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Revising the Computer Science Major program to increase the participation of underrepresented groups

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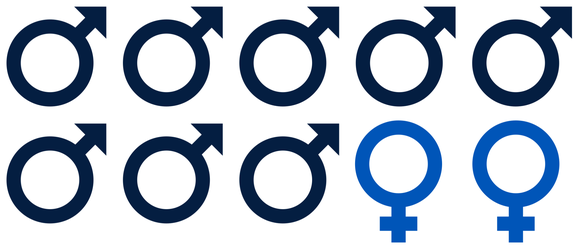
Project Objective

Despite efforts to change the trends, stereotypes reinforced by media and movies as well as western culture continue to affect women's and other historically underrepresented groups' participation in computer science. Our objective is to revise our curriculum to highlight graduate outcomes, and focus on core learning outcomes and competencies, with an emphasis on removing barriers for historically underrepresented groups such as integrating diversity, equity, and inclusion strategies throughout the degree.

Current Enrolment Numbers

Enrolment gender distribution in the Computer Science program has been consistent since 2017 with 16-18% female students despite enrolment growth.



Data extracted from PAIR website with Computer Science as primary subject (Okanagan campus)

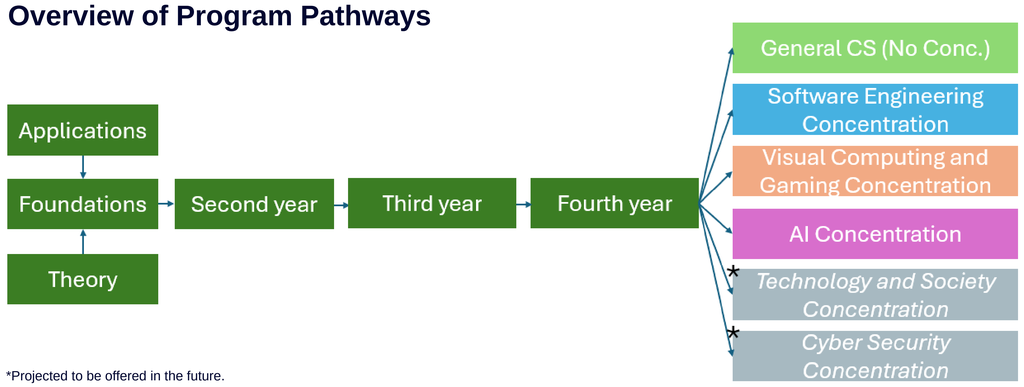
Seeking Student Input

- A comprehensive study has been initiated to get feedback on the factors that affects students' perceptions of Computer Science. Notably:
  - Surveys of current UBCO students
  - Focus group interviews with current UBCO students and alumni
- Feedback on the new program learning outcomes has been sought from the student course union and Girls In Tech.

Correcting Gaps in the Curriculum

- Through curriculum mapping, opportunities for assessment were identified.
- Topics taught in the core courses were standardized and relevant core technical skills such as Git and testing were emphasized throughout the program.
- Relevant ethical and societal components in the courses were also included.
- Different program pathways to highlight different aspects of computer science were created.
  - Increasing opportunities for specialization in in-demand computer science subfields through a phased approach.
- Recognizing the changing educational landscape by offering an optional challenge exam.

Overview of Program Pathways



*Projected to be offered in the future.

Assessment Plan Cycle

Academic Year	2023-24	2024-25	2025-26	2026-27
DEVELOP TOOLS	EDI	Foundational Knowledge & Skills	Professionalism & Ethics	Lifelong Learning /Communication
ASSESS PLO		EDI	Foundational Knowledge & Skills	Professionalism & Ethics
INTERPRET RESULTS			EDI	Foundational Knowledge & Skills
IMPLEMENT CHANGES				EDI

Diversity and Inclusion in Curriculum

- Creation of a first-year level course on ethical and professional conduct.
- Including EDI in the program learning outcomes.
  - "Recognize and take personal steps to advance, promote, and support Equity, Diversity and Inclusion."
- Communicating the availability of career paths
  - Encourages retention
- Providing different pathways for students with different backgrounds
  - Applications vs. Theory stream
  - Courses catering to students without prior programming experience

New 1st-year Level Required Course

- Creating a culture of professional conduct, diversity, respect, and inclusion.
- Creating awareness about stereotypes and biases in computing.
- Showing the need for diverse perspectives and participation in the design of technologies.
- Communicating the opportunities for career development in computer science early on.

Next Steps

- Complete the data analysis for the surveys and focus groups.
- Complete mapping of learning outcomes between course and program level.
- Finalise the curriculum and develop the course materials.
- Process automation and testing.

Acknowledgement

We gratefully acknowledge the financial support for this project provided by UBC Okanagan students via the Aspire-2040 Learning Transformations Fund.