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

| Computer Sciences Professional Master’s Program |

Term of First Enrollments

| Fall 2014 |

Check-In Completed By

| Suman Banerjee |

Date Completed

| 10/27/2017 |

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.

To be eligible for the Computer Sciences Master of Science degree, students in the Professional Master’s Program will need to complete at least 30 credits of computer science coursework, with an average grade of at least B. Fifteen credits must be received for core graduate-level courses: CS courses numbered 700-889. All remaining credits must be received for courses at 400 level or higher.

The program is designed to be completed in four semesters (two academic years), with an option to complete the program early and graduate in three semesters.

Computer Sciences courses are taught in an in-classroom, face-to-face format through lectures and lab sections. Student learning in computer sciences courses is generally assessed through exams or individual/team projects. Courses often taken by students in the PMP have expanded the number of seats to accommodate their needs. For PMP students working full-time, we have also offered the option to enroll in off-campus courses taught at Epic, to allow for schedule flexibility.
Upon completion of the Computer Sciences Professional Master’s Program, all students should be able to achieve the following learning outcomes:

1. Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
2. Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
3. Applies design and development principles in the construction of software systems of varying complexity.
4. Applies foundational principles in practical applications.
5. Independently acquires, synthesizes and applies required information pertaining to challenges in computer science.
6. Communicates clearly in ways appropriate to the field of study.

2. Briefly explain the program’s learning outcomes assessment plan and discuss how you are or how you plan to evaluate student learning. Summarize any data collected to date showing evidence of student learning.

During the 2016-2017, 2017-2018, and 2018-2019 academic years, we plan to assess all Learning Outcomes through four different assessment activities, including two direct forms of assessment.

In Spring 2017, an Exit Survey was sent to all students graduating with the MS degree in Spring 2017 and from Fall 2016. The survey contained questions asking students to rate their confidence level of each the six learning outcomes gained from their MS programs.

In Spring 2018, we will conduct a direct assessment of Learning Goal #3 (Applies design and development principles in the construction of software systems of varying complexity), by visually evaluating code for projects in programming-intensive 700-level courses taken during a student’s second year. During this semester, we will also directly assess Learning Goal #5 (Independently acquires, synthesizes and applies required information pertaining to challenges in computer science) and Learning Goal #6 (Communicates clearly in ways appropriate to the field of study), by evaluating a sub sample of reports and class presentations using rubric in 700-level courses during a student’s second year.

In Spring 2019, an Alumni survey will be sent to all MS alumni that have graduated within the last 3 years, asking about how they have applied what they have learned in their Master’s program towards their current job or graduate program. This survey will ask self-assessment questions related to each of the six Learning Outcomes.

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.

Most of the students in the program take a broad spectrum of upper level graduate and undergraduate courses in the department. The department has hired additional instructors for some of the undergraduate courses to increase teaching capacity. In addition, the faculty of the
department have expanded the size of the courses, aided by additional TA support provided by the department in some of these courses. Overall, this has allowed us to meet the increased teaching load. Further a separate professional program committee, and a professional programs coordinator manage the services and advising load.

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.

The department has a professional programs committee that is responsible for proper management of the program. The committee reports to the department chair, and works closely with the department’s education and curriculum committee, the directors of graduate and undergraduate studies, the budget committee, and the department chair to identify various issues related to staffing, scheduling, and planning of courses.

The faculty in CS as a whole has been supportive of this program, as they have been willing to admit students in this program into their classes when possible to enable them to make progress throughout the program.

Still some challenges remain, as the department is strained in teaching capacity and scaling of this program is limited by such capacity.

**Operations and Administration**

5. **Illustrate how the program has either brought in NEW and ADDITIONAL students (required for non-pooled programs), and/or how overall enrollment in your related programs has remained steady.** If unanticipated overlap with existing programs has resulted, discuss steps to mitigate the overlap.

The Professional Master’s Program was designed for a new audience-CS developers or students with a CS background who want to obtain further training in this fast-moving field. We have not experienced any unanticipated overlap with the existing graduate programs, as the students generally have different sets of program goals and career paths after graduation.

The PMP continues to experience growing interest from prospective students and has even increased enrollment by 90% since the first admission cycle. We expect enrollment in the PMP to increase or at least remain steady over the next few years, due to increased market demand for skilled professionals in the CS field.

6. **Funding Considerations**

   a. **For traditional/pooled programs – How is the program successfully funding its students?**

   Graduate students in the regular program in the department are funded in different ways. Some students get fellowships, Teaching Assistantships, and Research Assistantships that are awarded through the department’s admissions committee and through individual research grants. Other students are self-funded.
b. For non-pooled programs – Provide a brief summary of projected vs. actual revenues and expenses. Does the program have 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.

The program has been sustainable right from its first year of the program. The admitted number of students in the program, each fall, is approximately 40, although it has varied in different years.

The program can certainly be grown further, but it needs additional teaching capacity and related plans before we can do so.

In the 2016-2017 academic year, the program brought in a total revenue of more than $1.3M and around $800,000 in expenses (including the L&S fee).

7. If the program admits international students, describe how program processes address length of stay visa issues, online course restrictions, and needing ESL services.

The Computer Sciences Professional Master’s program is a two year graduate program, with an option to complete the program in three semesters. International students receive an I-20 set for two years. The majority of international students graduate within two years and are only allowed an I-20 extension under extenuating circumstances.

All required coursework for the Professional Master’s Program is delivered in an in-classroom format. Online courses are not offered through the department and are not generally taken in other departments. International students are made aware of ISS policies regarding online courses taken during final semester of study.

The Computer Sciences Professional Master’s Program Admissions Committee evaluates all parts of student applications, including English language proficiency test scores. Very few international students are admitted who do not meet Graduate School minimum requirements. Applicants who are admitted but do not meet English language proficiency requirements usually have other outstanding qualifications and are expected to succeed in the program. Applicants who do not meet English proficiency minimums are encouraged to retake the test prior to attending UW-Madison. Applicants unable to test out of English proficiency tests are expected to enroll in an ESL course their first semester. This is communicated and monitored by the Professional Programs Coordinator.

8. Are there any issues impacting the program’s long-term sustainability? If so, what support would you like to help you succeed?

The program itself is sustainable. It can be grown further but there is a concern that a very large program can also be a detriment to the research quality of the department, especially since these students are less interested in research.

In particular, one concern of the growing size of PMP is that graduate classes have grown proportionally. This has quite impacted graduate instruction --- the department has traditionally done graduate instruction in class sizes of 20 to 40. For many project-focused courses, such sizes have been very effective for maintaining instructor-student contact and project-related discussions. With the introduction of PMP, the sizes have more than doubled in some classes making them less effective. There is a concern that the quality of graduate education may suffer as a result.
Therefore, growth of the program needs to be carefully managed if the department wants to preserve its excellence in graduate research and education. Of course, it requires hiring of many more additional faculty to add teaching capacity, and perhaps courses need to be split into professional-program only sections and others where research is encouraged and enabled more directly.