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.

<table>
<thead>
<tr>
<th>Specialization</th>
<th>Fixed Core Credit Hours</th>
<th>Specialization Credit Hours</th>
<th>Elective Credit Hours</th>
<th>Project Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive Computing</td>
<td>9</td>
<td>9</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Digital Media</td>
<td>9</td>
<td>9</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Industrial Design</td>
<td>9</td>
<td>12</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Psychology</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>6</td>
</tr>
</tbody>
</table>

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 9
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
Select 3 credit hours from the following:
- 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
Select 6 credit hours from the following:
- 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
- CS 6770 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
- CS 7790 Cognitive Modeling
- 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:

- CS 6770 Mixed Reality Experience Design
- CS 6770 Mixed Reality Experience Design
- or LMC 6770 Mixed Reality Experience Design

Total Credit Hours 9

A minimum grade of "B" is required in each of the Digital Media Specialization classes.
**Master of Science in Human-Computer Interaction**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMC 6310</td>
<td>The Computer as an &quot;Expressive Medium&quot;</td>
<td></td>
</tr>
<tr>
<td>LMC 6313</td>
<td>Principles of Interaction Design</td>
<td></td>
</tr>
<tr>
<td>LMC 6399</td>
<td>Discovery &amp; Invention</td>
<td></td>
</tr>
<tr>
<td>LMC 6000-8000-level courses</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

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:
- ID 6100 Introduction to Graduate Studies in Industrial Design 3
- ID 6201 Industrial Design Graduate Studio II 3
- ID 6214 Strategic Design Language 3
- ID 6215 Service Design 3
- ID 6271 Healthcare Design of the Future 3
- ID 6420 Advanced Sketching 3
- ID 6509 Computation, Creativity and Design Cognition 3
- ID 6515 Interface Prototyping: Exploring Tools & Theories 3
- ID 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

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:
- PSYC 6011 Cognitive Psychology 3
- PSYC 6012 Social Psychology 3
- PSYC 6013 Biopsychology 3
- PSYC 6014 Sensation and Perception 3
- PSYC 6017/4270 Human Abilities 1
- PSYC 6041 Current Topics in Cognitive Aging 3
- PSYC 6060/4260 Psychology of Aging 3
- PSYC 6270/4270 Psychological Testing 2
- PSYC 7101 Engineering Psychology I: Methods 3
- PSYC 7102 Engineering Psychology II: Displays, Controls, and Workspace 3

Total Credit Hours 10

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

### 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.

Aerospace Engineering
- AE 6551 Cognitive Engineering 3
- AE 6721 Evaluation of Human Integrated Systems 3

Computer Science
- 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

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

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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 6470</td>
<td>Design of Online Communities</td>
<td>3</td>
</tr>
<tr>
<td>CS 6474</td>
<td>Social Computing</td>
<td>3</td>
</tr>
<tr>
<td>CS/ID 6763</td>
<td>Design of Design Environments</td>
<td>3</td>
</tr>
<tr>
<td>CS 6770</td>
<td>Mixed Reality Experience Design</td>
<td>3</td>
</tr>
<tr>
<td>or LMC 6340</td>
<td>Mixed Reality Experience Design</td>
<td></td>
</tr>
<tr>
<td>CS 6795</td>
<td>Introduction to Cognitive Science</td>
<td>3</td>
</tr>
<tr>
<td>CS 7450</td>
<td>Information Visualization</td>
<td>3</td>
</tr>
<tr>
<td>CS 7460</td>
<td>Collaborative Computing</td>
<td>3</td>
</tr>
<tr>
<td>CS 7465</td>
<td>Educational Technology, Design and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>CS 7470</td>
<td>Mobile and Ubiquitous Computing</td>
<td>3</td>
</tr>
<tr>
<td>CS 7497</td>
<td>Virtual Environments</td>
<td>3</td>
</tr>
<tr>
<td>CS 7610</td>
<td>Modeling and Design</td>
<td>3</td>
</tr>
<tr>
<td>CS 7632</td>
<td>Game Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CS 7633</td>
<td>Human-Robot Interaction</td>
<td>3</td>
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<tr>
<td>CS 7790</td>
<td>Cognitive Modeling</td>
<td>4</td>
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<tr>
<td>or PSYC 771</td>
<td>Cognitive Modeling</td>
<td></td>
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<tr>
<td>CS 8803:ANI</td>
<td>Animal Interaction</td>
<td>3</td>
</tr>
<tr>
<td>CS 8803 DG</td>
<td>Design Games</td>
<td>3</td>
</tr>
<tr>
<td>CS 8803 IBI</td>
<td>Introduction to Bio Informatics</td>
<td>3</td>
</tr>
<tr>
<td>CS 8803 MAS</td>
<td>Mobile Apps and Services</td>
<td>3</td>
</tr>
<tr>
<td>CS 8803 VDA</td>
<td>Visual Data Analytics</td>
<td>3</td>
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<tr>
<td>CS 8903</td>
<td>Special Problems</td>
<td>1-21</td>
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<tr>
<td>CS 8803 CC</td>
<td>Computational Creativity</td>
<td>3</td>
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<tr>
<td>CS 8803 TD</td>
<td>Technology &amp; Poverty</td>
<td>3</td>
</tr>
<tr>
<td>INTA 8803</td>
<td>Technology and Poverty</td>
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</tr>
<tr>
<td>CS 8803</td>
<td>HI, Personal Health Informatics</td>
<td>3</td>
</tr>
</tbody>
</table>

**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

ID 6101 Human Centered Design

ID 6200 Industrial Design Graduate Studio I

ID 6201 Industrial Design Graduate Studio II

ID 6214 Strategic Design Language

ID 6215 Service Design

ID 6401 Visualizing Interaction

ID 6509 Computation, Creativity and Design Cognition

ID 6510 Design for Interaction: Working with New Technologies

ID 6515 Interface Prototyping: Exploring Tools & Theories

ID 6420 Advanced Sketching

ID 6271 Healthcare Design of the Future

ID/CS 6763 Design of Interactive Environments

ID 6800 Investigations of Universal Design in the Built Environment

ID 6820 Web Design, Usability and Accessibility

ID 8903 Special Problems in Human-Computer Interaction

**Industrial and Systems Engineering**

ISYE 6413 Design and Analysis of Experiments

ISYE 6414 Statistical Modeling and Regression Analysis

ISYE 6739 Basic Statistical Methods

ISYE 6772 Management of Technology II

ISYE 7210 Real-time Interactive Simulation

**Literature, Media, and Communication (Digital Media)**

LMC 6215 Issues in Media Studies

LMC 6310 The Computer as an "Expressive Medium"

LMC 6311 Visual Culture and Design

LMC 6312 Design, Technology & Representation

LMC 6313 Principles of Interaction Design

LMC 6314 Design of Networked Media

LMC 6315 Product Production

LMC 6316 Historical Approaches to Digital Media

LMC 6317 Interactive Narrative/Fiction

LMC 6318 Experimental Media

LMC 6319 Intellectual Property Policy and Law

LMC 6325 Game Design and Analysis

LMC 6340/CS 6770 Mixed Reality Experience Design

LMC 6399 Discovery & Invention

LMC 6650 Project Studio

LMC 6748 Social Justice, Critical Theory, and Philosophy of Design

LMC 8000 Proseminar in Media Theory

LMC 8001 Proseminar in Digital Media Studies

LMC 8903 Special Problems in Human-Computer Interaction

**Management of Technology (MOT)**

MGT 6056 Electronic Commerce—Conducting Business on the Internet

MGT 6057 Business Process Analysis and Design

MGT 6059 Emerging Technologies

MGT 6086 Entrepreneurial Finance and Private Equity

MGT 6111 Innovation and Entrepreneurial Behavior

MGT 6165 New Venture Creation, Venture Creation

MGT 6326 Collaborative Product Development

MGT 6359 Business Strategies For Sustainability

MGT 6450 Project Management

MGT 6772 MOT II: Managing Resources of the Technological Firm

MGT 6799 Legal Issues in Technology Transfer

MGT 6789 Technology Ventures
Master of Science in Human-Computer Interaction

MGT 8803  Big Data Analytics in Business  3

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.