Three-Year Check-In for New Programs

The creation and maintenance of graduate programs and certificates represents significant resource commitments by faculty and staff. Given these investments, in 2014 the Graduate Faculty Executive Committee (GFEC) established a “check in” process for newly approved programs and certificates prior to their first formal university review (which occurs in the fifth year.) Through this “check-in,” the GFEC hopes program faculty and staff will assess the implementation of their new program and determine what mechanisms may be needed for sustained student success.

Progress reports will be included on GFEC agendas, and program representatives may be asked to attend GFEC if additional information is requested. In the interest of brevity, please keep responses to 300 words or less.

Program Name
Biomedical Data Science PhD

Term of First Enrollments
Fall 2018

Check-In Completed By
Michael Newton, Sushmita Roy, cc’d Christine Lindstrom and Shelley Maxted

Date Completed
12/1/2021

Academic Quality and Student Success

1. Provide an update on any changes to the program’s curriculum and learning outcomes. Include a description of the program’s typical course modalities (face-to-face, online, asynchronous discussion, team or individual assignments) and if courses have evolved based on faculty or student feedback.

The BDS doctoral program’s core curriculum is broken into three categories (Biostatistics, Computer Science and Additional Specializations) with focus topics consisting of a course series for each topic. In 2021, we updated the curriculum to remove options that were not available to our students and added course options that fulfilled the requirement of a given core topic area. The required number and breadth of courses did not change and the learning outcomes for the program remain the same. Faculty often offer special topics courses on cutting edge research problems, which are available for students to enroll in. We have provided detailed guidance for student rotation policy and the preliminary exam. Our handbook and website have been updated to reflect these updates.
Outside of COVID, the courses are offered face-to-face and there is a variety of team and individual assignments depending on the individual course.

2. Please reflect on the diversity of your student population using the data provided by the Graduate School. What efforts have you made to recruit a diverse student population, and what inclusion efforts have you made to ensure the success of the diverse population of students in the program? What areas of opportunity exist for future recruitment of diverse populations? (See here for Institutional statement and working definition of diversity.)

A large proportion of our students are international from diverse ethnic backgrounds. However, the field of Biomedical Data Science is typically majority male. We have admitted a higher percentage of female than male applicants and approximately 1/3 of our enrolled students are female. In conjunction with the SciMed GRS office, we have made AOF fellowship offers to four eligible applicants and had one acceptance. Recruiting and enrolling a diverse student population is a priority for our program. As such, we have worked with the SciMed GRS office on recruitment efforts through attendance at conferences with a focus on minority student recruitment. We have considered working with the Bioscience Initiative for Recruiting and Networking (BIRN), however we do not have the necessary contacts at minority institutions to partner at this time. We host a Summer Research Opportunity Program in Biomedical Data Science to provide a research experience for underrepresented students and highlight opportunities for graduate study. We will continue those efforts and are working to develop a Diversity, Equity & Inclusion committee for the department which will include graduate program representatives.

3. The GFEC is interested to learn how departments balance faculty and staff teaching loads and responsibilities between new and existing programs. Discuss how the department or program is achieving balance, and what challenges supporting multiple programs may have created for teaching, student services, advising or funding. Also of interest is information on what if any assets are shared between programs, or additional benefits that have been realized.

With few exceptions, we are fortunate to have had a good alignment between demand and supply of expert BMI instructors. Recall that BMI faculty teach in multiple programs, with biggest collaborative effort in Statistics, Computer Sciences, and Population Health Sciences graduate programs, in addition to our own BDS courses and the courses we provide as service to other programs (e.g. BMI 541, 573, etc). These programs share some course requirements (e.g. courses like BMI 641/642 and Stat
Faculty teaching loads in BMI average to a single 3-credit course per faculty member per year, with one year in four or five off. Our core courses have been very stable within the areas of our various graduate and professional courses. We have a large cohort (~10) of junior faculty, and all have been able to offer special topics courses to graduate students in an area of their specialization (e.g. methods for clinical trials; methods for image analysis; methods for genomics).

The BDS program brings new demands for faculty in terms of graduate student mentoring; not only for supervising PhD students, but also in guiding semester-long rotation projects. We have filled the needed mentoring roles, and may be able to expand considering the availability of research assistantships; a bigger challenge has been early-stage support for the students.

We request dual-role waivers occasionally (e.g. Cook, Buhr, Sampene) for academic staff with specific expertise who can teach.

There are interesting opportunities for interactions between professional and graduate programs. For example, we have experimented with matching clinical investigators learning about Randomized Controlled Trials (RCTs) in the Clinical Investigations program (BMI 544) with biostatistics graduate students in BMI 641.

4. Please describe how your program has ongoing and broad faculty commitment, including governance, to ensure its continued success. If applicable, reflections from faculty and staff can be included here or as an appendix. Also consider if implementation of this program is supporting the Department and/or School/College’s current strategic goals.

BMI has been actively pursuing strategic planning this year. Planners have recognized the central role that the BDS graduate program plays in our scholarly work, for example coining a new mission statement: “Advancing data science to accelerate biomedical research and improve human health.” Many faculty are engaged with the steering and operational activities of the BDS program; many more guide students in rotation projects. We discuss BDS student progress in full faculty meetings, annually.

Operations and Administration

5. Explain through a brief narrative how the program has brought in NEW and ADDITIONAL students and met projected enrollment goals (required for non-pooled programs), and how overall enrollment in your related programs has remained steady (if relevant).
Provide enrollment data from the past 3 years: See here for degrees & named options and here for capstone certificates. If unanticipated overlap with existing programs has resulted, discuss steps to mitigate the overlap.

We experienced our highest enrollment in Year 1 of the PhD program, with 11 new students, and have had lower enrollment in subsequent years. Our goal is to enroll approximately 6 students per year. We are actively working on recruitment efforts to help increase enrollment.

Fall 2020 4 enrolled (2 deferred, due to COVID related visa issues)
Fall 2019 7 enrolled
Fall 2018 11 enrolled

6. Funding Considerations

a. For traditional/pooled programs – How is the program successfully funding its students?
   The home department of the graduate program (Department of Biostatistics & Medical Informatics) is committed to providing stipend and tuition funding for first year PhD students, who are completing research rotations. Once students complete their first year of study and identify their dissertation advisor, funding comes from a variety of sources: faculty grants; training grant programs; other fellowships.

b. For non-pooled programs – Refer to the updated budget template in addressing if the program has sufficient enrollment for sustainability. Discuss the current market outlook compared to the original marketing study and plans to grow or change the program to become sustainable.

7. If the program admits international students, describe how program processes address length of stay visa issues, online course restrictions, and needing ESL services.
   More than half our students are international. We have not had problems with length of stay, online course restrictions or ESL services

8. Are there any issues impacting the program’s long-term sustainability? If so, what support would you like to help you succeed?
   We do not foresee any issues that will impact our program’s long term sustainability.