

# NEUROSCIENCE & COGNITIVE SCIENCE CURRICULUM

## Catalog Years 2013-14 through 2016-17

**PLEASE NOTE:** NSCS has different curriculum requirements depending on Catalog Year. Students in catalogs prior to 2013-14 or after 2016-17 have different requirements than those listed here and should consult the appropriate curriculum sheet. It should also be noted that both tracks require the same number of units, although the neuroscience track has more units required in the foundation and the cognitive science track has more units required in the core.

### UNIVERSITY FOUNDATIONS & GENERAL EDUCATION

#### **English Composition** (two courses or one of honors)

ENGL 101 – First-Year Composition  
 ENGL 102 – First-Year Composition  
 or ENGL 109H - Honors Composition

#### **Second Language**

Second semester proficiency  
 by credit or exam required

#### **Mathematics**

Requirement met with NSCS course work

#### **Tier One General Education**

Individuals and Societies (2 courses)\_(PSY 101 or 150A1 satisfies one)  
 Traditions and Cultures (2 courses)

#### **Tier Two General Education**

Arts (3 units)  
 Humanities (one course)  
 Individuals & Societies (Requirement met w/NSCS foundation course - PHIL 241)

#### **Diversity Emphasis** (Gender/Race/Class/Ethnicity/Sexual Orient./Non Western)

One undergraduate course must be taken from the Diversity Emphasis list;  
 certain Tier One and Tier Two courses meet this requirement

### NSCS FOUNDATION COURSES

Students will be **ELIGIBLE TO APPLY** to the full major when they have met the following requirements:

- Completed MCB 181R/L, CHEM 151, and PSY 101 or 150A1. These courses must be completed before taking NSCS 200
- Completed or enrolled in calculus, statistics, CHEM 152 (neuro track only), and LING 201 (cog sci track)
- Science GPA of at least 2.5
- Enrolled in NSCS 200

(Physics, organic chemistry [neuro track], programming, & PHIL 241 may be completed before or after admission to the major)

#### **Chemistry** (4 units for cog sci; 12 units for neuro)

CHEM 151 – General Chemistry I (4)

#### **Neuroscience Track Only**

CHEM 152 – General Chemistry II (4)  
 CHEM 241A – Organic Chemistry (3)  
 CHEM 243A – Organic Chemistry Lab (1)

#### **Biology**

MCB 181R – Introductory Biology I (3)  
 MCB 181L – Introductory Lab I (1)

#### **Physics** (4 units for cog sci; 8 units for neuro)

PHYS 102 – Introductory Physics I (3)  
 PHYS 181 – Intro Lab I (1)  
 or PHYS 141 – Intro Mechanics (4)

#### **Neuroscience Track Only**

PHYS 103 – Introductory Physics II (3)  
 PHYS 182 – Intro Lab II (1)  
 or PHYS 241 – Intro Elect & Magnetism (4)

#### **Mathematics**

MATH 122A&B – First Semester Calculus (5)  
 or MATH 125 – Calculus I (3)

#### **Statistics** (choose one – MATH 263 recommended for pre-health students)

ISTA 116 – Statistical Foundations for the Information Age (3)  
 or MATH 263 – Introduction to Statistics and Biostatistics (3)  
 or PSY 230 – Psychological Measurement and Statistics (3)

#### **Programming** (choose one)

NROS 311 – Scientific Programming with MATLAB (3)  
 or ISTA 130 – Computational Thinking and Doing (4)  
 or CSC 110 – Introduction to Computer Programming I (or CSC 127A) (4)

#### **Psychology & Philosophy** (take one of the two PSY course options and PHIL 241)

PSY 101 – Intro to Psychology or PSY 150A1 – Struct of Mind & Brain (3)  
 PHIL 241 – Consciousness and Cognition (3)

#### **Cognitive Science Track Only**

#### **Linguistics**

LING 201 – Introduction to Linguistics

### NSCS GATEWAY COURSE (APPLY TO THE MAJOR WHILE ENROLLED)

Students typically apply to the NSCS major while enrolled in NSCS 200 and must successfully complete the course with a grade of B or higher to be officially admitted to the major. Admission to the NSCS major is competitive.

Course	Units	Typically Offered	Prerequisites
NSCS 200 – Fundamentals of Neuroscience & Cognitive Science	3	Spring	MCB 181R/L and PSY 101 or 150A1

## NSCS MAJOR CORE COURSES (TAKE ONLY AFTER NSCS 200 HAS BEEN COMPLETED)

<i>Course</i>	<i>Units</i>	<i>Typically Offered</i>	<i>Prerequisites</i>
NROS 307 – Cellular Neurophysiology ( <i>Honors section</i> )	3-4	Fall only	NSCS 200, MCB 181R/L, CHEM 151
NSCS 315B – Methods in Neuroscience	1	Fall only	NSCS 200
NSCS 315A – Methods in Cognitive Science	1	Fall only	NSCS 200
NSCS 320 – Issues and Themes in Cognitive Science	3	Fall only	NSCS 200, PSY 101 or 150A1

### Neuroscience Track Only

NROS 310 – Molecular & Cellular Bio of Neurons ( <i>Honors section</i> )	3-4	Spring only	NSCS 200, MCB 181R/L, CHEM 151
NROS 418 – Fundamental Principles in Systems Neuroscience	3	Spring only	NSCS 200, NROS 307

### Cognitive Science Track Only

#### Take BOTH of these courses

PSY 300 – Cognitive Neuroscience (formerly PSY 325)	3	Fall, Spring, Sum	PSY 101 or 150A1
NSCS 344 – Modeling the Mind: Comp Models of Cognition	3	Spring only	Stats & Intro Programming

#### Take ONE course from each category below (typically offered term is listed beside each course)

#### COGNITIVE PSYCHOLOGY (Each course is 3 units and requires PSY 101 or 150A1 as a pre-requisite)

PSY 326 – Human Memory (Spring, Sum)	PSY 340 – Intro to Cognitive Development (Fall, Spring, Sum)
PSY 329 – Sensation and Perception (Varies)	PSY 433 – Neuroeconomics (Fall)
PSY 333 – Judgement and Decision Making (Spring)	

#### LINGUISTICS (Each course is 3 units and requires LING 201 as a pre-requisite)

LING 300 – Introduction to Syntax (Fall, Spring)	LING 388 – Language and Computers (Spring)
LING 315 – Introduction to Phonology (Fall, Spring)	LING 432 – Psychology of Language (Fall, Spring, Sum)
LING 322 – Structure and Meaning of Words (Fall, Spring, Sum)	LING 449A – Biolinguistics (Spring)
LING 341 – Language Development (Fall, Spring, Sum)	

#### PHILOSOPHY (Each course is 3 units and requires PHIL 241 as a pre-requisite)

PHIL 346 – Minds, Brains and Computers (Fall, Spring, Sum)	PHIL 450 – Philosophy of Mind (Fall)
PHIL 442 – Knowledge and Cognition (Fall)	PHIL 455 – Philosophy & Artificial Intelligence (Varies)

## NSCS SPECIAL LECTURE REQUIREMENT

NSCS offers two special lectures each year, one on **Ethics** and one on **Science Policy**. NSCS students are required to attend at least one Ethics and one Science Policy lecture during their time in the NSCS program in order to graduate. Students who have not completed this requirement by the time they are ready to graduate will be required to complete a make-up assignment for each lecture that they missed.

## NSCS EMPHASIS ELECTIVES

Choose one emphasis from the options below and complete 15 units from your selected emphasis. The NSCS Emphasis Course List can be found on the NSCS website. A maximum of 6 units of upper-division research, internship, preceptorship (max 3 units) or honors thesis credit can be applied to any emphasis. PLEASE NOTE: Some courses are listed in more than one area of the NSCS curriculum (ie: core and emphasis). The same course cannot be used to fulfill more than one requirement; separate courses must be taken to fulfill each requirement.

**Cognition**  
**Computation**  
**Development and Aging**  
**Language and Communication Science**  
**Neurobiology**  
**Philosophy of Mind**  
**Thematic**

#### Additional Graduation Requirements

*(Minimum limits)*

120 Total Units	42 Upper Division Units
2.0 Cumulative GPA	2.0 Major GPA
30 Units Taken at UA	18 NSCS Units Taken at UofA
18 of Final 30 Units Taken at UofA	
Mid-Career Writing Assessment (MCWA) Satisfied	