

Proposal for Improving Human Centered Computing

User Experience Club @ RIT

A few weeks ago, a discussion arose between club members on areas that HCC succeeds at as well as areas it could improve. After consultation with Mick McQuaid, the club advisor, we sent a survey to all current HCC students to gather data including graduation date, favorite/least favorite courses, and inclination towards the three main aspects of the user experience: research, design, and development. A summary of the survey data can be [found here](#).

After reviewing the results of the survey, club members furthered the discussion and agreed upon a list of suggestions for improvement to the HCC program, with the goal of ensuring growth and success for all students in the major. The suggestions are listed below, along with some excerpts from the survey and accompanying discussion.

If you have any questions, or wish to further the discussion, feel free to email us at any time.

Thank you for your time and consideration.

Outgoing President
Duncan Okes
dlo4436@rit.edu

Incoming President
Rahul Shah
rps9771@rit.edu

Table of Contents

- | | | | |
|---|----------------------|---|------------------------------|
| 1 | UX Studio | 4 | UX Research |
| 2 | Curriculum Reshuffle | 5 | Course Availability |
| 3 | UI Software | 6 | Appendix - Reshuffle Diagram |

UX Studio

How would you improve the HCC Program?

"Have upperclassmen connect with lower classmen"

"Fewer theories and reading. More hand-on experience. Get actual clients/projects that are actually something we can put on our portfolio...It is what we can experiment, experience, and discover our skills - and realize/learn skills and knowledge we don't have but other people do."

Issue: HCC fails to foster a community for students in the major, resulting in a lack of camaraderie between fellow students. Additionally, underclassmen lack adequate project experience for portfolio pieces, which makes it difficult to find co-ops.

Proposed Solution: A department led, week long project involving HCC and HCI students of all grade levels collaborating on designing a solution for a problem given by a local non-profit.

Why:

- Similar projects are currently being done with [several CAD programs](#), as well as the biannual [IdeaLab](#)
- This project would solve many problems including lack of portfolio projects for underclassmen, bolstering a community within HCC/HCI majors, and would create a more diverse network for students with local companies.

Curriculum Reshuffle

How would you improve the HCC Program?

"I'd like prototyping and usability testing to be a semester earlier in the track, so that people could have their first big portfolio pieces done by the time they're applying for 2nd year summer co-ops in early spring. I had to wait for another year in order to be ready to land a summer co-op."

Issue: HCC fails to introduce UX and related basic concepts early. Students feel unprepared for their first co-ops - and are often unable to secure a co-op by the second summer - due to a lack of relevant experience early on in the program.

Proposed Solution: A structural shuffling of HCC courses for the first four semesters of the major. Expanding ISTE 262 (Foundations of HCC) to include project experience, moving ISTE 262, 264 (Prototyping and Usability Testing) & 266 (Design for Accessibility) earlier to allow students to be better prepared for co-ops. Please see the documents in the Appendix for a visual representation of the new schedule.

Why:

- While ISTE 120 (Computational Problem Solving in the Information Domain I) introduces important concepts to new programmers, ISTE-121 (Computational Problem Solving in the Information Domain II) is unnecessary for the average HCC student, taking up course slots that could otherwise further knowledge elsewhere.
- Introducing HCC fundamentals in the first year will allow students to get a better idea of what the major actually is, and the concepts that will follow them into all the courses.
- Starting ISTE 264's material during 2nd year fall would also help portfolios be ready for 2nd year summer, as many of HCC's most robust portfolio pieces come from that class. Starting earlier would give us more time to add the class project/s we work on to our portfolios.

UI Software

How would you improve the HCC Program?

"Adding more classes that involve designing as requirements."

"Figma is quickly becoming the design tool of choice for lots of companies"

"I do wish there was less emphasis on Photoshop in the Design Survey courses, and more emphasis on Illustrator/Figma/Sketch/XD"

Issue: HCC students don't receive education in industry-standard UI design software prior to their first expected co-op block.

Proposed Solution: Introduce vector-based UI-design software during NMDE 111 and NMDE-112.

Why:

- Software such as Figma, Sketch, and Adobe XD are extremely common in the UX workplace.
- These tools are essential for co-ops which are expected from students the summer after their second year, but the current curriculum doesn't introduce them until ISTE 264 (Prototyping and Usability Testing) the spring before. And even after that, they aren't covered in full until NMDE 201 (New Media Design: Design Elements II, taken the third year for Design concentration students).

UX Research

How would you improve the HCC Program?

"More ux research classes early on, but not just psychology research classes"

"Do more for process and research. Students interested in UX should have the option of taking a course similar to the graduate UX research class instead of the psychology research methods I & 2"

Issue: HCC students receive limited education in UX research compared to development and design despite it being a potential differentiator for the program. Research Methods I/II are of extremely limited applicability to UX research.

Proposed Solution: The opportunity for students to take a UX research course instead of PSYC 251.

Why:

- The materials and subject matter in the HCI course HCIN 600 (Research Methods) could be adapted for undergraduates.
- PSYC 250 and 251 (Research Methods I & II) are somewhat useful for learning basic principles of research methodology, but PSYC 252 isn't necessary for that purpose. Because the classes are focused on scientific psychological research, much of the specific material (like IRB forms and APA formatting) will be irrelevant to almost all students going into UX research.
- We propose that PSYC 251 be made into part of the Psychology Concentration in the place of Language and Thought, which also isn't applicable to UX, so that the psychology-specific material in PSYC 251 is still available to those who take the Psychology Concentration.
- Include more qualitative methodology in the course schedule. The main forms of usability testing in industry gather qualitative data.
 - To prepare and qualify for co-ops it's necessary that we have practice/instruction in building usability studies, analyzing data points, presenting those insights, and acting upon them. **This is why Prototyping and Usability Testing is the most popular and most useful HCC class.**

Course Availability

How would you improve the HCC Program?

"I'd like to start a concentration earlier - to help with the first coop"

"A broader variation in concentrations or introduction of more core courses"

Issue: Concentration courses are not always available for students at the right times; consequently, students have to pick their concentrations based on availability rather than interest.

Proposed Solutions: Continue to coordinate pre- and co- requisite adjustments to enable students to take their required classes when offered. Additionally, utilize the previous suggestions to improve HCC student preparedness for their first co-op block.

Why:

- Historically, the HCC advising team has done a good job of adjusting requirements as issues and conflicts come up. This should continue to ensure that oddities in scheduling don't interfere with students' ability to take required classes.
- HCC students are expected to take their first co-ops during the summer after their second year but often lack adequate experience and knowledge to achieve this.
 - As a result, HCC students tend to take co-ops during fall/spring semesters, offsetting their expected course load.
- We likely lack the resources to make courses available more often and consistently.
- Currently, at least for Natural Language Processing, some courses for the concentrations are not always available.
- Many courses are Fall or Spring only. Particularly:
 - Accessibility concentration courses
 - Instructional Technology concentration courses
 - Psychology concentration courses
 - ISTE 262 (Foundations of HCC)
 - ISTE 264 (Prototyping and Usability Testing)
 - ISTE 266 (Design for Accessibility)

Proposed HCC Reshuffle

Classes marked with an asterisk (*) must be completed before starting co-ops.

Semester 1

NMDE 111

New Media Design Digital Survey 1

ISTE 110

Ethics in Computing

First Year Writing Intensive

PSYC 101

Introduction to Psychology (P-6)

P-6

ISTE 140

Web & Mobile I

Liberal Arts and Sciences

P-1

Semester 2

NMDE 112

New Media Design Digital Survey II

ISTE 262 (UPDATED)

Foundations of HCC

PREREQ: NMDE 111, ISTE 140
COREQ: ISTE 120

ISTE 120

Computational Problem Solving in the Info Domain I

ISTE 240

Web and Mobile II

PREREQ: ISTE 140

Liberal Arts and Sciences

P-2

Semester 3

PSYC 223

Cognitive Psychology

PREREQ: PSYC 101

ISTE 264 *

Prototyping and Usability Testing

PREREQ: ISTE 262

ISTE 121/124

Computational Problem Solving in the Info Domain II

PREREQ: ISTE 120

Liberal Arts and Sciences

P-3

STAT 145

Introduction to Statistics I

P-7A

Semester 4

Free Elective #1

ISTE 266

Design for Accessibility

PREREQ: ISTE 264

ISTE 252 *

Foundations of Mobile Design

PREREQ: ISTE 240

PSYC 250 *

Research Methods I

PREREQ: PSYC 101, STAT 145
WI

STAT 146

Introduction to Statistics II

PREREQ: STAT 145
P-7B

Semester 5

HCI CONCENTRATION

HCI CONCENTRATION

Free Elective #2

PSYC 251

Research Methods II

PREREQ: PSYC PSYC 250

Liberal Arts and Sciences

P-4

Considerations Taken:

Schedule was rearranged with the relative difficulty of each semester taken into account. Each semester was designed to have as varied a courseload as possible. Classes that would assist with the development of portfolio pieces and co-op-relevant skills were moved earlier to ensure that students would have a competent portfolio by the time they begin seeking their first co-op - Career Fair in their 3rd semester.

Changes:

ISTE 262

Updated with elements of ISTE 264.
Moved to 2nd semester from 3rd semester. Made ISTE 120 a co-req.

ISTE 264

Moved to 3rd semester from 4th semester.

ISTE 266

Moved to 4th semester from 5th semester.

PSYC 223

Moved to 3rd semester from 2nd semester.

PSYC 250

Moved to 4th semester from 3rd semester.

PSYC 251

Moved to 5th semester from 4th semester.

STAT 145

Moved to 3rd semester from 2nd semester.

STAT 146

Moved to 4th semester from 3rd semester.

ISTE 120

Moved to 2nd semester from 3rd semester.

ISTE 121

Moved to 3rd semester from 2nd semester, suggested replacement with ISTE 124

NMDE 111

Moved to 1st semester from 2nd semester.

NMDE 112

Moved to 2nd semester from 3rd semester.