

Review of Information Systems Programs at DSU

(B.S. IS, MSIS and D.Sc. IS)

College of Business and Information Systems

Dakota State University

On Site Visit April 21-23, 2013

External Review

By

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Information Systems Programs

Dakota State University

External Academic Program Review Report

Part 1: Executive Summary Findings

The Information Systems (IS) program at Dakota State University consists of up to date and state of the art and science curriculum and degrees: its reputation is built by the IS faculty through long-term dedication to the educational mission and it is among the first public universities to develop a successful on-line program in Information Systems. Overall, the external reviewer was impressed with what has been accomplished with the programs of the B.S., M.S. and D.Sc. levels. Minor changes are needed to alleviate potential staffing problems. Enrollment of the undergraduate program needs to be dramatically increased. There is an excellent opportunity to create a unique niche in the financial and banking health care and information technology market for graduates. The research component of the graduate IS program needs to be improved. This can be accomplished through increasing grant activity and by publishing in top tier journals. This is very important for the long run viability of the IS graduate programs, and in particular, the IS doctoral program. One way to accomplish this is through a change in the incentive system for research. This will eventually shift from essentially a teaching culture to a balanced teaching and research culture.

The IS program provides intellectual and service leadership in the profession and its faculty holds visible positions in academic societies and conferences. The IS program has enriched the intellectual capital of the field by producing internationally-visible academic programs as well as enrolling 58 doctoral students. A number of the department's faculty

members are to be considered among the up and coming researchers based on their publications in IS journals. The department has hired some very promising IS junior faculty members to further bolster the quality of their faculty. The department offers very successful undergraduate, masters, and doctoral IS degree programs along with significantly rich IS coursework for all degrees. The department continues to innovate and has continued to emphasize an online IS offering at all levels. The IS program is most certainly seen by the regional financial and banking, health care industry and IT community as an asset.

The external reviewer had an opportunity to talk to various stakeholders including junior faculty, senior faculty, program staff and graduate students, and IS program and university leadership. While every group of individuals candidly discussed the challenges and opportunities facing the program, one common theme struck the reviewer: that all the individuals highly valued the program and believed in the IS mission and direction of the program. It was impressive to see the commitment of everyone to create a better experience for the students and to continuously strive to improve the program. Given the high degree of success of the program, it is clear the IS program is functioning extremely well and the next step is to concentrate on building enrollment at the undergraduate level. In discussions with various stakeholders, it also became evident that there are some gaps in understanding among various groups and some minor modifications and streamlining may be beneficial for the program. In this report, the reviewer first provides its impressions of issues facing each set of stakeholders and then concludes with some recommendations.

The IS mission statement of the IS program should be a clear statement so as to guide future development. The external reviewer suggests a three-fold IS mission:

1. Create and advance knowledge about the design, use, management, value, and impact of information technology on individuals, businesses, organizations, and society.
2. Disseminate the knowledge through well-designed, current, and relevant curricula by creating unique student experiences that address their aspirations and the needs of industry.
3. Create an enriched environment where research and education complement each other. Extend the opportunities fostered by such environment to constituents across the state, nation, and the world.

The IS program is well placed to leverage its capabilities in emerging areas of “big data” and “data analytics” along with its leadership in areas such as IT security, health care and banking systems. The IS program’s initiative to offer its programs on line will further provide working professionals with an opportunity to pursue graduate degrees and will effectively serve the professional community.

Table 1 is a summary of the areas focused on by the reviewer.

Information Systems Program Dakota State University

	B.S.	M.S.	D.SC.
Program goals and strategic planning			
Appropriateness of goals and whether/not goals are being met	3	5	5
Program goals relative to institutional mission	3	5	5
Program goals relative to current national trends and forecasts for the discipline	3	5	5
Program resources			
Effective use of resources to meet program goals	5	5	5
Faculty--staffing levels and credentials	4	4	4
Classroom facilities	4	4	4
Laboratory facilities and equipment	4	4	4
Financial support	4	4	3
Program curriculum	5	5	5
Technology integration	4	4	4
Program assessment			
Appropriateness of assessment measures/activities for the discipline	5	5	5
Major-field assessment activities, relative to the program goals	5	5	5
Program accreditation, if appropriate	ND	ND	ND
student support/student enrollments			
Student recruitment efforts	3	3	4
Student enrollment numbers	1	5	5
Student graduation rates and student placement	5	5	5
Student support services	5	5	5
Academic advising	5	5	5
1-Unacceptable 2-Poor 3-Fair/Adequate 4-Good 5-Excellent			

ND=NO DATA

Table 1: Summary of the Focus Areas of the Review

Part 2: Schedule of On-Site Visit

**Dakota State University
BS in IS, MSIS, & D.Sc.
Institutional Program Review
Schedule for On-Site Visit
Sunday, April 21--Tuesday, April 23, 2013**

Sunday, April 21: Arrive in Sioux Fall at Regional Airport approx. 4:00 pm

Monday, April 22:
Entrance Interviews

8:00-8:30 AM Dr. Cecelia Wittmayer, Vice President for Academic Affairs (VPAA Office)

- Discussion of expectations for review process, etc.

8:30-9:45 AM Dr. Omar El-Gayar, Dean of Graduate Studies & Research, Dr. Tom Halverson, Dean of the College of Business & Information Systems (BIS)

- Overview of the academic programs being reviewed and clarification of information provided in self-study document.

Examination of Academic Programs:

10:00-11:00 AM Dr. El-Gayar, Dean of Graduate Studies and research (Regents Room)

- Discussion of support services provided to the students/faculty in the academic programs being reviewed

11:00-12:00 PM Carrie Ahern, Assessment-Director of the Office of Institutional Effectiveness & Assessment (Regents Room)

- Discussion of major-field assessment plans and data

12:00-1:00 PM Lunch: D.Sc. Faculty (Regents Room)

1:00-2:00 PM Meet with Undergraduate and Graduate Students (Regents Room)

2:00-3:00 PM Meet with Undergraduate and Graduate Faculty (East Hall 100)

3:30-4:30 PM Haomin Wang and Susan Eykamp, Office of Extended Programs (Regents Room)

Tuesday, April 23:

8:00-9:00 AM Omar El-Gayar, Dean Graduate Office and Research (Regents Room)

9:00-9:45 AM Preparation time/follow-up/other interviews, if desired (Regents Room)

10:00-11:00 AM Exit Interview with Dr. Borofsky, Dr. Wittmayer, Dr. Halverson, Dr. El-Gayar (Regents Room)

12:00-1:30 PM Lunch (Regents Room)

1:30-2:00 PM Check out of AmericInn Hotel in Madison

2:00-3:00 PM Depart from Madison to Sioux Falls to the Regional Airport

Part 3: Program Evaluation

Academic Quality and Program Strength

As mentioned earlier, the IS program at Dakota State is a program with an outstanding regional reputation. This reputation is based on the program's faculty, who have contributed significantly by providing and nurturing the intellectual capital of the educational program. The faculty has been and continues to be very productive in teaching and service. The financial strain arising from the decline of student enrollment in the IS undergraduate program has created challenges for the IS program. All things considered, the IS programs are in very good shape.

3.1: Undergraduate Program (B.S.)

Low Undergraduate Enrollment in Information Systems

The external reviewer again noted that the low enrollment numbers in IS at the B.S. level are a national problem and not unique to Dakota State University. This problem started with the "dot com" bust and the perception that all IS or IT jobs are being outsourced. Therefore, guidance counselors and the parents of potential students are convinced that the employment opportunities in Information Systems are not very good. Nothing could be further from the truth. Outsourced jobs are returning to the US as the IS industry figures out what works and what doesn't work. However, a marketing campaign of the latest trends must be launched at guidance counselors and parents. The university staff could visit high schools within a 2-3 hour radius to familiarize high school students and high school faculty of the opportunities in Information Systems. Also, the regional finance, banking, health care and IT communities could advertise the need for talent in information systems. This approach has been successful elsewhere.

The IS undergraduate degree is the Program's primary undergraduate emphasis. It has been very successful in the past, however, as of late, the program has significantly gone "down-hill" in enrollment. Enrollment has plummeted since 2000. The curriculum for the undergraduate program seems significant and is providing the students with relevant training and placements.

3.2: MS Program in IS

The IS Master Degree has been a solid program. It primarily caters to a mix of international graduate students and domestic working professionals, especially through its enhanced online MS program. The program is closely aligned with competencies of IS faculty research and the faculty takes pride in developing and advancing the MS IS curriculum and teaching its courses. The MS program has also allowed the program to develop strategic alliances with the financial, banking, healthcare and IT communities. The program has been revised substantially with a focus on security and business intelligence and offers a number of additional options. This revision has occurred in accordance with the 2006 MSIS curriculum guidelines and subsequently to reflect the recent developments in the field, e.g., the introduction of a cloud computing class in the Network Administration and Security specialization and the re-design of the E-Commerce specialization to become an Application Development specialization covering contemporary topics such as technology for mobile devices, multi-tier and Service Oriented Architecture. Innovations such as a project course that provides students with consulting like experiences have enhanced the quality of the program.

The MSIS program has a specialization in network administration and security and another specialization in database management. The latter coupled with recent developments in the field spurred the development of a certification in business analytics. The MSIS program is a great growth opportunity. The program is very successful and the placement numbers are

excellent. The IS program's online MS program will serve the working professionals and increase the reach of the program. The first mover advantage should serve the IS program well for the foreseeable future. The MS program can be categorized as a STEM program. The IS programs should be marketed as a STEM program (Science, Technology, Engineering and Mathematics) program. The program seems very "high touch" as reflected by students' mutual admiration of the faculty (students categorized the quality of instruction as "outstanding"). The program has been innovative and dynamic with the curriculum by bringing in innovation and relevance to the curriculum, for example by introducing "big data" track in the master program and emphasizing the online master program. The reviewer applauds the program for its work with the IS program, and, the program should provide growth and revenue opportunity for the IS program and the university. The STEM programs are in great demand.

3.3: IS D.Sc. Degree

The IS doctoral program is a very successful program. Historically, since the IS program has focused on technical research, the faculty believe that the students should be technically sound. To ensure technical competence, the students are advised to take the technical courses in their first year of study.

3.4: Faculty

Overall, the IS faculty is highly productive with respect to teaching but should not be regarded as research faculty. Both tenure track and non-tenure track faculty are highly dedicated to the IS program. Both groups teach effectively in various programs. Non-tenure track faculty are not necessarily involved in administrative support. However, a number are involved in

teaching and advising, particularly at the undergraduate level. Historically, the IS program's faculty has been especially strong in the technical and engineering aspects of IS. Faculty members working in the technical domain have played a central role in creating program's reputation via their productive research programs. This is clearly the strength of the program, and currently represents at least half of the faculty. However, in the last few years a substantial number of faculty have joined the program to provide better connection with the managerial and economic streams of IS research, connecting the program to more mainstream IS research and providing a better balance and connection with the finance and banking community. The IS program has not hired any faculty due to budget considerations, (particularly at the graduate level) for a number of years. Only last year, Dr. Jun Liu was added at the graduate level.

The program faculty members are dedicated and often go beyond the call of duty, however, the reviewer did identify some issues that need to be addressed: While the program continues to be one of the top-rated programs in the region, the categorical salary figures provided to us indicated salaries lagging well behind those of IS faculty at peer or better institutions. In addition, there was some indication of salary inversion across ranks. Given the increased demand for IS faculty across the nation, the program's reputation can only retain these faculty up to a limit. The retention pressure is likely to increase in the near future.

The department needs more tenure track and non-tenure track faculty to meet its growing teaching needs and to deliver on opportunities that exist for expansion of its programs. While the shortage in new hiring due to financial constraints is understandable, it is of critical importance that the department is able to recruit replacements (due to retirement and turnovers) as well as new faculty to take advantage of the opportunities. The IS enrollments are on the rise nationwide

in undergraduate programs and the program's experience with increased demand for its master and doctoral programs suggests a potential to increase in its size.

Given the reliance on non-tenure track faculty and their substantive contributions to the program in teaching and advising, mainly at the undergraduate level, the university and the IS program need to work on a more articulated career path for the positions of Lecturer, Instructor, Adjunct and Senior Lecturer.

Overall, in the reviewer's opinion, the IS faculty is a dedicated group of individuals who share a constructive vision for the continued improvement of the IS program. The school and the university should address the salary inversion issues and put in place a transparent merit-based salary adjustment as well as deliver on its promised growth in faculty size to take advantage of the growth opportunities that the IS program's strengths are well suited to exploit.

Part 4: Recommendations for Continuation and Change

- 4.1 Maintain the excellence in teaching.
- 4.2 Enhance the research component of all three degrees.
- 4.3 Market the IS Program as a STEM program.
- 4.4 Market the Undergraduate IS Program to high school guidance counselors and parents as per 3.1.
- 4.5 Recruit at the undergraduate level as discussed in 3.1 to increase enrollment.
- 4.6 Address faculty salary problems and research incentives as discussed in 3.4.
- 4.7 Continue to stress the assessment program for all degree levels. From the reviewers prospective, the assessment program is a first class operation and should be expanded.