### 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, a 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 143: Animal Cognition
- COGS 154: Comm. Disorders Child/Adults
- COGS 160: Seminar on Special Topics (if topic applies)

**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 Chemistry Laboratory

**Linguistics**
- LIGN 172: Language and the Brain

**Psychology**
- PSYC 168: Psych. Disorders of Childhood
- PSYC 169: Brain Damg and Ment. Func.
- PSYC 179: Drugs, Addls., & Ment. Disord.
- PSYC 181: Drugs and Behavior

### Computation Specialization
**Major Code: CG27**

This area of specialization is intended for majors interested in software engineering or research in computational modeling of cognition. Allowed electives include advanced courses in neural networks, artificial intelligence, and computer science.

**Cognitive Science**
- COGS 102C: Cognitive Engineering
- COGS 118A: Natural Computation I
- COGS 118B: Natural Computation II
- COGS 121: HCI Programming
- COGS 160: Seminar on Special Topics (if topic applies)

**Computer Science and Engineering**
- CSE 100: Advanced Data Structures
- CSE 101: Design and Analysis of Algorithms
- CSE 102: Storage System Architectures
- CSE 130: Program Lang. Prin. and Paradigms
- CSE 131: Compiler Construction
- CSE 133: Information Retrieval
- CSE 160: Intro to Parallel Computation

**Math**
- MATH 180A: Introduction to Probability
- MATH 180B: Intro. to Stochastic Processes I
- MATH 180C: Intro. to Stochastic Processes II

### Human Cognition Specialization
**Major Code: CG28**

This area of specialization is intended for majors whose primary interests include human psychology and applications of cognitive science in design and engineering. Allowed electives include courses in cognitive development, language, laboratory research of cognition, anthropology and sociology.

**Cognitive Science**
- COGS 110: The Developing Mind
- COGS 143: Animal Cognition
- COGS 151: Analogy and Conceptual Systems
- COGS 153: Language Comprehension
- COGS 154: Comm. Disorders Child/Adults
- COGS 155: Gesture and Cognition
- COGS 156: Language Development
- COGS 160: Seminar on Special Topics (if topic applies)

**Psychology**
- PSYC 168: Psych. Disorders of Childhood
- PSYC 169: Brain Damg and Ment. Func.
- PSYC 179: Drugs, Addls., & Ment. Disord.
- PSYC 181: Drugs and Behavior

**Linguistics**
- LIGN 170: Psycholinguistics
- LIGN 171: Child Lang Acquisition
- LIGN 172: Language and the Brain
- LIGN 175: Sociolinguistics

**Sociology**
- SOCB 118A: Gender and Language in Society
- SOCB 118L: Sociology of Language

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- Cognitive 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

*(updated 12/10/10)*
**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.

<table>
<thead>
<tr>
<th>Cognitive Science</th>
<th>Biochemistry</th>
</tr>
</thead>
<tbody>
<tr>
<td>COGS 154: Communication Disorders in Children and Adults</td>
<td>BIBC 100: Structural Biochemistry</td>
</tr>
<tr>
<td>COGS 172: Brain Disorders and Cognition</td>
<td>BIBC 102: Metabolic Biochemistry</td>
</tr>
<tr>
<td>COGS 174: Drugs: Brain, Mind and Culture</td>
<td>Biology-Animal Physiology and Neuroscience</td>
</tr>
<tr>
<td>COGS 175: The Neuropsychological Basis of Alternate States of Consciousness</td>
<td>BIPN 100: Mammalian Physiology I</td>
</tr>
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<td>BIPN 105: Animal Physiology Lab</td>
</tr>
</tbody>
</table>

**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.  

<table>
<thead>
<tr>
<th>Cognitive Science</th>
<th>Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>COGS 120: Human Computer Interaction</td>
<td>COIS 126: The Information Age: In Fact and Fiction</td>
</tr>
<tr>
<td>COGS 121: Human Computer Interaction Programming</td>
<td>COIS 128: Cultural Industries</td>
</tr>
<tr>
<td>COGS 160: Upper-Division Seminar on Special Topics</td>
<td>COHI 117: Language, Thought, and the Media</td>
</tr>
<tr>
<td>COGS 183: Artificial Life</td>
<td>COHI 175: Advanced Topics in Communication: Human Information Processing</td>
</tr>
<tr>
<td>COGS 184: Modeling the Evolution of Cognition</td>
<td>COMT 110: News Media Workshop</td>
</tr>
<tr>
<td>COGS 187A: Cognitive Aspects of Multimedia Design</td>
<td>COMT 111AB: Communicating and Computers</td>
</tr>
<tr>
<td>COGS 187B: Cognitive Aspects of Multimedia Design II</td>
<td>COMT 112: Ethnographic Methods for Media Research</td>
</tr>
<tr>
<td>COGS 188: Representation, Search, and the Web</td>
<td>COMT 115: Media and Design of Social Learning Contexts</td>
</tr>
<tr>
<td>Plus any COGS 102 not used for core sequence</td>
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</tr>
</tbody>
</table>

**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  

**Electric 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 100: Principle of Team Engineering*  
*ENG 100L: Team Engineering Laboratory*  

*(Note: both ENG100/100L must be taken together to receive credit. Student can take either ENG100/100L or Cogs 199 but not both.)*