



**SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS**

Substantive Program Modification Form

Use this form to request substantive changes in existing programs (majors, minors, certificates, or specializations).

UNIVERSITY:	NSU
CURRENT PROGRAM TITLE:	Management Information Systems (BS)
CIP CODE:	521201
UNIVERSITY DEPARTMENT:	Management, Marketing, MIS
BANNER DEPARTMENT CODE:	NMIS
UNIVERSITY DIVISION:	College of Professional Studies/School of Business
BANNER DIVISION CODE:	5B

University Approval

To the Board of Regents and the Executive Director: I certify that I have read this proposal, that I believe it to be accurate, and that it has been evaluated and approved as provided by university policy.

Michael Wernow

Vice President of Academic Affairs or
President of the University

3/15/2022

Date

1. This modification addresses a change in (place an "X" in the appropriate box):

- | | |
|---|--|
| <input type="checkbox"/> Total credits required within the discipline | <input type="checkbox"/> Total credits of supportive course work |
| <input checked="" type="checkbox"/> Total credits of elective course work | <input type="checkbox"/> Total credits required for program |
| <input type="checkbox"/> Program name | <input type="checkbox"/> Existing specialization |
| <input checked="" type="checkbox"/> CIP Code: 11.1099 | <input checked="" type="checkbox"/> Other (explain below) Removal of multiple emphases and course updates. |

2. Effective date of change: 8/1/2021

3. Program Degree Level (place an "X" in the appropriate box):

Associate Bachelor's Master's Doctoral

4. Category (place an "X" in the appropriate box):

Certificate Specialization Minor Major

5. If a name change is proposed, the change will occur (place an “X” in the appropriate box):

- On the effective date for all students
- On the effective date for students new to the program (enrolled students will graduate from existing program)

Proposed new name: _____

Reminder: Name changes may require updating related articulation agreements, site approvals, etc.

6. Primary Aspects of the Modification (add lines or adjust cell size as needed):

<i>Existing Curriculum</i>				<i>Proposed Curriculum (highlight changes)</i>			
Pref.	Num.	Title	Cr. Hrs.	Pref.	Num.	Title	Cr. Hrs.
Business Core Courses				Business Core Courses			
ACCT	210	Principles of Accounting I	3	ACCT	210	Principles of Accounting I	3
ACCT	211	Principles of Accounting II	3	ACCT	211	Principles of Accounting II	3
BADM	102	Professional Development	1	BADM	102	Professional Development	1
BADM	220	Statistics I	3	BADM	220	Statistics I	3
BADM	244	Business Communications	3	BADM	244	Business Communications	3
BADM	310	Business Finance	3	BADM	310	Business Finance	3
BADM	350	Legal Environment of Business	3	BADM	350	Legal Environment of Business	3
BADM	360	Organization and Management	3	BADM	360	Organization and Management	3
BADM	370	Marketing	3	BADM	370	Marketing	3
BADM	457	Business Ethics	3	BADM	457	Business Ethics	3
BADM	459	Analytics	3	BADM	459	Analytics	3
BADM	482	Business Policy and Strategy	3	BADM	482	Business Policy and Strategy	3
CSC	273	Spreadsheet Analysis	3	CSC	273	Spreadsheet Analysis	3
ECON	201	Principles of Microeconomics	3	ECON	201	Principles of Microeconomics	3
ECON	202	Principles of Macroeconomics	3	ECON	202	Principles of Macroeconomics	3
MIS	325	Management Information Systems	3	MIS	325	Management Information Systems	3
IDL	190	First Year Seminar	3	IDL	190	First Year Seminar	2
MIS Core				MIS Core			
MIS/CSC	150	Computer Science I	3	MIS/CSC	150	Computer Science I	3
MIS	332	Structured System Analysis and Design	3	MIS	332	Structured System Analysis and Design	3
MIS	335	Telecommunications and Networks	3	MIS	335	Telecommunications and Networks	3
MIS	484	Database Management Systems	3	MIS	484	Database Management Systems	3
				MIS/CSC	210	Web Authoriing	3
				MIS	404	IT Security, Assurance, and Risk Management	3
				MIS	485	Information Systems Strategy	3

				MIS	494/ 498	Internship or Research	3
MIS Emphases (chose one)				MIS Electives (select 4)			
			12	BADM	424	Operations Research	3
				BADM	469	Project Management	3
				CSC/MIS	250	Computer Science II	3
				MIS	292	Special Topics	3
				MIS	385	Data Mining	3
				MIS	414	IT Auditing	3
				MIS	423	Cloud Infrastructure	3
				MIS	461	Programming Languages	3
				MIS	480	Business Intelligence	3
				BADM	424	Operations Research	3
				BADM	469	Project Management	3
				CSC/MIS	250	Computer Science II	3
Total number of hours required for major, minor, or specialization			72	Total number of hours required for major, minor, or specialization			72
Total number of hours required for degree			120	Total number of hours required for degree			120

7. Explanation of the Change:

Substantive modifications are necessary to meet the following vital goals:

1. Workforce Development for Aberdeen’s Growing Digital Economy Ecosystem.

Matt Dunne, Executive Director of the Center on Rural Innovation (CORI), invited the Aberdeen Development Corporation and Northern State University to partner with CORI to build a digital economy ecosystem in Aberdeen, South Dakota. Dunne founded CORI in 2017 after a successful career in Google and other technology companies. CORI’s mission is to close the gap between America’s rural workforce and digital economy jobs. Currently, 15% of the population of the United States lives in rural communities, but only 5% of the country’s digital economy jobs are in rural areas. Through analysis of current economic conditions and availability of higher education and potential for technical training, CORI selects 6 rural communities each year to work through an intensive assessment of the community around 5 direct drivers of the digital economy ecosystem: scalable tech, entrepreneur support, and incubation; access to capital; inclusive tech culture building; access to digital jobs; and digital workforce development and support. A core team of 4, with 1 representative from the Aberdeen Development Corporation and 3 representatives from Northern State University, began working through a deep assessment of these 5 pillars in August 2021. In late October 2021, CORI leaders presented an assessment of the current state and priorities of the Digital Economy Ecosystem of Aberdeen. CORI found that Aberdeen has a strong culture of entrepreneurship, widespread access to broadband, and a growing and relatively young population. According to CORI’s assessment, Aberdeen is geographically well-positioned to become a regional technology hub.

On the Digital Workforce Development and Support driver, CORI scored Aberdeen as Stage 1, finding that while the community has a strong pipeline of graduates coming out of Northern, the existing pipeline does not have strong enough focus on tech skills. The bachelor’s degree addressed in this substantive modification and Northern’s Associate of Science in Digital Entrepreneurship helps close the

gap in tech skills in the workforce pipeline graduating from Northern. By developing new programs and revising current programs that prepare workers to thrive in Aberdeen’s growing digital economy ecosystem, Northern will help move Aberdeen from Stage 1 in the Digital Workforce Development and Support driver to Stage 3.

According to the South Dakota Occupational Employment Projections for 2018-2028, management/computer information systems careers are among the most in-demand and hardest to fill for South Dakota employers. Based on projections for 2018 - 2028, total demand is forecasted to be approximately 2,356 jobs for a variety of subcategories. Nationwide, the demand for management/computer information systems managers is expected to grow 11% by 2028.¹

Career	Median Salary ²
Computer Systems Analysts	90,920.00
Computer Network Support Specialists	63,460.00
Computer and Information Research Scientists	122,840.00
Computer User Support Specialists	52,270.00
Database Administrators	93,750.00
Database Architects	88,550.00
Network and Computer Systems Administrators	83,510.00
Web Administrators	88,550.00

2. Retain ACBSP accreditation for Northern’s Management Information Systems program while increasing the number of credits required in existing technology-related courses.

The substantive program modification for Northern’s BS in Management Information Systems (MIS) is designed to grow the digital economy workforce in the Aberdeen region. Northern’s BS in MIS degree program is housed in the School of Business and is an accredited program under the Accreditation Council for Business Schools and Programs (ACBSP). Northern’s School of Business ACBSP accreditation requires the MIS program have a Common Professional Core (CPC) of business coursework. After conversation with Dr. Steve Parscale, Director of ACBSP Accreditation, ACBSP allows business schools to meet the CPC requirement in different ways for each accredited program. With this proposal, we have reduced the number of CPC credits taken by students in this program to allow an increase in coursework within the major requirements, yet still meeting business requirements to maintain ACBSP accreditation.

To better reflect the coursework in the substantively modified program and to align with similar programs that are ACBSP accredited in other regional universities, Northern is changing the CIP code to a STEM-approved CIP code used by other regional universities (Bemidji State, Emporia State, Fort Hayes State), to afford students better opportunities for scholarships, research programs, and internships. Changing the CIP code to a STEM-approved CIP code enables international students to expand their OPT experience and better contribute to existing tech businesses and also help launch tech startups in Aberdeen’s digital economy ecosystem.

Northern’s modification to the BS degree program reduces the number of business core (CPC) courses, enabling students to major in Management Information Systems and graduate with enhanced technical knowledge needed to help grow the digital economy ecosystem in the Aberdeen area, and still have the basic business skills expected by regional employers for graduates from a business school and an accredited business program.

¹ O-Net. <https://www.onetonline.org/link/summary/11-3021.00>

² US Dept of Labor. <https://www.bls.gov/ooh/computer-and-information-technology/computer-systems-analysts.htm>

Revising the curriculum to update the business (CPC) core, adding internship and research opportunities, requiring more technology courses, and updating the CIP code will draw more students to Northern's program and improve their employability after graduation. An external reviewer who recommended aligning Northern's program with the ACM standards that require more technology courses and fewer business courses in order to better meet the needs and expectations of employers explained, "Programs that have re-invented themselves to reflect change in the business environment are the ones that have seen larger enrollments and high graduate employment rates."

3. Update the Key Competencies to Meet IS2020 Standards and Competencies and in response to program assessment.

In the last program review (2013) for the MIS major prior to ACBSP accreditation, the external reviewer offered several comments that strongly suggested the need for major changes to the program, which are included in this substantive program modification request. The comments included:

"I would suggest that the faculty in this department take a close look at the ACM/AIS curriculum and see how it can mesh with their degree program."

"While the program is a good one....I believe it needs to be updated to current business needs."

"The curriculum could definitely use an update."

"Students would also benefit from an MIS project as a Senior Project course."

The current substantive program modifications are based on the the newest IS2020 Competency Model for Undergraduate Programs in Information Systems, rather than the IS2010 model referred to in the reviewer 2013 comments, based on the model curriculum design, published by the Association for Computing Machinery (ACM), "the world's largest educational and scientific computing society."

The IS2020 model³, published by ACM, holds the information system as the central unit of analysis, for research and teaching, from the very beginning. Broadly speaking, "information systems" are often defined as the synthesis, reconciliation, and harmonization of both the technical system (comprising data and computer programs) and the social system (users who form the basis of input data and output information). The IS2020 model, designed by professionals and educators in the field, has six components:

- Information Systems Foundations;
- Data and Information Management;
- Technology;
- Development;
- Organizational Domain;
- IS Integration.

The substantive modification to Northern's MIS curriculum ensures that students gain competency in each of these 6 components established by the ACM's IS2020 model. Given the applied nature of the IS discipline and profession, an opportunity to work through a comprehensive project experience, to change perspectives and methods as needed, to address and deploy different perspectives, and to experience unanticipated and unscripted problems as a team, is of critical importance. NSU students in this major will complete their program with an integrative experience, either as an internship in the industry, or an undergraduate research project under the direction of the department faculty.

³ Joint ACM/AIS IS 2020 Task Force. IS2020 Competency Model for Undergraduate Degree Programs in Information Systems. 30 September 2020. <https://is2020.hosting2.acm.org/wp-content/uploads/2020/08/IS-2020-Draft-August-2020.pdf>