COMP 4620 – Professional Practice in Computer Science

Course Description

Calendar entry

Background and rationale to view Computer Science in a professional context. Examination of professional ethics, intellectual property, and privacy considerations important to Computer Scientists. May not be held with the former COMP 3620. This course is restricted to students in a Computer Science Major, Honours, or Joint Honours program. Prerequisite: 6 credit hours of COMP courses at the 3000 or 4000 level.

General Course Description

The course provides strategies for appreciating and evaluating the relationships between technology and society, focusing on: professional ethics, intellectual property and privacy. Within these three topics the course investigates current issues, which may include social media legislation, artificial intelligence, and bias in algorithms. Lastly, the course offers tools to help students transition from the undergraduate classroom to professional work and/or graduate school. Guests are invited to talk to students about their professional experiences, and career guidance and workshops on professional development are provided.

The course relies heavily on case studies, group activities, and group presentations. The course uses a flipped format which assumes that students have read the required material before attending class. An interactive lecture will introduce each topic, and most of class time is used for interactive learning.

Detailed Prerequisites

Before entering this course, a student should be able to:

- Write basic sentences and paragraphs in English.
- Use a word processor, text editor.

Course Goals

By the end of this course students will:

- Understand tools for analyzing the social, ethical and moral issues in the area of technology and society.
- Appreciate professional responsibilities of computer scientists and the professional tools available within computer science.
- Understand the role of privacy in society.

- Appreciate the role of intellectual property protections.
- Improve awareness of the larger social context of computer science and related technologies.
- Know how to contribute effectively within a group to achieve a collective goal.
- Improve professional development skills and tools.

Learning Outcomes

Tools

Students should be able to:

1. Describe the relationship between technology and society as a social-technical system, where society and technology co-shape each other.
2. Defend the role of computer scientists in shaping technology.
3. Apply critical thinking tools to evaluate social, ethical and moral issues in technology and society.

Professional Responsibilities

Students should be able to:

1. Define regulated professions, and appreciate the role of regulated professions in society.
2. Describe and appreciate professional resources available in the field of computer science, including ACM and IEEE.
3. Consider special responsibilities of computer scientists in society.
4. Judge whether computer science should be a regulated profession.

Privacy

Students should be able to:

1. Describe the value of privacy, including a brief history of privacy scholarship including H. Nissenbaum.
2. Appraise one's own role in the protection of privacy, both as an individual and as computer scientist.

Intellectual Property

Students should be able to:

1. Describe the various types of intellectual property protection in Canada.
2. Critique the social value of intellectual property protection.
3. Contrast the social balance between rewarding intellectual property protection and enabling the free sharing of ideas.

Social Context

Students should be able to:

1. Identify and analyze current issues in computer science, such as social media regulation, artificial intelligence, and bias in algorithms.
2. Analyze case studies that relate current and historical issues in computer science with the course's core concepts of professional ethics, privacy, and intellectual property.
3. Describe social privileges they may or may not embody in the professional world, and consider ways to support others with less privilege, including but not limited to the gender imbalance in computer science.

Groups

Students should be able to:

1. Describe common group roles and behaviours.
2. Identify group roles and group behaviors, in others and themselves.
3. Apply developing group skills during group activities.
4. Work together in a group to achieve a collective goal.

Professional Development

Students should be able to:

1. Extrapolate experiences of invited speakers to their own career goals.
2. Locate resources to help make career decisions, produce career documents, and find job listings.
3. Differentiate expectations from student conduct to workplace conduct.
4. Locate resources about graduate school and consider whether they are interested in pursuing graduate work.