Areas of Specialization

The Department of Cognitive Science has instituted optional "areas of specialization" within the Cognitive Science major for the BS degree only.

The areas of specialization are intended to provide majors with guidance in choosing elective courses and to make the specific interests and training of a major clear to prospective employers and graduate schools. Specifying an area of specialization is optional; however, students should take into consideration that approved courses are not necessarily offered every year, when planning for their specialization.

To major in Cognitive Science with an area of specialization, student must fulfill the requirements for the BS degree and must choose 4 of the required 6 electives from the list of approved electives for that area of specialization. In addition, a Cognitive Science 199 may be allowed for elective credit within the specialization if the research project was clearly in one of the specialization areas. The specialization area will be listed on the transcript.

NEUROSCIENCE SPECIALIZATION

Major code: CG29

This area of specialization is intended for majors interested in neuroscience research or medicine. Allowed electives include courses in cognitive neuroscience, organic chemistry, biochemistry, and physiology.

Cognitive Science
COGS 119: Programming/Experimental Res.
COGS 143: Animal Cognition
COGS 154: Comm. Disorders Child/Adults
COGS 160: Sem Special Topics (if topic applies)
COGS 170: Nat/Art Sym. Rep. Systems
COGS 171: Mirror neuron System
COGS 172: Brain Disorders and Cognition
COGS 174: Drugs: Brain, Mind, and Culture
COGS 175: Neuropy / States of Consciousness
COGS 176: From Sleep to Attention
COGS 177: Space and Time in the Brain
COGS 179: Electrophysiology of Cognition
COGS 180: Neural Coding/Sensory Systems
COGS 184: Modeling the Evolution of Cognition

Biochemistry
BIBC 100: Structural Biochemistry
BIBC 102: Metabolic Biochemistry

Biology-Animal Physiology and Neuroscience
BIPN 100:Mammalian Physiology I
BIPN 105: Animal Physiology Lab
BIPN 144: Developmental Neurobiology
BIPN 146: Computational Neurobiology
BIPN 148: Cellular Basis of Learning and Memory

Chemistry
CHEM 140A: Organic Chemistry
CHEM 140B: Organic Chemistry
CHEM 140C: Organic Chemistry
CHEM 141A: Organic Chemistry
CHEM 141B: Organic Chemistry
CHEM 143A: Organic Chemistry Laboratory
CHEM 143B: Organic Chemistry Laboratory
CHEM 143C: Organic Laboratory

Cog Science Department
University of California, San Diego
9500 Gilman Drive, MC #0515
La Jolla, Ca 92093-0515

Phone: (858) 534-6771
Fax: (858) 534-1128
Email: ugradinfo@cogsci.ucsd.edu
Website: www.cogsci.ucsd.edu
Location: Room 140, Cognitive Science Building
Thurgood Marshall Campus, UCSD

COGS 102C: Cognitive Engineering
COGS 119A: Natural Computation I
COGS 119B: Natural Computation II
COGS 121: H2 Programming
COGS 160: Sem Special Topics (if topic applies)
COGS 171: Mirror neuron System
COGS 180: Neural Coding/Sensory Systems
COGS 185: Adv. Machine Learning Methods
COGS 187A: Multimedia Design I
COGS 187B: Multimedia Design II
COGS 189: Brain Computer Interfaces

Biology-Animal Physiology and Neuroscience
BIPN 146: Computational Neurobiology

Computer Science and Engineering*
CSE 100: Advanced Data Structures
CSE 101: Design and Analysis of Algorithms
CSE 105: Theory of Computability
CSE 102: Storage System Architectures
CSE 130: Program Lang. Prin. and Paradigms
CSE 131: Compiler Construction
CSE 150: Intro to AI: Search and Reasoning
CSE 151: Intro to AI: Statistical Approaches
CSE 160: Intro to Parallel Computation

Math
MATH 170A: Numerical/Linear Algebra
MATH 170B: Numerical/Approx + Nonlinear
MATH 170C: Numerical/Differential Equations
MATH 180A: Introduction to Probability
MATH 180B: Intro. to Stochastic Processes I
MATH 180C: Intro. to Stochastic Processes II
MATH 189: Exploratory Data Analysis/Inference

LING 172: Language and the Brain

LINGUISTICS
LING 155: Evolution of Language
LING 170: Psycholinguistics
LING 171: Child Lang Acquisition
LING 174: Gender and Language in Society*
LING 175: Sociolinguistics
LING 180: Language Representation in the Brain
LING 181: Language Processing in the Brain

PSYC 115: Lab in Cognitive Psychology
PSYC 118B: Real-time Exam. of Lang. Process.
PSYC 119: Psycholinguistics/Cognition Lab

LING 116: Gender and Language in Society*
LING 118E: Sociology of Language

*Sociology
SOC 116: Gender and Language in Society*
SOC 118E: Sociology of Language

*Linguistics
LING 155: Evolution of Language
LING 170: Psycholinguistics
LING 171: Child Lang Acquisition
LING 174: Gender and Language in Society*
LING 175: Sociolinguistics
LING 180: Language Representation in the Brain
LING 181: Language Processing in the Brain

PSYC 115: Lab in Cognitive Psychology
PSYC 118B: Real-time Exam. of Lang. Process.
PSYC 119: Psycholinguistics/Cognition Lab

Sociology
SOC 116: Gender and Language in Society*
SOC 118E: Sociology of Language

*Cognitive Science
COGS 110: The Developing Mind
COGS 119: Programming/Experimental Res.
COGS 143: Animal Cognition
COGS 151: Analogy and Conceptual Systems
COGS 152: Cognitive Foundations of Math
COGS 153: Language Comprehension
COGS 154: Comm. Disorders Child/Adults
COGS 155: Gesture and Cognition
COGS 156: Language Development
COGS 157: Music and the Mind
COGS 160: Sem Special Topics (if topic applies)
COGS 171: Mirror neuron System

We cannot guarantee these courses for Cog Sci majors as many CSE courses are very impacted. Also, CSE 102, and 160 may not be offered on a regular basis.
### CLINICAL ASPECTS of COGNITION SPECIALIZATION
**Major Code: CG31**

This area of specialization is intended for majors interested in cognitive neuropsychology, psychiatry, cognitive disorders, and the effects of drugs and brain damage on cognitive functions. Allowed electives include courses in those topics, as well as organic chemistry, biochemistry and physiology.

#### Cognitive Science
- COGS 154: Communication Disorders in Children and Adults
- COGS 171: Mirror neuron System
- COGS 172: Brain Disorders and Cognition
- COGS 174: Drugs: Brain, Mind and Culture
- COGS 175: The Neuropsychological Basis of Alternate States of Consciousness
- COGS 176: From Sleep to Attention

#### Biochemistry
- BIBC 100: Structural Biochemistry
- BIBC 102: Metabolic Biochemistry

#### Biology-Animal Physiology and Neuroscience
- BIPN 100: Mammalian Physiology I
- BIPN 105: Animal Physiology Lab

#### Chemistry
- CHEM 140A: Organic Chemistry I
- CHEM 140B: Organic Chemistry II
- CHEM 141A: Organic Chemistry
- CHEM 141B: Organic Chemistry

#### Psychology
- PSYC 120: Learning and Motivation
- PSYC 125: Clinical Neuropsychology Assessment
- PSYC 124: Introduction to Clinical Psychology
- PSYC 140: Lab/Human Behavior
- PSYC 163: Abnormal Psychology
- PSYC 168: Psych, Disorders of Childhood
- PSYC 169: Brain Damage and Mental Functions
- PSYC 179: Drugs, Addiction, Mental Disorders
- PSYC 181: Drugs and Behavior
- PSYC 189: Impulse Control Disorders

### HUMAN-COMPUTER INTERACTION SPECIALIZATION
**Major Code: CG30**

This area of specialization is intended for majors interested in human computer interaction, web, visualization, and applications of cognitive science in design and engineering. Additional electives may be petitioned from communication, computer science, computer engineering and visual arts. Please note: We cannot guarantee enrollment in non-COGS courses (i.e., CSE, ECE, ICAM) for HCI students since many of these majors are very impacted and priority is given to students in those majors.

#### Cognitive Science
- COGS 119: Programming/Experimental Res.
- COGS 120: Human Computer Interaction
- COGS 121: HCI Programming
- COGS 160: Seminar in Contemporary Computer Topics
- COGS 171: Mirror neuron System
- COGS 187A: Cognitive Aspects of Multimedia Design
- COGS 187B: Cognitive Aspects of Multimedia Design II
- COGS 188: AI Algorithm & Social Language
- COGS 189: Brain Computer Interfaces
  - Plus any COGS 102 not used for core sequence

#### Communication
- COMM 101E: Media Production Lab: Ethnographic Methods for Media Production
- COMM 101M: Media Production Lab: Communicating and Computers
- COMM 102C: Practicum in New Media & Community Life
- COMM 105C: Computer Games Studies
- COMM 106: Internet Industry
- COMM 110T: LLC Language, Thought & Media
- COMM 111D: Critical Design
- COMM 112M: Communication and Social Machines
- COMM 120N: Advanced Media Production: News Media Workshop
- COMM 151: The Information Age: In Fact and Fiction
- COMM 173: Interaction with Technology

#### Computing and the Arts
- ICAM 101: Digital Imaging: Image and Interactivity
- ICAM 102: Digital Media I: Time, Movement, Sound
- ICAM 120: Virtual Environments
- ICAM 130: Seminar in Contemporary Computer Topics

#### Computer Science
- CSE 100: Advanced Data Structures
- CSE 101: Design and Analysis of Algorithms
- CSE 102: Storage System Architectures
- CSE 111: Object Oriented Software Design
- CSE 118: Ubiquitous Computing
- CSE 130: Programming Lang: Principles and Paradigms
- CSE 132A: Database System Principles
- CSE 132B: Database Systems Applications
- CSE 133: Information Retrieval
- CSE 134A: Web Server Languages
- CSE 134B: Web Client Languages
- CSE 135: Server-side Web Applications
- CSE 150: Introduction to Artificial Intelligence: Search and Reasoning
- CSE 151: Introduction to Artificial Intelligence: Statistical Approaches
- CSE 152: Intro Computer Vision
- CSE 167: Computer Graphics
- CSE 171: User Interface Design

#### Electrical and Computer Engineering
- ECE 161A: Introduction to Digital Signal Processing
- ECE 161B: Digital Signal Processing I
- ECE 161C: Applications of Digital Signal Processing
- ECE 172A: Introduction to Intelligent Systems: Robotics and Machine Intelligence
- ECE 187: Introduction to Biomedical Imaging and Sensing

#### Engineering
- ENG 100D: Design for Development

#### Philosophy
- PHIL 164: Technology and Human Values

#### Psychology
- PSYC 161: Introduction to Engineering Psychology

(Updated 2/18/16)