

Cognitive Science

Introduction

Cognitive science is the study of the mind, information systems, and the interface of these with technology. Its goal is to understand mental and informational processes, such as perception and knowledge representation, through experimental methods and the construction of theories and models at the computational and neural levels. In its application, cognitive science aims at the development of smart devices, such as artificial intelligence technologies and imaging technologies, which extend and enhance human capabilities.

Given the multidimensional nature of mind and intelligence, cognitive science combines a number of disciplines in its investigation: biology, computer science, education, mathematics, neuroscience, philosophy and psychology. The broadly based interdisciplinary approach will provide students with the type of flexible thinking and problem solving that are essential to serve the evolving technological needs of society in the 21st century. In addition, cognitive science students will develop skills in effective communication, creative thinking, hypothesis generation, experimental design, data analysis and interpretation, mathematical and computer modeling, and statistical analysis. Students with these skills will be well situated to meet the needs of the information industry, human factors engineering, medicine, including imaging and analysis, neurological testing, human performance testing, education, assistive technologies, and basic research.

General Requirements

Bachelor of Science Degree

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|-----------------------------|---------------|
| Total for graduation..... | 120 credits |
| General Education | 40 credits |
| Major Studies | 50-51 credits |
| Free Electives | 7-15 credits |
| Concentration or Minor..... | 15-22 credits |

Program Requirements

General Education

40 credits required

A. Communication Skills 8 credits

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| ENGL-101 Freshman English – Composition or | |
| ENGL-111 Freshman English – Honors I | 3 |
| ENGL-102 Freshman English – Reading and Related Writing or | |
| ENGL-112 Freshman English – Honors II | 3 |
| SPCOM-100 Fundamentals of Speech..... | 2 |

B. Analytic Reasoning 6- 8 credits

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| MATH-121 Introduction to College Math II or | |
| MATH-153 Calculus I or | |
| MATH-156 Calculus and Analytic Geometry | 4-5 |
| STAT-130 Elementary Statistics or | |
| STAT-320 Statistical Methods | 2-3 |

C. Health and Physical Education 2 credits

Courses must be from areas of health, physical education or nutrition.

D. Humanities and the Arts 9 credits

Credits must be from three or more areas including art history, creative arts, foreign language and culture, history, literature, music appreciation, philosophy and performing arts.

E. Social and Behavioral Sciences 9 credits

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| PSYC-110 General Psychology | 3 |
| ANTH-220 Cultural Anthropology or | |
| ANTH-250 The Human Past..... | 3 |

Remaining credits must be from economics, geography, political science, and sociology.

F. Natural Sciences (with Lab) 4 credits

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| BIO-132 Human Biology | 4 |
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G. Technology 2 credits

Major Studies

50-51 credits required

Cognitive Science Required Courses 32 credits

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| COGS-101 Cognitive Science I | 4 |
| COGS-202 Cognitive Science II | 4 |
| XXX-XXX Cognitive Science Research Studio | 8 |
| CNS-481 Mathematics and the Brain..... | 4 |
| CS-144 Computer Science I..... | 3 |
| LOG-2XX Symbolic Logic..... | 3 |
| PHIL-3XX Philosophy of Mind..... | 3 |
| PSYC-290 Interpreting Psychological Research..... | 3 |

Selective Courses 18-19 credits

Psychology

Take any two courses from the following:

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| PSYC-270 Social Cognition and Behavior | 3 |
| PSYC-335 Motivation and Emotion..... | 3 |
| PSYC-3XX Reasoning and Decision Making | 3 |
| PSYC-430 Perception..... | 3 |
| PSYC-442 Cognitive Processes | 3 |

Natural Sciences

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| BIO-234 Physiology and Anatomy | 4 |
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Take any two courses from the following:

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| BIO-360 Introduction to Cognitive Neuroscience | 3 |
| PHYS-2XX Neurophysics | 4 |
| CHEM-125 Chemistry for Health Sciences | 5 |
| CHEM-135 College Chemistry I | 5 |

Electives

7-15 credits required

Elective credits are chosen under advisement of program director.

Self-Planned Concentration or Minor

15-22 credits required

With approval of program director, students have the option of completing a minor or a self-planned concentration to fulfill 120 credit overall program requirement.