AGENDA ITEM: 5 – D (1)
DATE: December 13-14, 2023

****

SUBJECT
> **New Specialization Request – USD – Specialization in Artificial Intelligence for Business Analytics – Master of Business Education (MBA)**

CONTROLLING STATUTE, RULE, OR POLICY
> BOR Policy 2.3.2 – New Programs, Program Modifications, Curricular Requests, and Inactivation/Termination

BACKGROUND / DISCUSSION
> The University of South Dakota (USD) requests authorization to offer a specialization in Artificial Intelligence for Business Analytics within the Master of Business Administration (MBA) program. The proposed specialization will equip students with the knowledge to understand and apply artificial intelligence and cognitive technologies to business problems. The developing field of artificial intelligence seeks to create systems and solutions to problems through computer processes that mimic the reasoning capabilities of the human mind.

IMPACT AND RECOMMENDATION
> USD requests authorization to offer the specialization on campus, online, and using hybrid delivery. USD is not requesting additional state resources to offer the program. One new course will be required.
>
> Board office staff recommends approval of the program.

ATTACHMENTS
> Attachment I – New Specialization Request Form: USD – Artificial Intelligence for Business Analytics – Master of Business Administration (MBA)

****

DRAFT MOTION 20231213_5-D(1):
> I move to authorize USD to offer a specialization in Artificial Intelligence for Business Analytics within the Master of Business Administration program, as presented.

SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS

New Specialization

UNIVERSITY:	**University of South Dakota**
TITLE OF PROPOSED SPECIALIZATION:	**Artificial Intelligence for Business Analytics**
NAME OF DEGREE PROGRAM IN WHICH SPECIALIZATION IS OFFERED:	**Master of Business Administration (MBA)**
INTENDED DATE OF IMPLEMENTATION:	**August 26, 2024**
PROPOSED CIP CODE:	**52.1399**
UNIVERSITY DEPARTMENT:	**Economics and Decision Sciences**
BANNER DEPARTMENT CODE:	**UEDS**
UNIVERSITY DIVISION:	**The Beacom School of Business**
BANNER DIVISION CODE:	**2B**

X	**Please check this box to confirm that (place an "X" in the left box):** ● The individual preparing this request has read AAC Guideline 2.6, which pertains to new specialization requests, and that this request meets the requirements outlined in the guidelines. ● This request will not be posted to the university website for review by the Academic Affairs Committee until it is approved by the Executive Director and Chief Academic Officer.

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.

Elizabeth M. Freeburg	10/19/2023
Institutional Approval Signature	Date
President or Chief Academic Officer of the University	

1. **Level of the Specialization (place an "X" before the specialization):**

	Baccalaureate	X	Master's		Doctoral	

2. **What is the nature/purpose of the proposed specialization? Please include a brief (1-2 sentence) description of the academic field in this specialization.**

The purpose of the proposed specialization is to equip students to understand and apply artificial intelligence and cognitive technologies to business problems. The developing field of artificial intelligence seeks to create systems and solutions to problems through computer processes that mimic the reasoning capabilities of the human mind.

3. **Provide a justification for the specialization, including the potential benefits to students and potential workforce demand for those who graduate with the credential.**

The Artificial Intelligence for Business Analytics Specialization (AIBAS) in the School of Business provides a path to business artificial intelligence expertise, such as improving patient care coordination in healthcare, improving financial performance in fiscal matters, and correcting supply chain interruptions in production operations. AI expertise lends itself to the application of cognitive technology to enhance competencies when computing decisions. Artificial intelligence capabilities will be attained through the AIBAS. We propose to follow the South Dakota legislature's directives, the BOR policies, and strategic plans, as well as USD's strategic plans, to use the AIBAS to meet the needs of employers who seek professionals with cutting-edge software and data-savvy expertise.

The South Dakota legislature has established the University of South Dakota's mission, which includes that it is *to provide professional education in business*. The BOR has recognized USD as *the comprehensive university of the South Dakota System of Higher Education*. The BOR's strategic plan for 2014-2020 seeks *to expand educational access as one of the action steps for student success goals*. USD's strategic theme six, which seeks to *provide access to a first-class education efficiently and effectively*, is a focus of this proposed specialization.

The demand for artificial intelligence talent has never been greater; AI has become an essential component for moving decisions from experience-based to information-plus-experience-based. An article from the Harvard Business Review[1] shows the structure of the shift.

A Decision-Making Model That Combines the Power of AI and Human Judgment
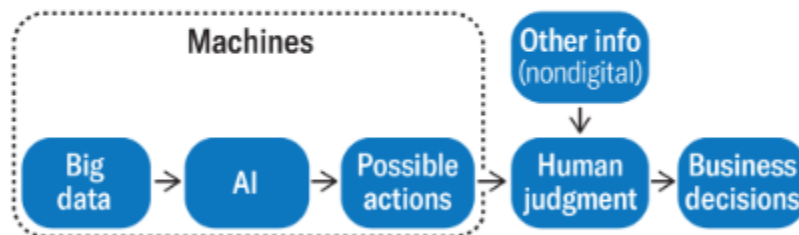
Source: Eric Colson   ▽ HBR

That transition has improved organizational efficiency, breadth of decision support, and, most importantly, effectiveness. Innovative organizations recognize data as an asset and are finding ways to distill insights from data more rapidly than ever before. The information below from Oberlo[2] demonstrates the potential with the following details:

- The global artificial intelligence market is expected to reach $1.59 trillion by 2023.
- More than 9 in 10 lading businesses have ongoing investments in artificial intelligence.
- 61% of employees say AI helps to improve their productivity.

---

[1] What AI-Driven Decision Making Looks Like (hbr.org)

[2] https://www.oberlo.com/blog/artificial-intelligence-statistics

- 62% of consumers are willing to submit data to AI to have better experiences with businesses.
- 15% of all customer service interactions globally were estimated to have been fully powered by AI in 2021.
- Nearly 1 in 4 sales teams currently use AI in their day-to-day work.
- 54% of organizations have reported cost savings and efficiencies due to AI implementation.
- The number of AI-powered voice assistants is forecast to reach 8 billion by 2023- a 146% increase from 2019's 3.25 billion.
- More than 3 in 4 businesses say it is important for them to be able to trust AI's analysis, results, and recommendations.

The South Dakota Department of Labor defines three broad divisions of industry types: non-agricultural, agricultural, and nonfarm. Each division, as well as state and local government, has increasing amounts of data available for analysis. Oberlo's recent report describes how industries can benefit from individuals who combine business and AI to derive optimal actions from data with more informed decision-making, and checks for impartiality, transparency, responsibility, and accountability.

Projection data from the South Dakota Department of Labor and Regulation's (DLR) Occupational Employment Projections forecasted to 2030 indicates that expertise in the application of AI-driven technologies for informed decision-making will be an expectation for a variety of business industry positions from finance to marketing to overall management. An abbreviated table of the South Dakota Department of Labor's Occupational Employment Projections for 2020-2030 indicates that data science and analyst occupations include four of the top sixteen percent change slots and two of the top twenty in numeric change positions. [3]

The statistics surrounding these roles demonstrate a need for these occupations and a level of expertise is required for those who will hold these occupations as they will need to be able to apply AI that will potentially increase performance and outputs, and enhance functions across business capabilities. Additionally, occupations requiring the application of AI-informed technologies need specific knowledge, and this program offers an opportunity to gain that knowledge.

All who work as analysts perform their work using analytics. Analytics is the systematic process of discovering knowledge from data, and invariably entails the use of the constituent components of artificial intelligence, including automated reasoning, machine learning, natural language processing, and artificial neural networks for deep and reinforcement learning. Without the tools of artificial intelligence, analysts would be unable to make predictions based on data. They would no longer be analysts; they would be speculators. See Agrawal, A., Gans, J., & Goldfarb, A. (2017) 1486511104226. What to expect from artificial intelligence, and Kim, M. Y., Atakishiyev, S., Babiker, H. K. B., Farruque, N., Goebel, R., Zaïane, O. R., ... & Chun, P. (2021). A multi-component framework for the analysis and design of explainable artificial intelligence. Machine Learning and Knowledge Extraction, 3(4), 900-921.

---

[3] South Dakota Department of Labor and Regulation – Statewide South Dakota Employment Projections by Occupation, Retrieved from https://dlr.sd.gov/lmic/menu_projections_occupation_statewide.aspx

						Average Annual Openings		
SOC Code	SOC Title	2020 Employment	2030 Employment	Numeric Change	Percent Change	Due to Exits	Due to Transfers	Due to Annual Change	Total Openings
13-1111	Management Analysts	3,289	3,739	450	13.68%	113	202	45	360
13-1161	Market Research Analysts and Marketing Specialists	1,084	1,363	279	25.74%	29	89	28	146
13-2031	Budget Analysts	123	128	5	4.07%	3	6	0	9
13-2041	Credit Analysts	415	421	6	1.45%	7	28	1	36
13-2098	Financial and Investment Analysts, Financial Risk Specialists, and	867	965	98	11.30%	16	52	10	78
15-1211	Computer Systems Analysts	896	1,018	122	13.62%	19	47	12	78
15-1212	Information Security Analysts	431	613	182	42.23%	8	29	18	55
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	2,649	3,440	791	29.86%	71	149	79	299
15-2098	Data Scientists and Mathematical Science	57	78	21	36.84%	1	3	2	6

South Dakota Occupational Employment Projections 2020-2030 (partial listing)

The U.S. Bureau of Labor Statistics identifies AI-related occupations are among the fastest growing in America.[4] Each category (data scientists, information security analysts, statisticians) identified qualifies as an area that overlaps with this proposed specialization. Graduates who will manage members of those disciplines (which the MBA prepares them for) often begin their careers doing the same analytical work as members trained in those three disciplines before ascending to a supervision role. Business students create models that predict outcomes, prescribe optimal use of constrained resources, and operationalize optimal prescriptions; they apply theory to business problems. We are committed to developing a curriculum that is current and relevant to meet the needs of industry, and this certificate aligns with the education and expertise needed for AI-related occupations.

---

[4] U.S. Bureau of Labor Statistics, November 2022, Projections overview and highlights, 2021–31
https://www.bls.gov/opub/mlr/2022/article/projections-overview-and-highlights-2021-31.htm

Chart 15. Ten fastest growing occupations, projected 2021–31

■ **Percent employment change, 2021–31**   ■ Employment change (in thousands), 2021–31
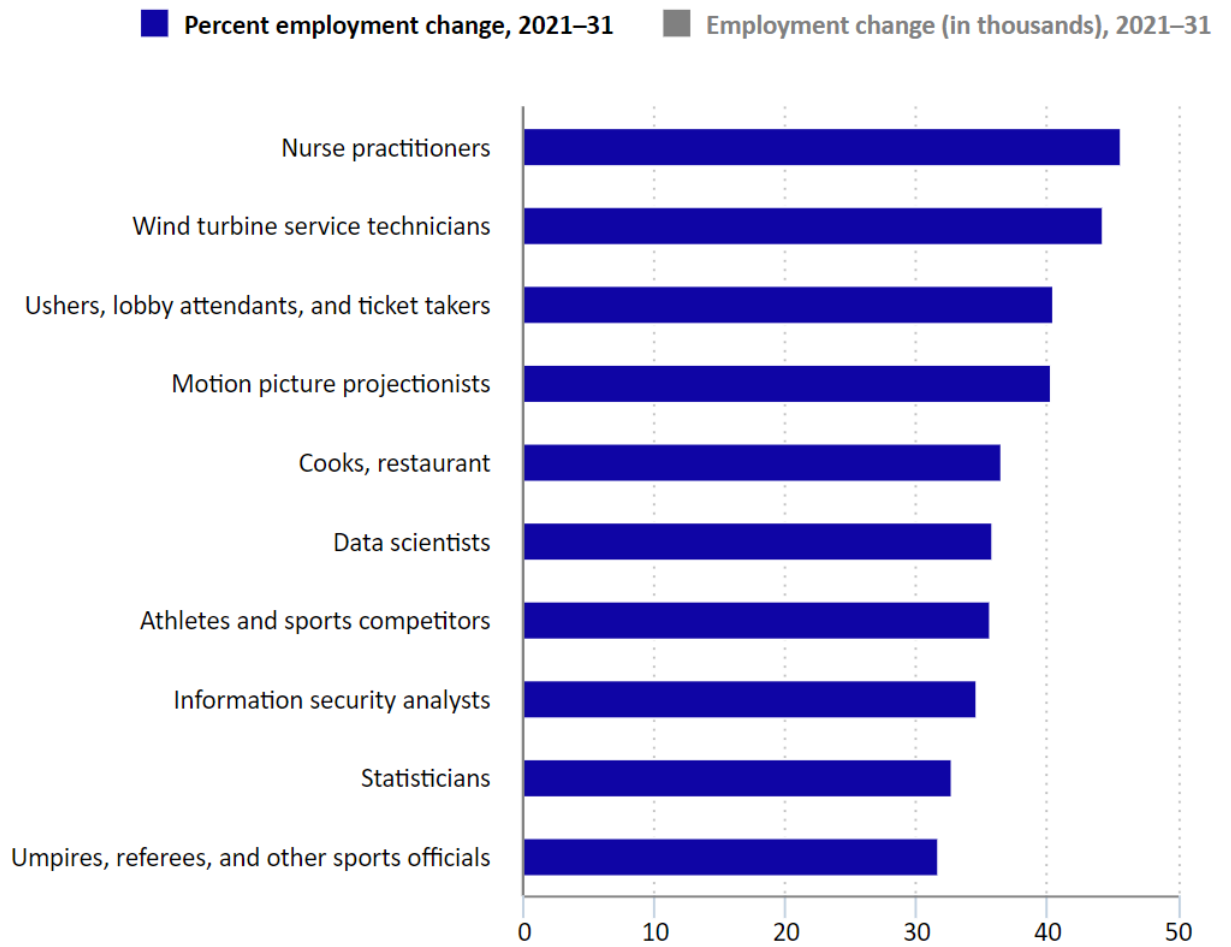
4. List the proposed curriculum for the specialization (including the requirements for completing the major – <mark>highlight courses in the specialization</mark>):

Prefix	Number	Course Title	Credit Hours	New (yes, no)
Supportive Coursework: Required only for students with non-business baccalaureates				
BADM	501	Business Essentials I	3	No
BADM	502	Business Essentials II	3	No
Coursework for the Major				
ACCT	781	Managerial Accounting	3	No
BADM	710	Managerial Finance	3	No
BADM	720	Quantitative Analysis	3	No
BADM	760	Operations Management	3	No
BADM	761	Leadership Development	3	No
BADM	762	Business and its Environment	3	No
BADM	770	Managerial Marketing	3	No
BADM	780	Strategic Management	3	No
ECON	782	Managerial Economics	3	No
Coursework for the Specialization				
DSCI	505	Business Analytics Fundamentals	3	No
DSCI	724	Data Mining for Managers	3	No
DSCI	725	Data Mining for Competitive Advantage	3	No
DSCI	729	Business Artificial Intelligence Applications	3	Yes

Total number of hours required for completion of specialization | 12
Total number of hours required for completion of major | 33
Total number of hours required for completion of degree | 39-45

5. Delivery Location

Note: The accreditation requirements of the Higher Learning Commission (HLC) require Board approval for a university to offer programs off-campus and through distance delivery.

A. Complete the following charts to indicate if the university seeks authorization to deliver the entire program on campus, at any off-campus location (e.g., UC Sioux Falls, Capital University Center, Black Hills State University-Rapid City, etc.) or deliver the entire specialization through distance technology (e.g., as an on-line program)?

	Yes/No	*Intended Start Date*
On campus	Yes	August 26, 2024

	Yes/No	*If Yes, list location(s)*	*Intended Start Date*
Off-campus	No		

	Yes/No	*If Yes, identify delivery methods* Delivery methods are defined in *AAC Guideline 5.5*.	*Intended Start Date*
Distance Delivery (online/other distance delivery methods)	Yes	U15 U18	August 26, 2024

B. Complete the following chart to indicate if the university seeks authorization to deliver more than 50% but less than 100% of the specialization through distance learning (e.g., as an on-line program)? *This question responds to HLC definitions for distance delivery.*

	Yes/No	*If Yes, identify delivery methods*	*Intended Start Date*
Distance Delivery (online/other distance delivery methods)	Yes	U01 U15, U18	August 26, 2024