

HUMAN COMPUTER INTERACTION CERTIFICATE

This certificate provides undergraduates with a basic familiarity in HCI.

The program requires at least 6 courses, including 1 course from a list of foundational courses in HCI, 3 courses from one of the technical domain options, and at least 2 courses from a list of Social Science and Design topics intended to give students interdisciplinary experience across the fields of HCI. Certificate coursework must include at least 4 units that are NOT counted toward a student's major, minor, or other certificate requirements. However, certificate coursework may count toward distribution, theme, or elective requirements.

Foundations of HCI Requirement (1 course)

Course	Title
COMM_ST 227-0	Communication & Technology
COMM_ST 351-0	Technology & Human Interaction
COMP_SCI 311-0	Inclusive Making
COMP_SCI 314-0	Technology and Human Interaction
COMP_SCI 329-0	HCI Studio
COMP_SCI 330-0	Human Computer Interaction
LRN_SCI 313-0	Tangible Interaction Design and Learning
LRN_SCI 351-0	Topics in Learning Sciences (Inclusive Making)
LRN_SCI 413-0	Tangible Interaction Design and Learning
LRN_SCI 451-0	Topics in Learning Sciences (Inclusive Making)

Technical Domain Requirement (3 courses)

Students MUST complete the 3 courses in ONE of the technical domain options below:

Course	Title
Interfaces (CS) (suggested for Computer Science majors)	
COMP_SCI 111-0	Fundamentals of Computer Programming
COMP_SCI 150-0	Fundamentals of Computer Programming 1.5
COMP_SCI 214-0	Data Structures & Algorithms

Course	Title
Interfaces (suggested for SESP, SoC, and WCAS students)	
COMP_SCI 110-0	Introduction to Computer Programming (or COMP_SCI 111-0 Fundamentals of Computer Programming 1)
COMP_SCI 150-0	Fundamentals of Computer Programming 1.5
COMP_SCI 130-0	Tools and Technology of the World-Wide Web (or COMP_SCI 396-0 Topics in HCL and the Web)

Course	Title
Hardware and Robotics (suggested for Mechanical Engineering majors)	
MECH_ENG 224-0	Scientific and Embedded Programming in Python
MECH_ENG 333-0	Introduction to Mechatronics
And 1 additional course from the Technical Electives table below	

Course	Title
Data Science (suggested for SESP, SoC, and WCAS students)	
COMP_SCI 110-0	Introduction to Computer Programming (or COMP_SCI 111-0 Fundamentals of Computer Programming 1)
COMP_SCI 150-0	Fundamentals of Computer Programming 1.5
And 1 additional course from the Technical Electives table below	

Course	Title
Journalism (suggested for Medill students)	
COMP_SCI 110-0	Introduction to Computer Programming (or COMP_SCI 111-0 Fundamentals of Computer Programming 1)
COMP_SCI 150-0	Fundamentals of Computer Programming 1.5
JOUR 342-1	Knight Lab: Studio (or JOUR 376-0 Media Design or JOUR 377-0 Data Analysis and Visualization)

Course	Title
Technical Electives	
COMP_ENG 346-0	Microprocessor System Design
COMP_ENG 365-0	Internet-of-things Sensors, Systems, And Applications
COMP_ENG 465-0	Internet-of-things Sensors, Systems, And Applications
COMP_SCI 110-0	Introduction to Computer Programming
COMP_SCI 111-0	Fundamentals of Computer Programming
COMP_SCI 130-0	Tools and Technology of the World-Wide Web
COMP_SCI 150-0	Fundamentals of Computer Programming 1.5
COMP_SCI 330-0	Human Computer Interaction
COMP_SCI 349-0	Machine Learning
COMP_SCI 352-0	Machine Perception of Music & Audio
COMP_SCI 376-0	Computer Game Design and Development
COMP_SCI 377-0	Game Design Studio
COMP_SCI 396-0	Special Topics in Computer Science (Interactive Information Systems) or (Conversational Interfaces)
JOUR 376-0	Media Design
JOUR 377-0	Knight Lab: Data Analysis & Visualization
LRN_SCI 351-0	Topics in Learning Sciences (Multimodal Learning Analytics)
LRN_SCI 451-0	Topics in Learning Sciences (Multimodal Learning Analytics)
MECH_ENG 224-0	Scientific and Embedded Programming in Python
MECH_ENG 233-0	Electronics Design
MECH_ENG 314-0	Machine Dynamics
MECH_ENG 333-0	Introduction to Mechatronics
MECH_ENG 341-0	Computational Methods for Engineering Design

Social Sciences & Design Breadth Requirements (2 courses)

Students must complete at least 1 course listed in Social Science Electives Table AND at least 1 course listed in the Design Electives Table below:

Course	Title
Social Science Electives	
COMM_ST 227-0	Communication & Technology
COMM_ST 351-0	Technology & Human Interaction
COMM_ST 352-0	Social Network Analysis
COMM_ST 378-0	Online Communities and Crowds
COMP_SCI 314-0	Technology and Human Interaction

COMP_SCI 397-0	Special Projects in Computer Science (Algorithms and Society)
COMP_SCI 497-0	Special Projects in Computer Science (Algorithms and Society)
IEMS 341-0	Social Networks Analysis

Course Title

Design Electives

COMM_ST 395-0	Topics in Communication Studies (Knight Lab Studio)
COMP_SCI 396-0	Special Topics in Computer Science (Computing and Socioeconomic Mobility) or (Computing, Ethics, and Society)
COMP_SCI 497-0	Special Projects in Computer Science (Digital Musical Instrument Design)
DSGN 305-0	Human-Centered Service Design
DSGN 306-0	UX Design
DSGN 308-0	Human-Centered Product Design
DSGN 395-0	Special Topics (Bay Area Service Design)
LRN_SCI 351-0	Topics in Learning Sciences (Computing and Socioeconomic Mobility)
LRN_SCI 429-0	Design of Learning Environments
LRN_SCI 451-0	Topics in Learning Sciences (Computing and Socioeconomic Mobility)
RTVF 376-0	Topics in Interactive Media (Digital Musical Instrument Design)