

MASTER OF SCIENCE IN HUMAN-COMPUTER INTERACTION

The interdisciplinary Master of Science in Human-Computer Interaction (HCI) degree program is a cooperative effort of the School of Interactive Computing; the School of Literature, Media and Communication; the School of Industrial Design, and the School of Psychology. The program provides students with the practical *and* interdisciplinary skills and theoretical understanding they will need to become leaders in the design, implementation, and evaluation of the computer interfaces of the future.

Course of Study

The HCI master's degree is a four-semester program consisting of a total of thirty-six credit hours. Each student is required to complete a set of four core courses, a set of elective courses based on their academic background and interests, a set of area specialization courses based on the academic unit in which they reside, and a Master's project. The specific courses for each student will be determined by the HCI program coordinator in consultation with the academic unit. The area specialization courses are determined by the academic unit in which the student resides. The areas of specialization are: Interactive Computing; Digital Media (DM, through the School of Literature, Media and Communication); Industrial Design; and Psychology.

Specialization	Fixed Core Credit Hours	Specialization Elective Credit Hours	Project Credit Hours	Credit Hours
Interactive Computing	9	9	12	6
Digital Media	9	9	12	6
Industrial Design	9	10	11	6
Psychology	9	10	11	6

Each student is required to maintain a 3.0 grade point average across credit hours used to fulfill degree requirements, a minimum grade of "B" in Fixed Core, Specialization, and Project credit hours, and a minimum grade of "C" in Elective credit hours.

Core Courses

Code	Title	Credit Hours
Core Courses		
CS/PSYC 6755	Human-Computer Interaction Foundations ^{1,2,3}	3
PSYC 6023	Psychological Research Methods for HCI ^{1,3}	4
CS/ID/LMC/PSYC 6753	Human-Computer Interaction-Professional Preparation and Practice (one credit hour Fall of first year and one credit hour Fall of second year) ¹	2

¹ A minimum grade of "B" is required in each of the Fixed Core classes.

² Course must be taken during first semester.

³ Students are expected to take PSYC 6755/CS 6755 and PSYC 6023 during the same semester.

Specializations: Interactive Computing Specialization

Code	Title	Credit Hours
Software		
Select 3 credit hours from the following:		3
CS 6452	Prototyping Interactive Systems	
CS 6456	Principles of User Interface Software	
CS 6457	Video Game Design and Programming	
CS 7450	Information Visualization	
CS 7470	Mobile and Ubiquitous Computing	
CS 7633	Human-Robot Interaction	
CS 8803	Special Topics (Mobile Apps and Services)	
Design-Evaluation-and Cognitive Modeling		
Select 6 credit hours from the following:		6
CS 6150	Computing For Good	
CS 6440	Information to Health Informatics	
CS 6441	Personal Health Informatics	
CS 6451	Introduction to Human-Centered Computing	
CS 6454	Qualitative Methods for Design of Human Computer Interaction	
CS 6457	Video Game Design and Programming	
CS 6460	Educational Technology: Conceptual Foundations	
CS 6470	Design of Online Communities	
CS 6474	Social Computing	
CS 6726	Privacy, Technology, Policy, and Law	
CS 6730	Data Visualization: Principles and Applications	
CS/INTA 6745	Information and Communication Technologies and Global Development	
CS 6756	Human-Computer Interaction Applications	
CS 6770	Mixed Reality Experience Design	
or LMC 6340	Mixed Reality Experience Design	
CS/ID 6763	Design of Design Environments	
CS 6795	Introduction to Cognitive Science	
CS 7450	Information Visualization	
CS 7451	Human-Centered Data Analysis	
CS 7632	Game Artificial Intelligence	
CS 7633	Human-Robot Interaction	
CS 8803	Special Topics (Animal interaction)	
CS 8803	Special Topics (Personal Health Informatics)	
CS 8803	Special Topics (Physical Prototyping in HCI)	
CS 8803	Special Topics (Gender and Development)	
CS 8803	Special Topics (Creative Design Practice)	
CS 8803	Special Topics (Global Entrepreneurship)	
CS 8803	Special Topics (Issues in Civic Technology)	
CS 8803	Special Topics (Sonification Lab and Studio)	
CS 8803	Special Topics (Psychology of Cybersecurity)	
Total Credit Hours		9

A minimum grade of "B" is required in each of the Interactive Computing Specialization classes.

Digital Media (DM) Specialization

Code	Title	Credit Hours
LMC 6310	The Computer as an "Expressive Medium"	3
Highly recommended: one of the following three courses:		3
LMC 6313	Principles of Interaction Design	
LMC 6399	Discovery & Invention	
LMC 6650	Project Studio	
LMC 6000- or 8000-level courses		3
Total Credit Hours		9

A minimum grade of "B" is required in each of the Digital Media Specialization classes.

Industrial Design Specialization

Code	Title	Credit Hours
Required (select one):		4
ID 6212	Grad Studio Two: Health and Wellness	
ID 6213	Grad Studio Two: Interactive Products	
Select two from the following (those with asterisk are highly recommended):		6
ID 6100	Introduction to Graduate Studies in Industrial Design	
ID 6101	Human Centered Design	
ID 6107	Integrated Product Design	
ID 6216	Service Design, Brand and Value Creation (*)	
ID 6401	Visualizing Interaction	
ID 6510	Design for Interaction: Working with New Technologies (*)	
ID 6515	Interface Prototyping: Exploring Tools & Theories	
ID 6520	Crafting Design Methods	
ID 6763	Design of Interactive Environments	
ID 6800	Investigations of Universal Design in the Built Environment	
ID 6830	Wearable Tech for Health	
ID 7655	Designing For Curiosity	
Total Credit Hours		10

A minimum grade of "B" is required in each of the Industrial Design Specialization classes.

Psychology Specialization

Code	Title	Credit Hours
Required		
PSYC 6022	Psychological Statistics for HCI (Fall or Spring)	4
Select 6 credit hours from the following:		6
PSYC 6011	Cognitive Psychology	
PSYC 6012	Social Psychology	
PSYC 6013	Biopsychology	
PSYC 6014	Sensation and Perception	
PSYC 6017/4010	Human Abilities ¹	

PSYC 6041 Current Topics in Cognitive Aging

Code	Title	Credit Hours
PSYC 6060/4260	Psychology of Aging	
PSYC 6270/4270	Psychological Testing ²	
PSYC 7101	Engineering Psychology I: Methods	
PSYC 7102	Engineering Psychology II: Displays, Controls, and Workspace	
PSYC 8000/4050	Seminar in Experimental Psychology	
Total Credit Hours		10

¹ The pre-requisite to this course is PSYC 2020 or equivalent. Note: PSYC 2020 (Psychological Statistics) is currently equivalent to PSYC 6022 (Psychological Statistics for HCI) which is required for all Psychology specialization students.

² The pre-requisite to this course is PSYC 2020 or equivalent. Note: PSYC 2020 (Psychological Statistics) is currently equivalent to PSYC 6022 (Psychological Statistics for HCI) which is required for all Psychology specialization students.

A minimum grade of "B" is required in each of the Psychology Specialization classes.

Elective Courses:

- 12 credit hours for Interactive Computing
- 12 credit hours for Digital Media
- 11 credit hours for Industrial Design
- 11 credit hours for Psychology

Any Specialization course may be taken to fulfill an Elective course requirement for any of the four degree tracks. Other approved Electives appear in the list below.

For each area of specialization (track), a certain number of Elective credits must be taken outside of the area:

- Interactive Computing: at least 9 non-CS elective credits must be taken
- Industrial Design, Digital Media, and Psychology: at least 6 non-track elective credits must be taken

A maximum of 3 credit hours of Special Problems in HCI (CS/ID/LMC/PSYC 8903) may count toward the Elective course requirement.

A minimum grade of "C" is required in each of the Elective classes used to satisfy degree requirements.

Aerospace Engineering

Code	Title	Credit Hours
AE 6551	Cognitive Engineering	3
AE 6721	Evaluation of Human Integrated Systems	3

Computer Science(NOTE: These courses are still approved electives, but they have been combined with the next section to create a single list of approved Computer Science courses).

Code	Title	Credit Hours
CS 6150	Computing For Good	3
CS 6440	Information to Health Informatics	3
CS 6451	Introduction to Human-Centered Computing	3
CS 6452	Prototyping Interactive Systems	3
CS 6454	Qualitative Methods for Design of Human Computer Interaction	3
CS 6456	Principles of User Interface Software	3
CS 6457	Video Game Design and Programming	3
CS 6460	Educational Technology: Conceptual Foundations	3
CS 6465	Computational Journalism	3
CS 6470	Design of Online Communities	3
CS 6474	Social Computing	3
CS 6726	Privacy, Technology, Policy, and Law	3
CS 6730	Data Visualization: Principles and Applications	3
CS/INTA 6745	Information and Communication Technologies and Global Development	3
CS 6756	Human-Computer Interaction Applications	3
CS/ID 6763	Design of Design Environments	3
CS 6770	Mixed Reality Experience Design	3
or LMC 6340	Mixed Reality Experience Design	
CS 6795	Introduction to Cognitive Science	3
CS 7450	Information Visualization	3
CS 7451	Human-Centered Data Analysis	3
CS 7470	Mobile and Ubiquitous Computing	3
CS 7497	Virtual Environments	3
CS 7632	Game Artificial Intelligence	3
CS 7633	Human-Robot Interaction	3
CS 8803	Special Topics (Animal Interaction)	3
CS 8803	Special Topics (Personal Health Informatics)	3
CS 8803	Special Topics (Mobile Apps and Services)	3
CS 8803	Special Topics (Physical Prototyping in HCI)	3
CS 8803	Special Topics (Gender and Development)	3
CS 8803	Special Topics (Creative Design Practice)	3
CS 8803	Special Topics (Global Entrepreneurship)	3
CS 8803	Special Topics (Issues in Civic Technology)	3
CS 8803	Special Topics (Sonification Lab and Studio)	3
CS 8803	Special Topics (Psychology of Cybersecurity)	3
CS 8903	Special Problems	1-21

International Affairs

Code	Title	Credit Hours
INTA 8803	Special Topics (Computers, Communications, and International Development)	3
INTA/CS 6745	Information and Communication Technologies and Global Development	3

Industrial Design

Code	Title	Credit Hours
ID 6100	Introduction to Graduate Studies in Industrial Design	3
ID 6101	Human Centered Design	3
ID 6107	Integrated Product Design	3
ID 6212	Grad Studio Two: Health and Wellness	4
ID 6213	Grad Studio Two: Interactive Products	4
ID 6216	Service Design, Brand and Value Creation	3
ID 6401	Visualizing Interaction	3
ID 6510	Design for Interaction: Working with New Technologies	3
ID 6520	Crafting Design Methods	3
ID 6515	Interface Prototyping: Exploring Tools & Theories	3
ID/CS 6763	Design of Interactive Environments	3
ID 6800	Investigations of Universal Design in the Built Environment	3
ID 6830	Wearable Tech for Health	3
ID 7655	Designing For Curiosity	3
ID 8903	Special Problems in Human-Computer Interaction	1-3

Industrial and Systems Engineering

Code	Title	Credit Hours
ISYE 6413	Design and Analysis of Experiments	3
ISYE 6414	Statistical Modeling and Regression Analysis	3
ISYE 6739	Basic Statistical Methods	3
ISYE 6772	Managing Resources of the Technological Firm	3
ISYE 7210	Real-time Interactive Simulation	3

Literature, Media, and Communication (Digital Media)

Code	Title	Credit Hours
Any LMC 6000- 8000-level class may be used as a General Elective		
LMC 6215	Issues in Media Studies	3
LMC 6310	The Computer as an "Expressive Medium"	3
LMC 6311	Visual Culture and Design	3
LMC 6312	Design, Technology & Representation	3
LMC 6313	Principles of Interaction Design	3
LMC 6314	Design of Networked Media	3
LMC 6315	Product Production	3
LMC 6316	Historical Approaches to Digital Media	3
LMC 6317	Interactive Narrative/Fiction	3
LMC 6318	Experimental Media	3
LMC 6319	Intellectual Property Policy and Law	3
LMC 6325	Game Design and Analysis	3
LMC 6340/ CS 6770	Mixed Reality Experience Design	3
LMC 6399	Discovery & Invention	3
LMC 6650	Project Studio	3

LMC 6748	Social Justice, Critical Theory, and Philosophy of Design	3
LMC 8000	Proseminar in Media Theory	3
LMC 8001	Proseminar in Digital Media Studies	3

Management of Technology (MOT)

Code	Title	Credit Hours
MGT 6056	Electronic Commerce-Conducting Business on the Internet	3
MGT 6057	Business Process Analysis and Design	3
MGT 6059	Emerging Technologies	3
MGT 6086	Entrepreneurial Finance and Private Equity	3
MGT 6111	Innovation and Entrepreneurial Behavior	3
MGT 6165	Venture Creation	3
MGT 6326	Collaborative Product Development	3
MGT 6359	Business Strategies For Sustainability	3
MGT 6450	Project Management	3
MGT 6772	Managing Resources of the Technological Firm	3
MGT 6799	Legal Issues in Technology Transfer	3
MGT 6789	Technology Ventures	3
MGT 8803	Big Data Analytics in Business	3

Music

Code	Title	Credit Hours
MUSI 6001	Music Perception and Cognition	3
MUSI 6002	Computer Supported Interactive Music	3
MUSI 6003	Music Technology History and Repertoire	3
MUSI 6004	Technology Ensemble	3
MUSI 6103	Music Recording and Mixing	3
MUSI 6203	Project Studio in Music Technology	3
MUSI 7100	Music Technology Research Laboratory	3

Psychology

Code	Title	Credit Hours
PSYC 6011	Cognitive Psychology	3
PSYC 6012	Social Psychology	3
PSYC 6014	Sensation and Perception	3
PSYC 6022	Psychological Statistics for HCI	4
PSYC 6041	Current Topics in Cognitive Aging	1
PSYC 7101	Engineering Psychology I: Methods	3
PSYC 7102	Engineering Psychology II: Displays, Controls, and Workspace	3
PSYC 7104	Psychomotor and Cognitive Skill Learning and Performance	3
PSYC/CS 7790	Cognitive Modeling	4
PSYC 8040	Seminar in Engineering Psychology	3
PSYC 8903	Special Problems in Human-Computer Interaction	3

Public Policy

Code	Title	Credit Hours
PUBP 6111	Internet and Public Policy	3
PUBP 6401	Science, Technology, and Public Policy	3

Research Project (6 credit hours)

Each student completes this requirement, under the supervision of a faculty member, typically during the last two semesters of their program. Students must submit a project proposal and a final report and present their work to program coordinators and other MS - HCI students late during the semester of graduation.

Code	Title	Credit Hours
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Select one of the following:

CS 6998	HCI Master's Project	¹
LMC 6998	HCI Master's Project	¹
PSYC 6998	HCI Master's Project	¹
ID 6998	HCI Master's Project	¹

¹ repeatable; up to 6 credits

A minimum grade of "B" is required in the project course.

Other expectations

All students are expected to complete a corporate internship in an HCI-relevant position between their second and third semesters.