DOCTOR OF PHILOSOPHY WITH A MAJOR IN HUMAN-CENTERED COMPUTING

Human-Centered Computing (HCC) is the interdisciplinary science of designing computational artifacts that better support human endeavors. HCC students examine issues - such as computer-supported collaborative work and learning, human-computer interaction, human-robot interaction, learning sciences and technology, and mobile and ubiquitous computing - that lie at the intersection of human concerns (such as anthropology, cognitive science, human factors, industrial design, media studies, psychology, and sociology) and computing studies (such as artificial intelligence, computational perception, databases, graphics, information security, networks, programming languages, and robotics).

Students must complete a core of the three courses described below. The required courses will help students develop the first two of the four competencies that must be demonstrated; these competency areas are

- computing concepts and skills,
- evaluation of HCC systems,
- written research communication, and
- oral research communication.

In consultation with their advisors, students must also complete at least three elective courses, including at least one outside the area of HCC specialization. Areas of elective study may include, but are not restricted to,

- artificial intelligence,
- cognitive science,
- collaboration,
- human-computer interaction,
- information security,
- learning sciences and technology,
- software,
- software engineering, and
- visualization.

Students must also pass a written and oral qualifier (comprehensive examination) and submit and receive approval for a dissertation topic and committee. Students may then be admitted to candidacy.

For more information about the HCC program, visit www.cc.gatech.edu.

All PhD programs must incorporate a standard set of Requirements for the Doctoral Degree.

Code	Title	Credit Hours
Core Courses		
CS 6451	Introduction to Human-Centered Computing	3
CS 6452	Prototyping Interactive Systems	3
CS 7455	Issues in Human-Centered Computing	3
Seminars		
CS 8001	Seminar	1
CS 8802	Special Topics	2
Specializations		**9**
Minor [1]		**6**
Total Credit Hours		**27**

Concurrently, each student develops a research portfolio under the supervision of a faculty advisor. The submission of a conference- or journal-quality paper, and a conference-style presentation, satisfies the competencies of written and oral research communications.

[1] The Ph.D. minor consists of six semester hours of classes from outside HCC. Thus, a Ph.D. minor within the College of Computing (but outside HCC) is also possible. The six hours must form one coherent area of study. If a course has a CS section and a non-CS section, then students should register for the CS section and not count it towards a minor. A minor may also include courses from outside Georgia Tech, for example, courses at Emory University or Georgia State University.

Specializations

Code	Title	Credit Hours
Artificial Intelligence		
CS 6476	Introduction to Computer Vision GR	3
CS 6601	Artificial Intelligence	3
CS 7476	Advanced Computer Vision	3
CS 7610	Modeling and Design	3
CS 7620	Case-Based Reasoning	3
CS 7632	Game Artificial Intelligence	3
CS 7633	Human-Robot Interaction	3
CS 7637	Knowledge-Based AI	3
CS 7650	Natural Language	3
CS 8803	Special Topics (Computational Creativity)	3
CS 8803	Special Topics (Expressive AI)	3

Code	Title	Credit Hours
Cognitive Science		
CS 6795	Introduction to Cognitive Science	3
CS 7695	Philosophy of Cognition	3
CS 7697	Cognitive Models of Science and Technology	3
CS 7790	Cognitive Modeling	4

Code	Title	Credit Hours
Human-Computer Interaction		
CS 6454	Qualitative Methods for Design of Human Computer Interaction	3
CS 6456	Principles of User Interface Software	3
CS 6750	Human-Computer Interaction	3
CS 7450	Information Visualization	3
CS 7470	Mobile and Ubiquitous Computing	3
CS 8803	Special Topics (Computers, Communications & International Development)	3

Code	Title	Credit Hours
Learning Science & Technology		
CS 6460	Educational Technology: Conceptual Foundations	3

Code	Title	Credit Hours
Social Computing		
CS 6465	Computational Journalism	3
CS 6470	Design of Online Communities	3
CS 6471	Computational Social Science	3
CS 6474	Social Computing	3
CS 7460	Collaborative Computing	3