

Fall 2020 Course Descriptions as of 04/02/2020 08:12 PM

Information in Browse Course Catalog is subject to change. Information is term specific. Please refer to the appropriate term when searching for course content. Key to Course Descriptions may be found at: http://rcs.registrar.arizona.edu/course_descriptions_key.

Neuroscience & Cognitive Sci (NSCS)

NSCS 170C1: Frontiers in Brain Science (3 units)

Description: Explores how scientists are challenging and changing our ideas of how the brain develops and functions over the human lifespan, how it responds to the demands of learning, disease and injury, and how close we are to living with droids and cyborgs.

Grading basis: Regular Grades

Career: Undergraduate

Course Components:	Discussion	May Be Offered
	Lecture	Required

Course typically offered:

Main Campus: Fall

General Education: NATS 104

Honors Course: Honors Contract

Honors Course: Honors Contract

NSCS 195A: Freshman Colloquium (1 unit)

Description: A discussion-based course designed to bring pre-majors into the NSCS community early in their university tenure, to support first-year pre-majors as they adjust to university life and expectations, and to provide information about the NSCS program and opportunities.

Grading basis: Regular Grades

Career: Undergraduate

Course Components:	Colloquium	Required
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Course typically offered:

Main Campus: Fall

Enrollment requirement: Pre-major: Neuroscience & Cognitive Science.

Freshman Colloquia: Freshman Colloquia

Success Course: Success Course

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

NSCS 195B: Engaging Topics in Neuroscience and Cognitive Science (1 unit)

Description: A discussion-based course that will allow pre-NSCS freshmen to explore a neuroscience or cognitive science topic, network with other pre-NSCS students, and get to know a neuroscience or cognitive science professor.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Colloquium Required

Course typically offered:

Main Campus: Fall

Enrollment requirement: Pre-major: Neuroscience & Cognitive Science.

Freshman Colloquia: Freshman Colloquia

NSCS 199: Independent Study (1 - 5 units)

Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.

Grading basis: Alternative Grading: S, P, F

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 99 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

NSCS 199H: Honors Independent Study (1 - 5 units)

Description: Qualified Honors students working on an individual basis with professors who have agreed to supervise such work.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 99 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.

Honors Course: Honors Course

Honors Course: Honors Course

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

NSCS 200: Fundamentals of Neuroscience & Cognitive Science (3 units)

Description: Fundamental concepts in the development, evolution, organization and function of neural circuits underlying behavior, including biological, ethological, computational and psychological perspectives. The course will provide an introduction to the principles of neuroanatomy, neurophysiology and cognitive science. Topics will be addressed with material from philosophy, psychology, computer science and neuroscience, and will incorporate data from work with animals, humans and machines.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Lecture Required

Course typically offered:

Main Campus: Spring

Enrollment requirement: MCB 181R and PSY 101 or equivalent.

NSCS 299: Independent Study (1 - 5 units)

Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.

Grading basis: Alternative Grading: S, P, F

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 99 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

NSCS 299H: Honors Independent Study (1 - 5 units)

Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 99 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.

Honors Course: Honors Course

Honors Course: Honors Course

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

NSCS 307: Cellular Neurophysiology (3 - 4 units)

Description: Molecular and biophysical mechanisms underlying the signals within and between neurons and glial cells. Examination of properties of individual neurons followed by study of how these cells function in circuits and how circuits can change with experience. Emphasizes the importance of experimental data and model systems to understand the functions of cells in the nervous system.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Discussion May Be Offered
 Required
 Lecture

Equivalent to: BIOC 407, MCB 407, NRSC 407, PSYC 407

Course typically offered:

Main Campus: Fall

Recommendations and additional information: MCB181R , CHEM 151 with lab. Credit for NROS 307 or MCB 407 (BIOC 407, NRSC 407, PSYC 407) but not both.

Enrollment requirement: NSCS 308, or NSCS 200 required for PRNCND majors. In progress ok.

Honors Course: Honors Contract

Honors Course: Honors Contract

NSCS 308: Methods in Neuroscience (1 unit)

Description: This course will introduce you to experimental methods in neuroscience, including computer simulation modeling of neuronal activity and selected experimental techniques commonly used in neuroscience. Each class will be a mix of active learning exercises and in-class discussion. Grades will be based on problem sets completed during class. The course also has an online component - PLEASE NOTE As part of the credit for this course, you must complete an online course on Responsible Conduct of Research: Biomedical Research Focus (www.citiprogram.org). Certificates of online course completion must be put in your D2L dropbox for RCR prior to the last day of classes.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Discussion Required

Course typically offered:

Main Campus: Fall

Enrollment requirement: Prerequisite or concurrent enrollment in NROS 307. NSCS major or pre-major. If pre-major, NSCS 200 must be in progress or completed.

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

NSCS 311: Scientific Programming Using Matlab (3 units)

Description: This course will provide an introduction to computer programming in Matlab, a practical high-level computing language freely available on campus and commonly used in Neuroscience and Cognitive Science research. The course will be graded based on in-class challenges and multiple programming assignments.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Lecture Required

Course typically offered:

Main Campus: Fall

Enrollment requirement: Major or pre-major in Neuroscience & Cognitive Science.

NSCS 320: Issues and Themes in Cognitive Science (3 units)

Description: This course covers the major themes and issues in Cognitive Science, with an emphasis on philosophical foundations, cognitive architecture, and modeling approaches.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Lecture Required

Course typically offered:

Main Campus: Fall

Enrollment requirement: NSCS 200 required for PRNCND majors.

Honors Course: Honors Contract

Honors Course: Honors Contract

NSCS 321: Methods in Cognitive Science (1 unit)

Description: This course will introduce students to experimental methods in cognitive science and cognitive neuroscience including computer modeling and selected experimental techniques, which may include neuroimaging, measurement of event-related potentials, eye tracking, and monitoring of autonomic nervous system function.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Lecture Required

Course typically offered:

Main Campus: Fall

Enrollment requirement: NSCS major or pre-major. If pre-major, NSCS 200 must be in progress or completed.

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

NSCS 344: Modeling the Mind: Computational Models of Cognition (3 units)

Description: The goal of this class is to provide an introduction to the art of computational modeling in Cognitive Science using the Matlab programming language. Topics will include, how we model learning and simple decisions, how we connect computational models to observed experimental data (such as choices and neural activations) and how we can use modeling to design better experiments to test complex hypotheses. The class will be very much a "hands on" class, every week students will create a different model, starting in class and finishing at home. At the end, students should be able build a computational model from scratch, fit a model to data and determine which of a set of models best fits the observed experimental data.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Lecture Required

Course typically offered:

Main Campus: Spring

Recommendations and additional information: CSC 127A or ISTA 130 or other programming course. MATH 263 or PSY 230 or ISTA 116 or other statistics course.

Honors Course: Honors Contract

Honors Course: Honors Contract

NSCS 392: Directed Research (1 - 6 units)

Description: Individual or small group research under the guidance of faculty.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 12 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Student Engagement Activity: Discovery

Student Engagement Competency: Innovation and Creativity

NSCS 392H: Honors Directed Research (1 - 6 units)

Description: Individual or small group research under the guidance of faculty.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 12 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.

Honors Course: Honors Course

Honors Course: Honors Course

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

NSCS 393: Internship (1 - 6 units)

Description: Specialized work on an individual basis, consisting of training and practice in actual service in a technical, business, or governmental establishment.

Grading basis: Alternative Grading: S, P, F

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 12 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

NSCS 393H: Honors Internship (1 - 6 units)

Description: Specialized work for Honors students on an individual basis, consisting of training and practice in actual service in a technical, business, or governmental establishment.

Grading basis: Alternative Grading: S, P, F

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 12 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.

Honors Course: Honors Course

Honors Course: Honors Course

NSCS 399: Independent Study (1 - 5 units)

Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.

Grading basis: Alternative Grading: S, P, F

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 99 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Student Engagement Activity: Discovery

Student Engagement Competency: Innovation and Creativity

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

NSCS 399H: Honors Independent Study (1 - 5 units)

Description: Qualified students working on individual basis with professors who have agreed to supervise such work.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 99 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.

Honors Course: Honors Course

Honors Course: Honors Course

Student Engagement Activity: Discovery

Student Engagement Competency: Innovation and Creativity

NSCS 440: How to Build a Brain: Mechanisms of Neural Development (3 units)

Description: This course will allow students to explore and analyze our current knowledge of how neurons are born, organized into circuits, shaped by activity, and regenerated after injury. Students will connect the mechanisms of nervous system development with diseases affecting the process. Finally, students will practice and then present critical analysis of published data in the field of developmental neuroscience.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Lecture Required

Course typically offered:

Main Campus: Spring

Enrollment requirement: NSCS 200 (in progress OK)

Honors Course: Honors Contract

Honors Course: Honors Contract

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

NSCS 450: Neurons and Glia in Health and Disease (3 units)

Description: This is a discussion-based course in which students explore in depth a series of landmark papers that have dramatically changed prevailing views of the roles of neuron-glia interactions in the healthy state and in various pathological conditions. The focus will be on novel experimental approaches and findings, interpretation of the findings in the historical context of the time of publication, and current impact. Several sessions will have a strong clinical component. A major goal is to use this exploration to synthesize knowledge and skills learned in earlier courses in the core or elective NSCS curriculum. Students will be expected to think and read critically, engage in self-initiated learning, and work effectively both individually and in groups. Students will read from the primary literature, present papers in detail, and lead critical discussion of those papers. The major writing assignment will focus on a disorder covered in one of the clinical sessions.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Lecture Required

Course typically offered:

Main Campus: Spring

Recommendations and additional information: NSCS 200 and NSCS 315B and NROS 307.

Enrollment requirement: Major: Neuroscience & Cognitive Science.

Honors Course: Honors Contract

Honors Course: Honors Contract

NSCS 491: Preceptorship (1 - 3 units)

Description: Specialized work on an individual basis, consisting of instruction and practice in actual service in a department, program, or discipline. Teaching formats may include seminars, in-depth studies, laboratory work and patient study.

Grading basis: Alternative Grading: S, P, F

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 2 times.

Course typically offered:

Main Campus: Fall, Spring

Student Engagement Activity: Leadership

Student Engagement Competency: Professionalism

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

NSCS 491H: Honors Preceptorship (1 - 3 units)

Description: Specialized work on an individual basis, consisting of instruction and practice in actual service in a department, program, or discipline. Teaching formats may include seminars, in-depth studies, laboratory work and patient study. Requires faculty member approval, preceptor application on file with department.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 2 times.

Course typically offered:

Main Campus: Fall, Spring

Enrollment requirement: Student must be active in the Honors College.

Honors Course: Honors Course

Honors Course: Honors Course

Student Engagement Activity: Leadership

Student Engagement Competency: Professionalism

NSCS 492: Directed Research (1 - 5 units)

Description: Individual or small group research under the guidance of faculty.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 99 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Student Engagement Activity: Discovery

Student Engagement Competency: Innovation and Creativity

NSCS 492H: Honors Directed Research (1 - 6 units)

Description: Individual or small group research under the guidance of faculty.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 12 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.

Honors Course: Honors Course

Honors Course: Honors Course

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

NSCS 493: Internship (1 - 6 units)

Description: Specialized work on an individual basis, consisting of training and practice in actual service in a technical, business, or governmental establishment.

Grading basis: Alternative Grading: S, P, F

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 12 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

NSCS 493H: Honors Internship (1 - 6 units)

Description: Specialized work for Honors students on an individual basis, consisting of training and practice in actual service in a technical, business, or governmental establishment.

Grading basis: Alternative Grading: S, P, F

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 12 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.

Honors Course: Honors Course

Honors Course: Honors Course

NSCS 495: Intriguing Topics in Neuroscience and Cognitive Science (1 - 3 units)

Description: Course content varies by semester. May be repeated when topics vary.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Colloquium Required

Repeatable: Course can be repeated a maximum of 20 times.

Enrollment requirement: Major: Neuroscience & Cognitive Science.

NSCS 497A: NSCS Mentoring Workshop (1 - 3 units)

Description: Mentoring workshop for NSCS majors who are mentoring NSCS pre-majors. This course will help facilitate a strong mentoring relationship between the mentors and their mentees as well as build the mentors knowledge and skills for future mentoring opportunities.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Workshop Required

Course typically offered:

Main Campus: Fall

Student Engagement Activity: Leadership

Student Engagement Competency: Professionalism

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

NSCS 498: Senior Capstone (3 units)

Description: A culminating experience for majors involving a substantive project that demonstrates a synthesis of learning accumulated in the major, including broadly comprehensive knowledge of the discipline and its methodologies. Senior standing required.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 2 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Student Engagement Activity: Creative Expression

Student Engagement Competency: Innovation and Creativity

NSCS 498H: Honors Thesis (3 units)

Description: An honors thesis is required of all the students graduating with honors. Students ordinarily sign up for this course as a two-semester sequence. The first semester the student performs research under the supervision of a faculty member; the second semester the student writes an honors thesis.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 2 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.

Honors Course: Honors Course

Honors Course: Honors Course

Student Engagement Activity: Creative Expression

Student Engagement Competency: Innovation and Creativity

Writing Emphasis: Writing Emphasis Course

NSCS 499: Independent Study (1 - 5 units)

Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.

Grading basis: Alternative Grading: S, P, F

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 99 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Student Engagement Activity: Discovery

Student Engagement Competency: Innovation and Creativity

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

NSCS 499H: Honors Independent Study (1 - 5 units)

Description: Qualified students working on individual basis with professors who have agreed to supervise such work.

Grading basis: Regular Grades

Career: Undergraduate

Course Components: Independent Study Required

Repeatable: Course can be repeated a maximum of 99 times.

Course typically offered:

Main Campus: Fall, Spring, Summer

Enrollment requirement: Student must be active in the Honors College.

Honors Course: Honors Course

Honors Course: Honors Course

Student Engagement Activity: Discovery

Student Engagement Competency: Innovation and Creativity

-SA represents a Student Abroad & Student Exchange offering

-CC represents a Correspondence Course offering

May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.