

Eight-Year Program Review IBHE Report Summary: see attached Resources page

PROGRAM REVIEW REPORT SUMMARY

- 1. Reporting Institution: Eastern Illinois University**
- 2. Program Reviewed: B.S.B. in Business Analytics and Information Systems (11.0199)**
- 3. Date: January 26, 2022**
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- 5. OVERVIEW**

The B.S.B. in Management Information Systems (MIS) was renamed for the 2020-2021 academic year to Business Analytics and Information Systems (BAIS) and is one of six undergraduate degree programs offered in the School of Business at Eastern Illinois University. All programs in the School of Business are accredited by AACSB International, the premier accrediting body for collegiate schools of business. AACSB Accreditation is the hallmark of excellence in business education and has been earned by less than five percent of the world's business programs.

The program name change was in response to the University's request for greater interdisciplinary cooperation across similar courses. The program now offers many cross-listed courses between the School of Technology, the math department, and the School of Business.

The EIU BAIS major prepares students to design, develop, and manage business analytics projects and information systems utilizing data-driven problem solving within organizations. BAIS majors develop a foundation of business knowledge and skills that is complemented through in-depth study of business analytics information technology. All BAIS majors complete a core of courses that provide a foundation in business analytics then select electives for more specialized study in other information systems areas. The specific learning objectives of the BAIS program are for students to: 1. Comprehend the role of networking in a business environment, and develop technical solutions to the information needs of an organization using networks, including configuration and management activities; 2. Demonstrate critical thinking through competent problem-solving and logic skills; 3. Analyze, design, develop and implement a business information system by using system development methodologies and enterprise databases; 4. Design and develop effective business web sites in compliance with usability standards for the variety of devices and with appropriate information architecture using HTML, Cascading Style Sheets, server/client-side scripts, interactive design, and web application software; 5. Integrate the various functions of a business using an Enterprise Resource Planning (ERP) system; and 6. Demonstrate proficient communication skills.

The BAIS faculty also serve the School of Business by teaching three of the thirteen business core courses required of all undergraduate business majors and three of the required courses in the MBA program. Additionally, students in the B.S.B. in Business Administration are required to take an upper-division MIS course beyond the business core (the BAIS courses have retained the MIS prefix). Students from other majors may take MIS courses as electives and courses are cross-listed with programs in the School of Technology and Math & Computer Science. Consequently, the BAIS program contributes significantly to the education of EIU's business students and students across the campus.

Overall demand is high for the BAIS major with 30 enrolled in the program as of Fall 2020. Most business schools offer a BAIS or related major, including Illinois State University, Southern Illinois University Edwardsville, Western Illinois University, University of Illinois at Urbana/Champaign, Southern Illinois University Carbondale, Northern Illinois University, University of Illinois Springfield, and University of Illinois Chicago. Pre-COVID, graduates from 2016 through 2019 reported a 95% employment rate with an average salary over \$51,0000.

6. MAJOR FINDINGS AND RECOMMENDATIONS

- a. Description and assessment of any major changes in the program/disciplinary context e.g., (1) in the overall discipline or field; (2) student demand; (3) societal needs; (4) institutional context for offering the degree; (5) other elements appropriate to the discipline in question; and (6) other.**

The field of management information systems continues to evolve with advances in technology and increased global outsourcing of information technology services. These changes sparked the move to the more commonly known vernacular of data analytics. The ability to develop and manage information systems in support of achieving organizational goals and objectives in an increasingly interconnected global environment is critical to business, government and non-profit organizations. Using data has long been a tool of successful businesses but it is technology advancements that now make the massive amount of data useable.

Data analytics and information systems is a broad discipline and there is variation amongst national and Illinois schools in the structure and focus of these related programs. There is structural and program variation in relation to functional aspects of data analytics (e.g., management analysts, artificial intelligence, robotic operations, etc.), management information systems (e.g., networking, programming, etc.), industry focus (e.g., healthcare, etc.), and focal activity (e.g., supply chain management, accounting, etc.). The BAIS program at EIU addresses the functional aspects with application to general business in the context of a broad-based business education.

According to state and national projections, demand for data analytics graduates will be very strong. The BLS estimates that growth for job skills in data science will increase about 26% through 2026. ["The Data Analytics Profession And Employment Is Exploding—Three Trends That Matter," June 11, 2021 (Forbes)

[https://www.forbes.com/sites/bernhardschroeder/2021/06/11/the-data-analytics-profession-and-employment-is-exploding-three-trends-that-matter/?sh=22a9c7403f81.](https://www.forbes.com/sites/bernhardschroeder/2021/06/11/the-data-analytics-profession-and-employment-is-exploding-three-trends-that-matter/?sh=22a9c7403f81)]

At the state level, the Illinois Department of Employment Security projects that employment in computer and mathematics fields to grow by 4.66% between 2018 and 2028. This is more than quadruple the overall state projection of only 1.04% job growth. [IDES Long Term COVID-

impacted Occupational Projections 2018-2028.]

As described above, the broad nature of the content of the discipline and the focus of the various schools across the state, it is very difficult to make comparisons against other schools. There are no peer schools in the state with the same CIP code as ours. The closest comparisons come from the University of Chicago and The University of Illinois Champaign-Urbana. That said, after enrollment declines since the state-wide budgetary issues the program saw a small increase from 2019 to 2020 from 27 students to 30 students.

The data analytics industry is expected to increase six-fold by 2026 compared to 2019 to reach \$132.9 billion. [“Data Analytics Market Review 2022,” July 16, 2021 (Datamation) <https://www.datamation.com/big-data/data-analytics-market/>] With that much global demand and growth for the skills necessary to manage data and information systems, it is necessary to provide the opportunity to learn them. As previously discussed the job market is expected to grow significantly in all areas of information technology.

Business Analytics and Information Systems is also an integral core component to the entire spectrum of undergraduate and graduate business programs at EIU. While the major itself is smaller than others within the School of Business, the institutional context for the program is necessary as data and technology skills are becoming ubiquitous across as business specialties. The program has hired a new tenure track faculty member since the last report and recently replaced a retiring instructor.

b. Description of major findings and recommendations, including evidence of learning outcomes and identification of opportunities for program improvement;

Learning objectives for the B.S.B. in BAIS have been revised since the last IBHE Review and build on the learning objectives for Eastern Illinois University. Specific learning objectives for the BAIS program were presented in section 5.

The BAIS program uses a number of direct and indirect internal assessment methods. Direct assessment data collectively addressing BAIS learning objectives 1, 2, 3, and 6 for all BAIS students is gathered in courses using various methods including homework assignments, lab projects, comprehensive multi-part projects, written reports and exam questions. The School of Business Writing Rubric is used to evaluate written reports for satisfaction of objective 6.1. Data for objective 6.1 is also collected by evaluation of the Electronic Writing Portfolio (EWP) submissions of BAIS students. Data for objective 4 is collected for only those students taking a website development course and data for objective 5 is collected for only those students taking an ERP class. Objectives 4 and 5 were introduced in fall of 2015 and data first was collected in the 2016-17 academic year. Data for objective 6.2 will be collected for all BAIS students began in 2013-2014 using the School of Business Oral Presentation Rubric. Indirect assessment data for objectives 1, 3, 6.1 and 6.2 were also collected via a Senior Survey in which students assess their perceived abilities in each objective. Data from both direct and indirect assessment methods indicate that the objectives are being met at an appropriate level of expectations with a few minor exceptions on individual sub-criteria. However, it remains essential to improve teaching and learning in the areas of critical thinking, communication and global awareness.

In response to our latest internal assessment report, we set as a program goal for AY21 the integration of specialized survey questions into the senior survey. The discipline drafted new, custom questions to survey BAIS graduates. We anticipate this will allow us to better assess the EIU B.S.B. in Business Analytics and Information Systems

goals, intentions, and job prospects of our graduates. With this knowledge, we will be in a better position to serve their needs and those of the market. Students will first answer these questions on the surveys distributed in spring 2022.

With the curricular changes that the program has undertaken, the current goals of the discipline include revising and updating our learning objectives to better align with our new course offerings. The COVID pandemic and internal reorganizations have delayed the full revision of the Learning Goals that we are looking to undertake in the Spring 2022 semester. Learning objective 5, in particular, needs revision as our ERP course has been slowly phased out. We plan to revise the goal to reflect the learning objectives of the new capstone analytics course, MIS 4720 – Business Analytics Project, as all BAIS students will take it.

c. Description of actions taken since the last review, including instructional resources and practices, and curricular changes

The program has undergone significant curricular changes since the last review. As described above, the name change is the most obvious, but it has also come with course and content changes which have also been detailed above.

The detailed changes to curriculum are as follows:

Change	Old	Current
Major Required Courses	<p>MIS 2000 - Introduction to Business Logic and Programming Skills.</p> <p>MIS 3200 - Networking Fundamentals.</p> <p>MIS 3530 - Business Web Site Design.</p> <p>MIS 4760 - Systems Analysis, Design, and Development.</p> <p>MIS 4770 - Database and Data Management.</p> <p>OSC 3430 - Enterprise Resource Planning Systems.</p>	<p>MIS 2000 - Business Analytics Programming.</p> <p>MIS 3000 - Introduction to Databases for Business Analytics.</p> <p>MIS 3060 - Introduction to Business Intelligence.</p> <p>OSC 4820 - Business Analytics and Data Mining.</p> <p>MIS 4720 - Business Analytics Project.</p>
Elective Courses	<p>These have been removed as electives:</p> <p>MIS 3300 - Business Programming in COBOL.</p> <p>MIS 4420 - Advanced VB.NET Business Programming.</p> <p>OSC 4820 - Business Analytics and Data Mining.</p>	<p>These have been added as electives:</p> <p>ACC 3950 - Financial Data Analysis and Technical Communications.</p> <p>CIT 4823 - Big Data and Cloud Computing.</p> <p>MIS 3200 - Networking Fundamentals.</p>

		MIS 3530 - Business Web Site Design. MIS 4770 - Database and Data Management. OSC 3430 - Enterprise Resource Planning Systems.
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To address the new focus of the program, analytics, many of the old core courses have been removed and made electives. While the relevant elective OSC 4820 has been added to the core and the new courses of MIS 3000, MIS 3060, and MIS 4720 were created to complete the new program.

d. Description of actions to be taken as a result of this review, including instructional resources and practices, and curricular changes.

As a result of this review the discipline is planning another review and revision of the learning objectives. With the program change to greater focus on data analytics from network technology the learning goals of the program need to be reflective of that change.

In response to market demand, the discipline is also considering returning to offer retired courses in legacy systems. State Farm has expressed interest in supporting a program to restart COBOL programming courses. Many large companies have legacy systems that still require people to maintain. As many programs have responded to new and emerging needs, the availability of people to maintain existing and legacy systems has dwindled. We will continue to review the feasibility of addressing this market request.

7. No Institution-Assigned Issues

8.1 Decision

VPAA Decision:

- Program in good standing
- Program flagged for priority review
- Program enrollment suspended

8.2 Explanation

VPAA Explanation:

The summary above gives an overview of the significant program changes that have occurred and been measured within the Business Analytics and Information Systems

B.S.B. degree. The recent renaming of the Management Information Systems degree to Business Analytics and Information Systems entailed a major overhaul of the degree. The revised curriculum now requires not only fewer core courses (that are themselves updated in their content), but also more elective courses that are closely aligned with, if not directly contributing to, the curricula of interdisciplinary programs. Several courses are now cross-listed with Mathematics, the School of Technology, and the School of Business. This streamlining and updating of the program will position it for optimal preparation of its students in data science (indeed, the program already has a near-perfect job placement rate), a field that is expected to have extremely high demand for workers.