

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	12	9	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

Core Courses	Credit Hours
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

Software	Credit Hours
Select 3 credit hours from the following:	3
CS 6300 Software Development Process	
CS 6452 Prototyping Interactive Systems	
CS 6456 Principles of User Interface Software	
CS 6457 Video Game Design and Programming	
CS 6465 Computational Journalism	
CS 7450 Information Visualization	
CS 7470 Mobile and Ubiquitous Computing	
CS 7633 Human-Robot Interaction	
CS 8803 MAS, Mobile Apps and Services	
Design-Evaluation-and Cognitive Modeling	Credit Hours
Select 6 credit hours from the following:	6
CS 6150 Computing for Good	
CS 6440 Information to Health Informatics	
CS 6451 Introduction to Human-Centered Computing	
CS 6455 User Interface Design and Evaluation	
CS 6457 Video Game Design and Programming	
CS 6460 Educational Technology: Conceptual Foundations	
CS 6461 CS Education Research	
CS 6465 Computational Journalism	
CS 6470 Design of Online Communities	
CS 6474 Social Computing	
CS 6770 Mixed Reality Experience Design or LMC 6 Mixed Reality Experience Design	
CS 6763 Design of Design Environments	
CS 6795 Introduction to Cognitive Science	
CS 7450 Information Visualization	
CS 7460 Collaborative Computing	
CS 7632 Game Artificial Intelligence	
CS 7633 Human-Robot Interaction	
CS 7790 Cognitive Modeling or PSYC 7790 Cognitive Modeling	
CS 8803 Design Games	
CS 8803 DV, Data Visualization Principles and Application	
CS 8803 Introduction to Bio Informatics	
CS 8803 Visual Data Analytics	
CS 8803 CC, Computational Creativity	
CS 8803 Technology & Poverty	
CS 8803 HI, Personal Health Informatics	
CS 8803 PCB, Ubiquitous Computing & Human Behavior	
Total Credit Hours	9

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

Digital Media (DM) Specialization

Select one of the following- preferably taken in the first year of study:	3
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LMC 6310	The Computer as an "Expressive Medium"	
LMC 6313	Principles of Interaction Design	
LMC 6399	Discovery & Invention	
LMC 6000- or 8000-level courses		6
Total Credit Hours		9

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

Industrial Design Specialization

Required:

ID 6101	Human Centered Design	3
ID 6401	Visualizing Interaction	3
Select two of the following:		6
ID 6100	Introduction to Graduate Studies in Industrial Design	
ID 6201	Industrial Design Graduate Studio II	
ID 6214	Strategic Design Language	
ID 6215	Service Design	
ID 6271	Healthcare Design of the Future	
ID 6420	Advanced Sketching	
ID 6509	Computation, Creativity and Design Cognition	
ID 6510	Design for Interaction: Working with New Technologies	
ID 6515	Interface Prototyping: Exploring Tools & Theories	
ID 6763	Design of Interactive Environments	
ID 6800	Investigations of Universal Design in the Built Environment	
ID 6820	Web Design, Usability and Accessibility	
Total Credit Hours		12

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

Psychology Specialization

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 6017/4270	Human Abilities ¹	
PSYC 6041	Current Topics in Cognitive Aging	
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
- 9 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

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).

CS 6150	Computing for Good	3
CS 6300	Software Development Process	3
CS 6440	Information to Health Informatics	3
CS 6451	Introduction to Human-Centered Computing	3
CS 6452	Prototyping Interactive Systems	3
CS 6455	User Interface Design and Evaluation	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/ID 6763	Design of Design Environments	3
CS 6770	Mixed Reality Experience Design	3
or LMC 634	Mixed Reality Experience Design	
CS 6795	Introduction to Cognitive Science	3
CS 7450	Information Visualization	3
CS 7460	Collaborative Computing	3
CS 7465	Educational Technology: Design and Evaluation	3
CS 7470	Mobile and Ubiquitous Computing	3
CS 7497	Virtual Environments	3
CS 7610	Modeling and Design	3
CS 7632	Game Artificial Intelligence	3
CS 7633	Human-Robot Interaction	3
CS 7790	Cognitive Modeling	4
or PSYC 77	Cognitive Modeling	
CS 8803:ANI	Animal Interaction	3
CS 8803	DG, Design Games	3
CS 8803	IBI,Introduction to Bio Informatics	3
CS 8803	MAS,Mobile Apps and Services	3
CS 8803	VDA,Visual Data Analytics	3
CS 8903	Special Problems	1-21
CS 8803	CC,Computational Creativity	3
CS 8803	TD,Technology & Poverty	3
INTA 8803	TD,Technology & Poverty	3
CS 8803	HI,Personal Health Informatics	3

International Affairs

INTA 8803	Computers, Communications, and International Development	
INTA/CS 8803	Technology and Poverty	

Industrial Design

ID 6100	Introduction to Graduate Studies in Industrial Design	3
ID 6101	Human Centered Design	3
ID 6200	Industrial Design Graduate Studio I	6
ID 6201	Industrial Design Graduate Studio II	6
ID 6214	Strategic Design Language	3
ID 6215	Service Design	3
ID 6401	Visualizing Interaction	3
ID 6509	Computation, Creativity and Design Cognition	3
ID 6510	Design for Interaction: Working with New Technologies	3
ID 6515	Interface Prototyping: Exploring Tools & Theories	3
ID 6420	Advanced Sketching	3
ID 6271	Healthcare Design of the Future	3
ID/CS 6763	Design of Interactive Environments	3
ID 6800	Investigations of Universal Design in the Built Environment	3

ID 6820	Web Design, Usability and Accessibility	3
ID 8903	Special Problems in Human-Computer Interaction	3

Industrial and Systems Engineering

ISYE 6413	Design and Analysis of Experiments	3
ISYE 6414	Statistical Modeling and Regression Analysis	3
ISYE 6739	Basic Statistical Methods	3
ISYE 6772	Management of Technology II	3
ISYE 7210	Real-time Interactive Simulation	3

Literature, Media, and Communication (Digital Media)

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
LMC 8903	Special Problems in Human-Computer Interaction	3

Management of Technology (MOT)

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	New Venture Creation,Venture Creation	3
MGT 6326	Collaborative Product Development	3
MGT 6359	Business Strategies For Sustainability	3
MGT 6450	Project Management	3
MGT 6772	MOT II: 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
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Music

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

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

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.

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.