		
PSYC 473	Additional <b>Approved</b> Seminar	(4)		
Research	PSYC 397/493/494/498/499 (see advisor)			

\*Psychology courses not listed above will not count as psychology electives

TYPE A or TYPE B BIOLOGY ELECTIVES				
Course #	Name	cr	Attr	
BIOL 251	Anatomy & Physiology I	(4)	&	
BIOL 252/347	Anatomy & Physiology II	(4)	&	
BIOL 324	Tissue Biology	(4)	&	
BIOL 332	Genetics	(4)		
BIOL 340	Genetics Lab	(4)	&	
BIOL 430	Animal Physiology	(4)		
BME 340	Bioinformatics & Biostats	(3)		

TYPE A BIOLOGY ELECTIVES				
Course #	Name	cr	Attr	
BIOL 304	Pre-Health Biochemistry	(4)		
BIOL 311	Principles of Cell Biology	(4)		
BIOL 313	Cellular Neurobiology	(4)		
BIOL 314	General Microbiology	(4)		
BIOL 318	Developmental Biology	(4)		
BIOL 319	Pre-Health Microbiology	(4)		
BIOL 329	Pre-Health Microbiology Lab	(2)	&	
BIOL/BCHM 401	Molecular Genetics	(4)		
BIOL 402	Immunology	(4)		
BIOL/BCHM 403	Biochemistry	(4)		
BIOL 405	Vertebrate Endocrinology	(4)		
BIOL 421	Microbiology Lab	(4)	&	
BIOL/BCHM 425	Molecular Biology Lab	(2)	&	
BIOL/BCHM 426	Biochemistry Lab	(2)	&	
BIOL 427	Cell Biology Lab	(2)	&	
BIOL 428	Functional Genomics & Proteomics	(4)	&	
BIOL 407/480/483	Additional <b>Approved</b> Seminar	(2/4)		
Research	BIOL 297/495/496/497/498 (see advisor)			

TYPE B BIOLOGY ELECTIVES				
Course #	Name	cr	Attr	
BIOL 351	Mechanisms of Evol	(4)		
BIOL 371	Zoology	(4)	&	
BIOL 379	Biology & Cons of Birds	(4)	&	
BIOL 437	Biostatistics	(4)		
BIOL 451	Current Topics in EvoS	(2)		
BIOL 475	Entomology	(4)	&	
BIOL 480/483	Additional <b>Approved</b> Seminar	(2/4)		
Research	BIOL 297/495/496/497/498 (see advisor)			

### Notes:

-It is the student's responsibility to determine whether pre-requisites are needed for any courses

-Only PSYC 397 is taken pass/fail

-BIOL 451 can only count toward the Integrative Neuroscience major once (2007 Bulletin).

**-& Indicates course can also fulfill the Lab requirement.**