



This course plan is a **recommended** sequence for this major, **not** a guarantee of availability. Courses designated as important (!) may have a deadline for completion and/or affect time to graduation.

Importance	Course	Units	Upper Division Units	Min. Grade	Prerequisites	Notes
<b>1st Semester (13 Units)</b>						
!	ENGL 101 - First Year Composition	3			101.0 - 101.9 Foundations Writing Evaluation score	
!	MATH 100 - Math Lab	3			0-39 Math Placement Exam score	Starting math course based on placement score received on the <b>Math Placement Exam</b> .
!	SAS 100AX - Student Success Strategies for Math and Beyond	2				Course must be taken if enrolled in MATH 100. Students are confined to a 13-unit enrollment maximum for the semester.
!	UNIV 101 - Introduction to General Education	1				Entry course.
	NROS 195B - Engaging Topics in Neuroscience & General Education Course 1*	1				Freshman colloquium course for NSCS students.
		3				See Note*
<b>2nd Semester (14 Units)</b>						
!	ENGL 102 - First Year Composition	3				
!	MATH 112 - College Algebra Concepts & Applications	3			55 on MATH 100 Final	
!	PSY 150A1 - The Structure of Mind & Behavior	4				<i>Gened Social Scientist</i>
	Second Language Course (1st Semester Proficiency)	4			Second Language Placement Exam score	See advisor for course placement after <b>Second Language Placement Exam</b> has been taken. Second-semester proficiency is needed to fulfill NSCS major requirements.
<b>3rd Semester (15 Units)</b>						
!	MATH 120R - Calculus Preparation	4		C	60-74 Math Placement Exam score or MATH 112	
!	CHEM 151 - Chemical Thinking I	4			60+ Math Placement Exam score or MATH 112	Honors section available - <b>CHEM 161 &amp; CHEM 163</b> . Credit is only allowed for one lecture & lab combination.
	Second Language Course (2nd Semester Proficiency)	4		C	Second Language Placement Exam score	See advisor for course placement after <b>Second Language Placement Exam</b> has been taken. Second-semester proficiency is needed to fulfill NSCS major requirements.
	General Education Course 2*	3				See Note*
<b>4th Semester (16 Units)</b>						
!	MATH 122A - Functions for Calculus	1		C	75+ Math Placement Exam score or MATH 120R with a grade of C or higher	
!	MATH 122B - First Semester Calculus	4			MATH 122A with grade of C or higher	<b>MATH 125</b> equivalent.
!	CHEM 152 - Chemical Thinking II	4			CHEM 151 or CHEM 161 & CHEM 163 ( <i>honors section</i> )	Honors section available - <b>CHEM 162 &amp; CHEM 164</b> . Credit is only allowed for one lecture & lab combination.
!	MCB 181R <b>and</b> MCB 181L - Introductory Biology I	4			40+ Math Placement Exam score or MATH 112/120R/122B/125	
	General Education Course 4*	3	3			See Note*
<b>5th Semester (16 Units)</b>						
!	NSCS 200 - Fundamentals of Neuroscience & Cognitive Science	3			PSY 150A1 <b>or</b> PSY 101 <b>and</b> MCB 181R & MCB 181L or concurrent enrollment	Prerequisite for <b>all</b> NSCS and NROS courses.
	CHEM 241A - Lectures in Organic Chemistry	3			CHEM 152 or CHEM 162 ( <i>honors section</i> )	Honors section available - <b>CHEM 242A</b> . Credit is only allowed for one lecture.
	CHEM 243A - Organic Chemistry Laboratory I	1			CHEM 152 or CHEM 162 & CHEM 164 ( <i>honors section</i> )	Honors section available - <b>CHEM 244A</b> . Credit is only allowed for one lecture.
	PHIL 241 - Consciousness & Cognition	3				
	MATH 263 - Introduction to Statistics & Biostatistics (recommended for pre-med students) <b>or</b> PSY 230 - Psychological Measurement & Statistics	3			<b>MATH 263:</b> 60+ Math Placement Exam score or MATH 112/122B/125 <b>PSY 230:</b> MATH 112 & PSY 150A1 <b>or</b> PSY 101	Only complete <b>one</b> option.
	General Education Course 3*	3				See Note*
<b>6th Semester (17 Units)</b>						
	CGSC 320 - Issues & Themes in Cognitive Science	3	3		NSCS 200	
	CGSC 321 - Methods in Cognitive Science	1	1		NSCS 200	
!	PHYS 102 <b>and</b> PHYS 181 - Introductory Physics I <b>or</b> PHYS 141 - Introductory Mechanics	4			60+ Math Placement Exam score or MATH 112/120R/122B/125	Only complete <b>one</b> option.
	General Education Course 5*	3	3			See Note*
	Emphasis Course 1**	3	3			See Note**
	Elective^	3	3			See Note^
<b>7th Semester (14-16 Units)</b>						
!	NROS 307 - Cellular Neurophysiology	3-4 ( <i>honors section available</i> )	3 to 4		NSCS 200, MCB 181R, <b>and</b> CHEM 151 or equivalent	Honors section is available for enrollment to students in the W.A. Franke Honors College
	NROS 308 - Methods in Neuroscience	1	1		NSCS 200	
	NROS 311 - Scientific Programming with MATLAB	3	3		NSCS 200	
!	NROS 310 - Molecular & Cellular Biology of Neurons	3-4 ( <i>honors section available</i> )	3 to 4		NSCS 200, MCB 181R <b>and</b> MCB 181L, CHEM 151 <b>and</b> CHEM 152 or equivalent	Honors section is available for enrollment to students in the W.A. Franke Honors College
	PHYS 103 <b>and</b> PHYS 182 - Introductory Physics II <b>or</b> PHYS 241 - Introductory Electricity & Magnetism	4			PHYS 102 & PHYS 181 <b>or</b> PHYS 141	Only complete <b>one</b> option.

**8th Semester (16 Units)**

!	NROS 418 - Fundamental Principles in Systems	3	3		NSCS 200 <i>and</i> NROS 307	
!	UNIV 301 - General Education Capstone	1	1		UNIV 101, General Education Foundations Writing <i>and</i> Math Courses, <i>and</i> five core General Education Courses	Exit course.
	Emphasis Course 2**	3	3			See Note**
	Emphasis Course 3**	3	3			See Note**
	Emphasis Course 4**	3	3			See Note**
	Emphasis Course 5**	3	3			See Note**
	Minimum Total Units	Min. Upper Division Units	Min. Units in Residence	Min. NSCS Major Units	Min. GPA Needed	Additional Degree Completion Notes
	120	42	30	35	2.00	<i>Program Post-Test Needs to be Completed</i>

**Notes**  
 \*Any General Education - Exploring Perspectives (1 course in each category: Artist, Humanist) or Building Connections (3 courses needed) course. Gened Social Scientist covered by PSY 150A1  
 \*\* 15 units needed in one of the emphasis topics listed: Cognition, Computation, Development & Aging, Language & Communication Science, Neurobiology, Philosophy of Mind, and Thematic. See advisor for more details.  
 † Elective course needed to reach 120 unit minimum for graduation

**CogSci Foundation Focus Course Listings**

Choose three (3) courses from at least two (2) categories:

**Cognitive Psychology**  
 LING 440 - The Bilingual Mind  
 PSY 333 - Judgement and Decision-Making  
 PSY 340 - Intro to Cognitive Development  
 PSY 426 - Advanced Human Memory  
 PSY 429 - Advanced Perception

**Linguistics**  
 LING 201 - Introduction to Linguistics  
 LING 341- Language Development  
 LING 432 - Psychology of Language  
 LING 449A - Biolinguistics

**Philosophy**  
 PHIL 202 - Introduction to Symbolic Logic  
 PHIL 346 - Minds, Brains and Computers  
 PHIL 442 - Knowledge and Cognition  
 PHIL 450 - Philosophy of Mind

**Emphasis Course Listings (15 Units)**

**Cognition**  
 ECOL 346 – Bioinformatics  
 ISTA 457 – Neural Networks  
 LING 432 – Psychology of Language  
 LING 440 – The Bilingual Mind  
 NROS 344 – Modeling the Mind: Comp Models of Cognition  
 NROS 412 – Molecular Mechanisms of Learning and Memory  
 NROS 415 – Electrophysiology Lab  
 PHIL 346 – Minds, Brains & Computers  
 PHIL 439 – Decision Theory  
 PSY 300 – Cognitive Neuroscience  
 PSY 313 – Drugs and the Brain  
 or PSY 413 – Drugs, Brain, and Behavior  
  
 PSY 321 – Brain Rehabilitation  
 PSY 326 – Human Memory  
 PSY 340 – Introduction to Cognitive Development  
 PSY 405 – Developmental Cognitive Neuroscience  
 PSY 412 – Animal Learning  
 PSY 422 – Introduction to Brain Connectivity  
 PSY 433 – Decisions and the Brain

**Computation**  
*Quantitative Foundation - Choose One Course*  
 ECE 220 – Basic Circuits  
 ISTA 311 – Foundations of Information & Inference  
 MATH 129 – Calculus II  
 MATH 254 – Introduction to Ordinary Differential Equations  
 MATH 355 – Analysis of Ord. Differential Equations  
 PHYS 141 – Introductory Mechanics & PHYS 241 – Introductory Electricity and Magnetism  
*Emphasis - Complete Twelve (12) Units*  
 BME 417 – Meas. & Data Analysis in Biomed. Engineering  
 BME 477 – Introduction to Biomedical Informatics  
 ECOL 346 – Bioinformatics  
 ISTA 410 - Bayesian Modeling and Inference  
 ISTA 421 - Introduction to Machine Learning  
 ISTA 450 - Artificial Intelligence  
 ISTA 457 – Neural Network  
 MATH 475A - Math Prin. of Numerical Analysis  
 MATH 485 - Mathematical Modeling  
 NROS 344 – Modeling the Mind: Computational Models of Cognition  
 NROS 415 – Electrophysiology Lab  
 PHIL 455 - Philosophy and Artificial Intelligence

**Language and Communication Science**  
 LING 300 – Introduction to Syntax  
 LING 315 – Introduction to Phonology  
 LING 322 – The Structure & Meaning of Words  
 LING 341 – Language Development  
 LING 364 – Introduction to Formal Semantics  
 LING 388 – Language & Computers  
 LING 432 – Psychology of Language  
 LING 440 – The Bilingual Mind  
 LING 449A – Biolinguistics  
 PSYS 407 – Language and Thought: A Cognitive Psychology/Neuroscience Perspective  
 SLHS 340 – Language Science  
 SLHS 362 – Neurobiology of Communication  
 SLHS 380 – Hearing Science  
 SLHS 441 – Language Acquisition  
 SLHS 473 – Communication Disorders II

**Notes:**  
 Students may choose to complete a Thematic Emphasis with courses of their choosing in a given theme. Thematic Emphases must be approved by the student's advisor, and the NSCS Director.  
  
 Students may use up to six (6) units of Upper Division Thesis, Independent Study, Directed Research, Internship, or Precptorship (max three [3] units) towards their emphasis.

**Development and Aging**  
 FCM 496D - Disability Perspectives in Research, Policy, and Practice  
 FSHD 413 – Issues in Aging  
 NROS 440 – How to Build a Brain: Mech. Of Neural Development  
 PSY 340 – Introduction to Cognitive Development  
 PSY 405 – Developmental Cognitive Neuroscience  
 PSY 405 – Developmental Cognitive Neuroscience  
 PSY 424 – Gerontology: A Multidisc. Perspective  
 PSY 459 – Adult Development and Aging  
 PSY 478 – Sleep and Sleep Disorders  
 SLHS 340 – Language Science

**Neurobiology**  
 ECOL 346 – Bioinformatics  
 or ISTA 457 – Neural Networks  
 or NROS 344 – Modeling the Mind: Comp. Models of Cognition  
 ECOL 487R/L – Animal Behavior w/lab  
 or NROS 381 – Animal Brains, Signals, Sex, and Social Behaviors  
 NROS 330 - Principles of Neuroanatomy: Cells to Systems  
 NROS 412 – Molecular Mechanisms of Learning and Memory  
 NROS 415 – Electrophysiology Lab  
 NROS 420 – Sensing and Action in Predator/Prey Encounters  
 NROS 430 – Neurogenetics  
 NROS 440 – How to Build a Brain: Mech. of Neural Development  
 PSY 321 – Brain Rehabilitation  
 PSY 313 – Drugs and the Brain  
 or PSY 413 – Drugs, Brain, and Behavior

**Philosophy of Mind**  
 PHIL 305 – Intro to Philosophy of Science  
 PHIL 345 – Philosophy and Psychiatry  
 PHIL 346 – Minds, Brains & Computers  
 PHIL 347 – Neuroethics  
 PHIL 376 – Intro to the Philosophy of Language  
 PHIL 437 – Moral and Social Evolution  
 PHIL 439 – Decision Theory