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Subject: Proposal for determining the feasibility of having more online computer science courses at UBC

**Introduction**

Over the past couple of years, there have been many issues regarding course availability and section size in the Computer Science Department here at UBC. Many upper-year level courses get canceled because there are no instructors to teach them. There are not enough sections to accompany the growing amount of students in the department and it has gotten to the point where some students end up delaying graduating because they were not able to get into the courses they required. Another problem would be that there are not enough large lecture halls that have enough seats to facilitate the large sections that would be needed satisfy the demand of the courses.

Even in the midst of this resource problem, enrollment numbers have doubled since 2010 and is not showing any sign of slowing down. Combined major programs with computer science share many of the same core requirements that just computer science majors do and are adding to the resource shortage. Waitlists for pretty much all of the core courses have over 50-100 students on them at the beginning of each semester. The worst case was when there were 250 students on the waitlist for a single required third-year computer science course in the 2016 winter semester.

**Statement of Problem**

The UBC computer science department has a shortage with respect to resources. There are not enough staff and instructors to teach courses and section sizes are not big enough to handle the increassing demand.. There are also not enough lecture halls that can handle larger sections and not enough TAs to help facilitate many of the courses.

**Proposed Solution**

A possible solution would be to make some of the courses into distance education courses and have all the learning material online. In most of the courses, a lot of the lecture material is already online and we have a way of interacting with the professors and TAs through Piazza. Many of the professors also already use tools like Github, edX and Gradscope to manage the distribution of assignments and grades. The only part that cannot found online would be the in-class lecture material, but professors can record videos or screencasts to fulfill that aspect. Having courses online can help to alleviate the resource problem as there won't be as tight of a limit on waitlists and larger sections would be more manageable.

**Scope**

To assess the feasibility of having more online / distance education computer science courses offered at UBC, I plan to pursue the following areas of inquiry:

* Actual feasibility / effect of having online courses
  + What effect would an online-only course be on the instructor shortage and/or seat shortage?
  + Does the computer science faculty have any plans for offering distance-education computer science courses? If not, how come?
  + What sort of steps have to happen for an in-lecture class to be converted to an online one?
  + Would it actually be possible to facilitate larger classes by using this method or would other factors come to play?
* Tools:
  + What sort of platform would we use to facilitate the course?
  + Would we be able to incorporate existing tools like Github, edX, Gradescope and piazza?
  + Are taking screencasts and/or recordings of lectures possible?
* Student Interest:
  + What is the interest regarding online courses?

**Methods**

I will conduct a survey among computer science students that will gage interest in taking an online-only/ distance education computer science course. I will also send a list of interview questions to the undergraduate computer science faculty staff asking about the logistics and plans the faculty have regarding offering online courses.

**My Qualifications**

I am a 4th year computer science student at UBC and I have first-hand experience with the frustration that is caused by courses being canceled as well as being put on wait lists for major core courses.

**Conclusion**

Action needs to take place in order for students in the computer science department to be able to fairly receive the education they need. Often times we are not able to learn about the topics that truly interest us because of the above shortages and more often than that, we can't even get into the core courses we need to be able to graduate on time. By addressing the issues above, I can determine the feasibility of having more online-only computer science courses which would help to alleviate the severe resource shortage that our department is currently facing