

September 27th, 2016

Dear Dr. Seiter,

Thank you for submitting the Proposal for a Major and Minor in Data Science! CAP commends you and colleagues in MT/CS for investing considerable amount of time and effort in collaborating with many departments and for preparing a high quality proposal. CAP had our first discussion over this proposal on 9/22/16 based on the following documents:

- 1) the proposal dated 9/13/2016
- 2) Letter from the Executive Director for Academic Finance (David Wong)
- 3) Letter from Enrollment (Brian Williams)
- 4) Letter of Support from
  - a) Joint letter from CAS Dean (Margaret Farrar) and Associate Dean (Graciela Lacueva)
  - b) MT/CS Chair (Paul Shick)
  - c) SC Chair (Penny Harris)
  - d) Dept of Communication and theatre arts chair (Margaret Finucane)
  - e) Director of Assessment (Todd Bruce)

Here we provide our feedback and hope that it may help strengthening your proposal. After receiving your modified proposal and all supporting documents, CAP will host opening hearings and discuss your proposal again. Finally, CAP will send our report on your proposal to FC.

The joint letter from CAS Dean and Associate Dean listed strength and concerns. CAP recommends that these concerns be addressed.

Furthermore, CAP highlights a few strengths.

Firstly, the idea of offering an undergraduate major and minor in Data Science is very timely due to the large disparity between the great need of entry level data analysts and the shortage of undergraduate data science type of majors offered in the US and around the world. If we start offering this major/minor and can attract sufficient number of students within the next few years, we will likely position ourselves as a solid and early player in this field.

Secondly, MT/CS department is now poised to offer an undergraduate major and minor in Data Science for the following reasons: they hired 2 tenure-track professors specialized in data science (Drs Elena Manilich and Billie Marget) in 2015; 4 new courses need to be created for this major, however, in addition to Drs Elena Manilich and Billie Marget, other faculty members such as Drs Linda Seiter, Brendan Foreman, Marc Kirschenbaum and Dan Palmer are also interested and capable of teaching the 100 and 200 level new courses; MT/CS department terminated one major (CIS) last year.

Thirdly, the proposed Data Science major requires 12 credits of Domain Knowledge from one area of specialization which includes both natural and social sciences and humanities?. This is built upon our strength in liberal arts education and calls for multi-disciplinary collaborations across campus. Hence, the major in Data Science at JCU distinguishes itself from many Data Science majors connecting with business or engineering.

CAP has some questions/concerns:

1. The subject of Data Science is very new. This is both opportunity and challenge in recruiting. There is a clear demand of entry level data analysts in Cleveland area, the US, and around the world. However, this may not translate into a large enrollment in the Data Science major. As high school teachers and students may not be aware of this new major in general and at JCU in particular, education of high school teachers/students and advertisement/outreach to high schools can be critical. CAP commends on the initiative of MT/CS to offer 1 online course on data science to high school instructors. This could be an effective recruiting tool. In addition to this effort, are there any other recruiting, marketing, outreach activities being or that will be developed to promote this new major? Though not explicitly required in the proposal, this discussion can strengthen your proposal especially if you have consulted with Enrollment and/or Advancement/Marketing and already have plans to address this.
2. Program Learning Goal 4: Domain knowledge and its description: the description emphasizes using techniques to solve real-world problem; the word 'domain knowledge' seems to emphasize the knowledge on specific area of science. Is it a better way to describe them?
3. Out of 46 credits required for Data Science major, only 4 courses on Statistics/Computer Science/Math/Data Science are 300-400 levels. Is there enough depth for the students? As a comparison, major in Math and computer science requires 7-8 courses.
4. Out of 7 departments potentially offer 'domain knowledge', 2 chairs submitted supporting letters. Please provide the supporting letters from the other 5 department chairs.
5. For DATA470: please provide details to the course such as who will advise the students, where they will get data, cost of data, etc. You can give examples.
6. Only 2 courses for data science minor is at 200 level or beyond. Is there enough depth? Other CS minors requires 3-4 courses at or beyond 200 level.
7. In MT/CS chair (Paul Shick) supporting letter, Paul mentioned that the department will cover marginal cost. In the budget, the yearly cost covered by MT/CS is projected to be \$10k-\$15k. Can you ask Paul to be specific about this?
8. During the discussion of the budget, the possibility of charging students lab fee is raised. If this will be included in the modified proposal, please modify the budget accordingly.
9. Letter from University Budget Committee (UBC) is missing. CAP understands that UBC will meet on 10/11/2016. Please have it submit the letter in a timely fashion.

CAP