Human-Computer Interaction Concentration

Symbolic Systems majors must complete the following requirements in addition to the Core requirements to fulfill the Concentration in Human-Computer Interaction. All courses must be taken for 3 units of more. Notes: Core requirements fulfilled by a course are noted in brackets "[]". "ASSR" denotes courses that fulfill the Advanced Small Seminar Requirement.

Students in this Concentration are urged to take CS 107 or 107E, either for the Post-CS 106B Computation Core requirement, or as a Contingent Elective.

1. **Introduction to HCI.**
   - CS 147: Introduction to Human-Computer Interaction Design [Post-CS 106B Computation, Cross-Area Requirement]

2. **Design Methods.** Post-CS 147 courses teaching fundamentals of the human-centered design process, featuring a major project component (including any course in the CS 247 series). One of the following:
   - CS 194H: User Interface Design Project [Post-CS 106B Computation]
   - CS 247A: Design for Artificial Intelligence (SYMSYS 195A) [Practicum, Integrative Requirement]
   - CS 247B: Design for Behavior Change (SYMSYS 195B) [Practicum, Integrative Requirement]
   - CS 247G: Introduction to Game Design (SYMSYS 195G) [Practicum, Integrative Requirement]
   - CS 247I: Design for Understanding
   - CS 247S: Service Design (SYMSYS 195S) [Practicum, Integrative Requirement]

3. **HCI Theory.** Courses teaching design, behavioral, and critical theories that underlie the design process. One of the following:
   - COMM 145: Personality and Digital Media (COMM 245)
   - COMM 166: Virtual People (COMM 266)
   - COMM 172: Media Psychology (COMM 272)
   - CS 347: Human-Computer Interaction: Foundations and Frontiers
   - ME 341: Design Experiments

4. **User Interface Implementation.** An advanced course in programming for user interfaces. One of the following:
   - CS 108: Object-Oriented Systems Design
   - CS 142: Web Applications
5. **Integrative Requirement.** Must be completed no earlier than the Junior Year:
   - Any of the *Standard Options* for all Concentrations specified under the Core Capstone requirement (especially SYMSYS 195-series cross-listed in the CS 247-series), or
   - A *Concentration-Specific Integrative Course* -- a course that integrates the themes of the Concentration with the Core requirements. One of the following [with more options to be added as they are approved -- some options may be removed if they are included in the list of SYMSYS 195* project courses, in order to avoid redundancy with the Standard Options]:
     - COMM 120W: Digital Media and Society (AMSTUD 120, COMM 220)
     - COMM 145: Personality and Digital Media (COMM 245)
     - COMM 166: Virtual People (COMM 266)
     - COMM 172: Media Psychology (COMM 272)
     - COMM 322: Advanced Studies in Behavior and Social Media [ASSR]
     - COMM 324: Language and Technology [ASSR]
     - COMM 326: Advanced Topics in Human Virtual Representation [ASSR]
     - CS 181: Computers, Ethics, and Public Policy [Cross-Area Requirement]
     - CS 182: Ethics, Public Policy, and Technological Change (COMM 180, ETHICSOC 182, PHIL 82, POLISCI 182, PUBLPOL 182) [*Introductory Philosophy, Cross-Area Requirement*]
     - CS 247I: Design for Understanding
     - CS 278: Social Computing
     - CS 347: Human-Computer Interaction: Foundations and Frontiers
     - CS 377E: Designing Solutions to Global Grand Challenges
     - CS 377G: Designing Serious Games
     - CS 377Q: Designing for Accessibility
     - CS 377U: Understanding Users
     - EDUC 230: Learning Experience Design
     - EDUC 281: Technology for Learners
     - EDUC 255A: Experimental Research Designs in Educational Research
     - EDUC 302: Behavior Design
     - EDUC 342: Child Development and New Technologies
     - EDUC 391: Engineering Education and Online Learning (ENGR 391)
     - ME 115B: Product Design Methods
     - ME 341: Design Experiments
     - SYMSYS 201: Digital Technology, Society, and Democracy [ASSR]
     - SYMSYS 245: Cognition in Interaction Design [ASSR]

6. **Contingent Electives.** If any of requirements 1-5 are fulfilled with courses taken for Core requirements, then additional approved Contingent Elective courses must be completed to total 5 courses beyond those that are taken for the Core. These electives can be one or more courses from any of the areas above, or which are approved for a
Core requirement that the student has fulfilled with a different course, or any of the following:

- Any d.school course worth 3 or more units
- ANTHRO 155: Research Methods in Ecological Anthropology (ANTHRO 255)
- ARTSTUDI 130: Interactive Art: Making it with Arduino
- ARTSINST 142: Drawing with Code
- ARTSTUDI 160: Intro to Digital / Physical Design
- ARTSTUDI 168: Data as Material
- ARTSTUDI 179: Digital Art I
- COMM 1: Introduction to Communication
- COMM 1B: Media, Culture and Society (AMSTUD 1B)
- COMM 106: Communication Research Methods (COMM 206)
- COMM 124: Lies, Trust, and Tech
- COMM 154: The Politics of Algorithms
- COMM 230A: Digital Civil Society
- COMM 230B: Digital Civil Society
- COMM 230C: Digital Civil Society
- COMM 314: Ethnographic Methods (SOC 319)
- CS 80Q: Race and Gender in Silicon Valley
- EDUC 191: Introduction to Survey Research (EDUC 296)
- EDUC 423: Introduction to Data Science (SOC 302)
- ENGR 150: Data Challenge Lab
- HUMBIO 82A: Qualitative Research Methodology
- ME 101: Visual Thinking
- ME 105: Designing for Impact
- ME 115A: Introduction to Human Values in Design
- ME 203: Design and Manufacturing
- ME 210: Introduction to Mechatronics (EE 118)
- ME 216A: Advanced Product Design: Needfinding
- MED 147: Methods in Community Assessment, Evaluation, and Research (MED 247)
- MED 275B: Biodesign Fundamentals
- MS&E 125: Introduction to Applied Statistics
- MS&E 135: Networks
- MS&E 234: Data Privacy and Ethics
- SOC 167VP: Justice + Poverty Innovation: Create new solutions for people to navigate housing, medical, & debt
- STS 1: The Public Life of Science and Technology
- STATS 101: Data Science 101
- STATS 191: Introduction to Applied Statistics
- STATS 200: Introduction to Statistical Inference
- STATS 202: Data Mining and Analysis
- STATS 203: Introduction to Regression Models and Analysis of Variance
- STATS 263: Design of Experiments (STATS 363)