

IUPUI GAC Reviewer Form

Documents Reviewed: Master of Science in Informatics Program Proposal and Appendices

1. Are the goals clear and achievable?

The goals of the proposed degree program are clearly stated and are aligned with the mission of the School of Informatics and Computing. Within this overall vision, the program has identified two specific objectives.

The first objective of the MS in Informatics is to enable students to excel and lead in education, research, and civic engagement in informatics. It is this vision and mission that has enabled the School to establish it as one of the national leaders in informatics—an emerging field that requires practitioners to possess both technical skills in managing and analyzing data, information and knowledge, as well as expertise in a specific application domain. Traditionally, informatics programs have been located in an academic unit where the core priority is domain expertise such as medicine, and the information-centric knowledge and skills are grafted on. The School of Informatics and Computing has chosen instead to address its informatics goals by using its core of computational and informatics curricula and developing opportunities for students to either acquire or leverage previous specializations to enable them to apply their informatics skills to address problems effectively in a chosen domain. This innovative approach aligns with the mission of the School which is to “transcend the study of technology itself: identifying, defining and addressing information problems in a range of disciplines with a variety of technologies and methodologies.” It also promises a fresh approach to the complex task of preparing students to both acquire sufficient technical skills to function effectively while at the same time ensuring that they possess sufficient domain knowledge to be credible professionals in an application domain.

The second objective of the MS in Informatics is to provide a path for students and graduates from non-IT backgrounds to transition rapidly into in-demand, well-remunerated IT positions, which increasingly require knowledge and skills in both informatics and in the application domain. This objective addresses important characteristics of the informatics workplace. Graduates who have strong IT preparation are often at a loss when attempting to navigate the varied cultures of specific domains such as medicine, corporate asset management, marketing or bio-science. And students who have majored in a non-IT discipline may lack sufficient technical skills to enable them to apply for jobs in today’s technology-intensive economy.

The proposed program will formalize a two-tiered graduate degree program in informatics. One tier is fundamentally domain-agnostic; that is, it provides core competencies in informatics areas. The second tier is domain specific; it offers four specializations—Biomedical Informatics, Data Analytics, Knowledge and Information Management, and User Experience Design. These specializations are created by using courses that already exist within the School or within the IU system (at IU Bloomington). Students will complete the 5 core informatics courses and then take 5 electives in the specialization (a 1-2 course research/project option or 2 course thesis option can serve as a portion of the five electives).

In addition, the School proposes to develop an interdisciplinary 5 year BS/MS program that would enable undergraduates to major in a domain area and then acquire the MS in Informatics with fewer credits. The 5 year program is particularly innovative and, to this reviewer, has great potential in that it addressed some of the challenges associated with informatics education in an environment in which “informatics” is not well understood by prospective undergraduate students and their parents, and by employers. It follows a long-standing model that has been in place in many professions; that is, students complete an undergraduate major and minor, and then pursue a professional graduate degree that prepares them for the workplace. The professional program offers internship opportunities to facilitate the transition from student to professional. This model is not universal across all fields, and some, such as business and the arts & humanities, may welcome this structure. Additionally, the School’s decision to include computer science --an easily recognized and desirable credential—can dispel potential concerns about investing time and money in an emerging field. (This concern is lessened somewhat in a public university where tuition may be lower than in a private, tuition-dependent setting).

2. Is the program academically sound?

The program is based on a solid understanding of informatics as an academic discipline. It recognizes the interdisciplinary nature of the field and proposes sound academic principles to design a program to meet the needs of students seeking to enter this professional field of practice.

3. Are faculty resources available to offer this degree without undercutting other key missions of the unit?

Sufficient faculty resources are already in place within the School to offer the core curriculum of the MS Informatics. The School is organized in such a way that the courses for the proposed specializations are already operating, although the curricular “packaging” awaits approval (p. 6). In the Department of BioHealth Informatics, there are already two related master’s degrees—one in health information management and one in health informatics. These will flow nicely into the Biomedical Informatics (BI) specialization. However, it will be important that the scope of the BI specialization be clearly articulated to prospective students and that the differences between it and the existing master’s degree as clearly stated (p.6), particularly because the Bioinformatics, Health Informatics and HCI all “have particular undergraduate degree requirements...” (P. 13). Without this clarity, it is possible that ambiguity could affect class enrollments and the scheduled offerings of the relevant courses, which could be confusing and frustrating to students.

4. Is there overlap, either real or potential, with any other unit that could harm the program or be exploited to help the program?

As noted in the proposal. IUPUI’s location near a major medical center in Indianapolis supports the location of the program on this campus. Many health related occupations use the 5 year educational model that includes practical (“clinical”) experience as part of the program. It will be important to specify how this clinical experience will articulate into the 5 year BS-MS programs that are proposed. Establishing the 5 year BS/MS sequence with other disciplines such as business, law, art & design, etc. will likely be

simpler and arguably, extremely attractive to prospective students as long as the tuition for a 5 year commitment is not seen as prohibitive. Relationships with area employers for tuition support, internships, and employment opportunities post-graduation can go a long way in lessening the impact of a 5 year commitment to education. Furthermore, the use of online and blended delivery, as discussed in the proposal, can enable students to be employed at least part-time while studying.

The proposal states that conversations between the School and other units on campus indicate that there is strong interest in establishing the join BS/MS option, but the current proposal lacks detail on various implementation issues such as marketing, admissions, advising and revenue sharing (if applicable) (pp. 7-8). The School would benefit from exploring these issues in greater depth prior to the implementation of this aspect of the program.

The potential for overlap between the proposed program and offerings at the Bloomington campus is discussed on p. 13 and concluding that it does not compete with the Master of Information Science degree on that campus. It is silent on whether the degree competes with the MS in Informatics offered by the Department of Informatics at Bloomington. The curricula of these programs would seem to be very similar, though the mode of delivery and proposed target audiences may differ. If indeed this is the primary difference, it will be important to develop a marketing plan that highlights these differences.

While the advantages of the city of Indianapolis may outweigh the benefits of Bloomington as a location, the School will need to pay close attention to how it markets the program and how it maintains engagement with the IUPUI community, both on and off campus. The roster of adjunct faculty includes a number of adjunct faculty who are affiliated with local business and organizations, including the Regenstrief Institute and the School of Medicine which should increase the visibility of the program. It will be important to maintain strong ties between the full time faculty and the adjuncts in order to keep them engaged. These can be of great importance in supervising the practica and internships.

5. My recommendation, comments/concerns regarding this proposal are contained in the following paragraphs.

This is a solid proposal that reflects a good understanding of the emerging role of informatics in today's society and the unique education that is needed to require preparing graduates for the workplace. The MS in Informatics degree is one of a group of educational pathways that seek to build on IUPUI's national reputation in the field. As noted in my comments above, the BS/MS combination is particularly appealing and can be marketed to a more diverse audience than other informatics degrees. By connecting with other units on campus, the School can expand and diversify its student body; one hopes that such diversification will attract both women and men as well as qualified members of under-represented groups—students who have often not sought positions in programs that are heavily computational.

The environmental scan of the region's employment as well as those at the national level are substantial; specifying the actual tasks and position titles for which the informatics degree will prepare students is critical. "Informatics" is still not a term that

the average person comprehends, including and especially HR departments. Academic programs will do well to help employers understand the value that their graduate can bring to creating solutions to problems in a data-intensive world. The relationships that the School has built with the employer community are strong and should be continued and expanded.

Since this proposal was written, AMIA has determined that it will work with the Commission on Accreditation of Health Informatics and Health Information Management (CAHIIM) to administer an accreditation program for health-related informatics programs. This will surely affect the master's degrees already in place and may have an effect on the Biomedical specialization. The School should monitor these developments closely—which should easily be accomplished through its membership in the AMIA Academic Forum.

It appears that the faculty are responsible for academic advising of students. It will be important for students to be recruited into the program that best fits their needs and that the School monitors admissions closely to ensure that there is sufficient enrollment in the courses to avoid cancellations and to keep a stable roster of courses available to students. Developing some “case examples” may be advantageous to help students, faculty and employers appreciate the differences among the programs. A good start has been made by specifying the competencies and presenting job titles in this proposal and could be worked up into attractive “use cases” for marketing purposes.

Should this program be approved—and in my opinion, there is much merit in the proposal, the array of programs the School will offer and manage is complex and may pose additional challenges in advising and administration. Attention should be given to targeting the recruitment of students into the most relevant program and ensuring that there is sufficient enrollment to enable progress to degree. Advising and supporting students in their choice of program will help students be successful, and ultimately, help them find suitable post-graduate employment. If advising is done as part of faculty responsibility, this activity should be acknowledged as part of load to encourage faculty to take it seriously. The collaborative relationships with other departments are in place add yet another layer of complexity to the administration of these various degree (and certificate) programs. As I am not familiar with the budgetary structure of IUPUI, I can only note that attention should be given to make sure that all parties understand and agree to the tuition sharing that may be entailed in the BS/MS program.

When classes are comprised of students of varied backgrounds, faculty may need to be mindful of this and be flexible in their teaching and assignments. When there are multiple courses dealing with similar topics are offered at varying levels, instructor expectations may also need to be made explicit and if necessary, calibrated to fit the curriculum.

Summary:

This is a strong and interesting proposal. I have incorporated suggestions where I think they may be helpful, but overall, the proposal reflects an innovative and thoughtful response to the needs of an expanding tech-based economy in Indiana. It has been my pleasure to review it.

