Memorandum

To: Scott Furlong, Dean, Liberal Arts and Sciences

CC: Peter Breznay, Chair, Computer Sciences

Andrew Kersten, Associate Vice Chancellor to the Provost on Academic Affairs

From: Kaoime E. Malloy, Chair, Academic Affairs Council

Date: 5/20/13

Re: Computer Science Program Review

The AAC has reviewed the self-study materials submitted by the Computer Science program. The committee considers both the narrative and the supporting materials to be very well written and organized. As part of our evaluation of their materials, the committee met with Prof. Breznay and Prof. Abbott to discuss several specific points in their self-study. What follows is the AAC's analysis and recommendations for the Computer Science program.

The Computer Science program, like most programs on the UWGB campus, works diligently to support the university's select mission of providing an interdisciplinary, problem focused education. The program offers two tracks, one with a disciplinary focus, and one with an interdisciplinary focus. Computer Science faces a unique challenge in that their knowledge and pedagogy is incredibly driven by technology that is changing at an extremely fast rate, making it critical for their faculty to continually update their knowledge and skills in their field in order to be able to deliver current information and teaching to their students. Without institutional support, their faculty has to bear the cost of this continuing education in both time and money on their own. The AAC recommends that the Computer Science program should receive faculty development funds to assist them in maintaining their knowledge in their field.

The very nature of computer science demands that students in the program develop excellent problem solving skills, as they will be required throughout their careers when working with the ever changing technology of computers and software. There is a high demand for the graduates of the program, as shown in the narrative, which is expected to increase by 30 % over the next seven years, and which also explains the high salaries graduates receive with businesses that contribute significantly to the economic development of the region.

Since the last program review, the Computer Science program has made significant changes to their curriculum due to the ever evolving nature of their field. On initial examination, this work may seem to be routine; but for this program it is essential in order to remain current and to attract students. In some courses, these changes have to be made every semester to stay on top of new developments in the field. Significant revisions will continue to be required over the next five years in order to maintain the program's level of quality and to remain current. The self-study document highlights the changes made to several of the key courses in the program's curriculum as well as changes in course periodicity. The program also continues to address concerns raised by alumni in the previous review to ensure students are properly prepared to write software plans, program documentation and/or project manuals. Several courses have incorporated these learning outcomes into their materials. The program is also in discussion with the university's new CIO to create special platforms to demonstrate computing innovations without endangering the security of the institution's computing infrastructure.

The document also notes that enrollment has been increasing since the last program review, with 103 majors in the fall of 2012, the highest level in six years. Although student enrollment is cyclic, numbers are expected to continue to increase along with national trends in the field. Although there is a high attrition in the program, sometimes as high as 80%, the faculty perceives this as an indicator of the rigor and quality of the program and considers it to be in line with national averages. Although there is no hard data to explain exactly why students leave the program, the faculty suspects that they may have had unrealistic expectations for what the field entailed before enrolling. However, Computer Science graduates between 2003 and 2008 report a 100%full time employment rate, and impressive success rate. The low number of female students enrolled in the program is a trend within the field as a whole, and may not be something that can be addressed by the program.

The most significant change since the last program review has been in the area of faculty. One very capable faculty lecturer passed away, and after a difficult search his replacement subsequently left the program in the fall of 2012. Prof William Shay retired in the spring of 2012 and an administrative decision was made to allocate his position to Communication. Prof. Song also left in the fall of 2012 to take a position with Microsoft. This leaves Computer Science with two full time faculty, the smallest number in the entire UW system. No other program of its kind functions with less than five. This has forced the program to reduce the periodicity of several courses, and to rely on ad hoc instructors to ensure that its courses are being taught. They now face an incredibly difficult challenge of maintaining the quality of the program at a time when interest and demand for it is high among students, as well as from outside the program, such as the Humanities, Design Arts and General Education, where their expertise is desired. In light of this, the faculty have taken a hard look at their program, and come up with several options on how to move forward.

Without new faculty members, the future of Computer Science cannot be planned. Their current strategy then, as in the past, is to seek to hire generalists with the ability to teach most of the courses in the core curriculum, individuals with an interest in developing expertise in complimenting areas, who can then help in developing the direction of the program. Without new faculty, the program questions whether they can legitimately call themselves a Computer Science program, as this implies a breadth of curriculum which they feel they cannot provide adequately at this time.

Given this belief, they could eliminate the major and offer a minor instead or change the program to computational studies. This would be a less costly option, but would undermine the needs of the region and does not have the support of the faculty. The second option offered in the narrative is based on the assumption of recovering four full time faculty positions in the program, and further developing the current, well respected program, keeping an eye on student demand and trends in technology. This option also seeks to develop new courses that would reach out to a wider campus audience, including several general education offerings that would introduce students outside the discipline to computer science. These offerings could potentially bring more revenue into the program and help to offset the cost of personnel. The third option presented by computer science is to expand their tracks or areas of emphasis to encompass a more diverse offering of topics within computer science, in order to attract more students to the program, as well as to foster more collaboration with other programs on campus. This option also requires more faculty, either specialist with specific areas of expertise or generalists with side interests that could be developed into special topics.

The AAC believes that eliminating the Computer Science program would be a tremendous loss for the university and for the students. There is clearly a demand for the program, though it has been noted that potential students have concerns about the current state of the program as it exists now. The AAC sees a great deal of potential in the offering of general education courses in computer science and believes that these kinds of classes would be very beneficial to the student body at large and we recommend that they pursue these ideas. We also think there is a great deal of possibility for collaboration between Computer Science and other Disciplines across campus, particularly with Humanistic Studies' interest in the digital humanities, Design Arts and Theatre's use of CAD and various editing and cueing programs. Given the university's strong interdisciplinary focus, this seems like a perfect opportunity to put it into practice and we encourage them to do so.

There is also the issue of Information Sciences and what that program might do in order to be salvaged. It is obvious that neither Computer Science nor Information Sciences can continue without more full time faculty members. The losses suffered by both programs have been devastating, both in terms of curriculum and morale. This is strongly evidenced by the suggestion from both disciplines to eliminate their programs as a viable option. The AAC, like the program itself, see Computer Science and Information Sciences as natural partners. We recommend that these

two programs meet to consider how they might merge to support one another and create a combined program that would offer both their members and their students more opportunities. We also recommend that the administration support these two programs in any way they can, but first and foremost through the hiring of additional full time faculty. In the previous program review, the AAC recommended that the Computer Science program 'strive to be the premier program in the region.' It is obvious from their self-study that Computer Science has many ideas regarding how they can achieve this. But clearly, it cannot meet this goal with less than half the faculty members of its peer institutions. It cannot even be competitive, let alone meet the needs of the students.

Respectfully submitted,

Kaoime E. Malloy