Use this form to propose a new degree program. The Board of Regents, Executive Director, and/or their designees may request additional information about the proposal. After the university President approves the proposal, submit a signed copy to the Executive Director through the System Academic Officer (through the online submission process).

Note: Within the proposal, all references to external sources should be documented with a footnote (including web addresses where applicable).

University	DSU - Dakota State University
Degree	PHD : Doctor of Philosophy
Name of Major	X999 : New Major Requested **Artificial Intelligence**
Specialization Required?	No
	Note: If the new proposed program includes specific specializations within it, complete and submit a New Specialization Form for each proposed specialization and attach it to this form. Since specializations appear on transcripts, they require Board approval.
College/Department	8N : DSU Beacom Comp Cyber Sciences/DCSI : Computer Science
Planned CIP Code	11.0102
WICHE WRRGP Eligibility	

Program Description

1. Provide the working program description that may appear in the university catalog.

The Doctor of Philosophy in Artificial Intelligence (Ph.D. in AI) is a research-driven program for students who aspire to lead and innovate in the fast-moving field of artificial intelligence. The program develops advanced technical expertise alongside a solid understanding of the foundational concepts and methodologies that drive AI research and application across academia, industry, and government.

Grounded in a multidisciplinary core that integrates computer science, data science, and cybersecurity, the program emphasizes cutting-edge research in areas such as machine learning, deep learning, computer vision, natural language processing, federated and distributed AI, and explainable and ethical AI. Students engage with current and emerging technologies while advancing the field through original inquiry and impactful contributions.

Doctoral candidates will undertake scholarly work resulting in peer-reviewed publications, open-source tools, or deployable solutions with real-world relevance. The program fosters technical depth, creativity, ethical foresight, and the ability to solve complex interdisciplinary challenges.

Graduates will be prepared for roles as research scientists, university faculty, senior AI engineers, and strategic advisors equipped to drive innovation in a world increasingly shaped by intelligent systems.

2. Does the university request any exceptions to any Board policy for this program?
*Explain any requests for exceptions to Board Policy. If not requesting any exceptions, indicate **"None."***

None

Strategic Impact

3. Describe how the program fits in with the institutional mission, strategic plan, existing institutional program array, and academic priorities.

a. Fit with Institutional Mission and Statutory Purpose

The Ph.D. AI is firmly rooted in DSU's statutory mission as defined by SDCL § 13-59-2.2, which authorizes DSU to offer advanced instruction in computer management, information systems, electronic data processing, and related undergraduate and graduate programs. As a special focus university with a Carnegie Classification in Computing and Information Technologies, DSU is charged with advancing education, research, and workforce development in cyber and CIT-intensive domains. AI is a core component of the computing and information technologies landscape authorized by DSU's mission. As an inherently interdisciplinary field, AI both draws from and advances computer science, data science, and cybersecurity. The Ph.D. in AI represents a natural and strategic evolution of DSU's academic portfolio—building upon established strength in bachelor's, master's, and doctoral programs. Launching this program will further elevate DSU's role as SD's and the nation's premier special focus university in cyber and CIT-intensive education, research, and workforce development.

b. Integration with DSU's Existing Program Array

The Ph.D. in AI complements and extends DSU's current array of advanced degree programs, particularly the MS Artificial Intelligence, MS Computer Science, MS Cyber Defense, MS Analytics and Applied Artificial Intelligence, PhD Computer Science, PhD Cyber Operations, and PhD Cyber Defense. The MSAI at DSU prepares professionals to apply AI tools and frameworks to solve real-world problems across industry, academia, and government. With a strong focus on practical implementation, model development, and ethical considerations, the MSAI equips graduates to deploy AI systems responsibly and effectively. Building on this applied foundation, the Ph.D. in AI offers students the opportunity to pursue original research and make foundational contributions to the advancement of the field. The Ph.D. program enhances DSU's academic ecosystem and strengthens its leadership in advanced AI education and innovation.

c. Meeting Current and Future Student Needs

According to the U.S. Bureau of Labor Statistics, employment of information security analysts is projected to grow 35% from 2021 to 2031. The demand is even higher for professionals who can integrate AI into cybersecurity practices. The SD Depart of Labor and Regulation projects significant growth in AI-related occupations, with Data Scientists expected to grow 40.5% and Information Security Analysts by 37.8%, placing them among the fastest-growing occupations statewide (SDPB summary of DLR projections). DSU has made strategic investments in building a full academic pipeline in AI, from the BS AI through the MSAI, and now advancing to a Ph.D. in AI. This vertically aligned program array reflects strong and growing student interest in AI as both an applied and research-intensive field. DSU's BS AI attracts students seeking foundational knowledge in machine learning, data science, AI algorithms, and software development. The BS AI prepares students for roles such as machine learning engineers, AI/ML engineers, data scientists, and software developers working on AI-enabled applications, including those in cybersecurity and government sectors. Building on this base, DSU's MSAI equips graduates to design and implement practical AI solutions in both industry and academia, with increasing relevance to national security and defense applications. Many high-achieving students seek a terminal degree that enables them to conduct original research, teach at the university level, develop new AI algorithms or theoretical frameworks, and lead innovation initiatives in government, cybersecurity, and various industries. The Ph.D. in AI responds directly to this demand. The program provides the advanced training and research opportunities needed to shape the future of AI across technical, academic, and mission-critical domains. The Ph.D. in AI is a natural and essential extension of DSU's commitment to advancing student success in this critical field. It establishes a seamless academic pathway: from foundational undergraduate education to advanced applied training and, ultimately, to original research and leadership in AI development across academic, industry, and government contexts.

d. Advancement of Strategic Plan:

The Ph.D. in AI directly supports all four pillars of the ADVANCE 2022-2027 strategic plan:

Pillar 1: Increase Student Success - The program prepares students for high-impact careers in academia, industry, and national defense by fostering intellectual rigor, applied research, and professional growth. Through its emphasis on advanced scholarship and real-world relevance, the program supports student success outcomes such as higher graduation and placement rates, aligning with DSU's mission to develop highly skilled, workforce-ready graduates.

Pillar 2: Improve Engagement, Governance, & Communication - The program fosters engagement among faculty, staff, and external partners through interdisciplinary research and scholarly collaboration. By promoting

data-informed decision making and facilitating knowledge transfer, it enhances institutional governance and strengthens communication across academic and professional communities.

Pillar 3: Grow Scholarship, Research, Intellectual Property & Economic Development - The Ph.D. in AI is a cornerstone for expanding DSU's scholarly output. It will contribute to: Increasing peer-reviewed publications by 10% through faculty-led and student-coauthored research supported by graduate assistants and lab infrastructure; Expanding participation in funded projects, advancing DSU toward its $12M annual research goal; Creating new AI research roles, including postdocs, research assistants, and technical staff; Driving economic development opportunities across SD; and Engaging more students in faculty-driven and collaborative research through MadLabs® and the Applied Research Lab.

Pillar 5: Increase Sustainability & Resilience - The program advances DSU's goal to double the number of Beacom graduates in key fields and contributes to the milestone of increasing graduates in computer science, cyber operations, and AI by at least 10% by 2027.

e. Supporting South Dakota's Workforce and Economic Development Needs

South Dakota is undergoing rapid digital transformation, with AI driving innovation across key sectors such as agriculture (precision farming, automated harvesting, livestock monitoring), healthcare (predictive diagnostics, patient risk analysis, personalized treatment), energy and utilities (grid optimization, smart systems), finance (fraud detection, algorithmic trading), public safety (threat analysis, automation, decision support), and education (personalized learning, intelligent tutoring, and administrative automation). These industries urgently require advanced AI researchers and developers who can not only implement existing technologies but also develop novel solutions through interdisciplinary collaboration. A Ph.D. program will help SD cultivate in-state talent to fill these high-level roles, reducing reliance on external recruitment and strengthening the local innovation economy. Aligned with the state's economic development goals in technological advancement, automation, and data-driven decision-making, the Ph.D. in AI will empower DSU to advance applied research through faculty–student collaboration; Generate intellectual property and stimulate startup activity; Deepen regional partnerships with stakeholders in healthcare, agriculture, and energy; and Grow SD's AI-ready workforce.

f. Responding to National and Global Workforce Trends

The US faces an urgent and growing need for AI experts to sustain global competitiveness, strengthen national security, and advance critical capabilities across sectors. Federal workforce analyses, including those from the USDoL, consistently show that demand for AI professionals (particularly those with doctoral-level training) far exceeds current supply. The most acute shortages are in emerging and high-stakes areas such as AI ethics and policy, explainable and trustworthy AI, autonomous systems, edge and federated learning, and human–AI collaboration. These gaps have been highlighted not only by the National AI Research Resource Task Force but also by national policy documents such as the America's AI Action Plan (2025), which calls for significant expansion of the advanced AI talent pipeline. Together, these findings underscore the importance of doctoral programs that can prepare researchers and leaders equipped to address both the technical challenges and societal implications of AI. The Ph.D. in AI is designed to help close this gap by preparing scholars who can conduct rigorous, responsible research; lead public-sector AI initiatives; teach and mentor the next generation of AI professionals; and develop secure, mission-critical AI systems. This focus aligns with DSU's research strengths in computer science, cyber defense, and cyber operations, as well as the applied work of MadLabs® and the Applied Research Lab, where AI is increasingly used to support national security, threat detection, and the protection of critical infrastructure.

g. Creating a Research and Innovation Ecosystem

The Ph.D. in AI will play a pivotal role in expanding DSU's research and innovation ecosystem, both on campus and across SD. The program will increase participation in sponsored research, foster interdisciplinary collaboration across AI, cybersecurity, education, health, and business, and provide valuable mentoring and research opportunities for all students. It will also strengthen DSU's ability to attract completive federal funding from agencies such as NFS, NIH, DOE, and DoD. By cultivating a robust, multi-level research environment, it will position DSU as a regional and national leader in AI research and innovation.

If the program does not align to the strategic plan, provide a compelling rationale for the institution to offer the program.

4. How does the program connect to the Board of Regent's Strategic Plan?

The Ph.D. in Artificial Intelligence at DSU directly supports key pillars of the South Dakota Board of Regents Strategic Plan (2022–2027):

a.   Access and Affordability (Goal 2): The program creates an in-state doctoral pathway in Artificial Intelligence, allowing South Dakota students to pursue advanced education locally instead of leaving the state. It builds on DSU's vertically aligned AI pipeline (B.S. → M.S. → Ph.D.), ensuring that students have affordable progression routes without duplicative costs or transfers. By leveraging existing faculty, labs, and infrastructure, the program will be launched in a cost-efficient manner, aligning with BOR's emphasis on affordability and sustainability.

b.   Academic Excellence, Student Success, & Educational Attainment (Goal 3): The program elevates the educational experience by providing rigorous, high-impact doctoral training in a rapidly evolving discipline, thereby enriching student outcomes and advancing attainment metrics across the system.

c.   Workforce Development & Economic Development (Goal 4): Through its focus on AI innovation across healthcare, agriculture, defense, cybersecurity, and state services, the program aligns with the Board's goal to create academic programming responsive to evolving workforce needs and contribute to economic growth statewide.

Program Summary

5. If a new degree is proposed, what is the rationale?
This question refers to the type of degree, not the program. For example, if your university has authorization to offer the Bachelor of Science and the program requested is a Bachelor of Science, then the request is not for a new degree.

a. Meeting Current and Future Student Needs
According to the U.S. Bureau of Labor Statistics, employment of information security analysts is projected to grow 35% from 2021 to 2031, outpacing the national average for all occupations. The demand is even higher for professionals who can integrate AI into cybersecurity practices. Within South Dakota, the South Dakota Department of Labor and Regulation projects significant growth in AI-related occupations, with Data Scientists expected to grow 40.5% and Information Security Analysts by 37.8%, placing them among the fastest-growing occupations statewide (SDPB summary of DLR projections). https://www.sdpb.org/business-economics/2024-10-01/states-2032-employment-projections-show-growth

DSU has made strategic investments in building a full academic pipeline in Artificial Intelligence, from the B.S. AI through the M.S. AI, and now advancing to a Ph.D. in AI. This vertically aligned program array reflects strong and growing student interest in AI as both an applied and research-intensive field.

DSU's B.S. AI attracts students seeking foundational knowledge in machine learning, data science, AI algorithms, and software development. The B.S. AI prepares students for roles such as machine learning engineers, AI/ML engineers, data scientists, and software developers working on AI-enabled applications, including those in cybersecurity and government sectors. Building on this base, DSU's M.S. AI equips graduates to design and implement practical AI solutions in both industry and academia, with increasing relevance to national security and defense applications.

Many high-achieving students seek a terminal degree that enables them to conduct original research, teach at the university level, develop new AI algorithms or theoretical frameworks, and lead innovation initiatives in government, cybersecurity, and various industries. The proposed Ph.D. in AI responds directly to this demand. The program provides the advanced training and research opportunities needed to shape the future of AI across technical, academic, and mission-critical domains.

The proposed Ph.D. in AI is a natural and essential extension of DSU's commitment to advancing student success in this critical field. It establishes a seamless academic pathway — from foundational undergraduate education to advanced applied training and, ultimately, to original research and leadership in AI development across academic, industry, and government contexts.

b. Supporting South Dakota's Workforce and Economic Development Needs
South Dakota, like many states, is undergoing rapid digital transformation, with artificial intelligence driving innovation across key sectors such as agriculture (precision farming, automated harvesting, livestock monitoring), healthcare (predictive diagnostics, patient risk analysis, personalized treatment), energy and utilities (grid optimization, smart systems), finance (fraud detection, algorithmic trading), public safety (threat analysis, automation, decision support), and education (personalized learning, intelligent tutoring, and administrative automation).

These industries urgently require advanced AI researchers and developers who can not only implement existing technologies but also develop novel solutions through interdisciplinary collaboration. A Ph.D. program in AI will help South Dakota cultivate in-state talent to fill these high-level roles, reducing reliance on external recruitment and strengthening the local innovation economy.

Aligned with the state's economic development goals in technological advancement, automation, and data-driven decision-making, the Ph.D. in AI will empower DSU to:
• Advance applied research through faculty–student collaboration
• Generate intellectual property and stimulate startup activity
• Deepen regional partnerships with stakeholders in healthcare, agriculture, and energy
• Grow South Dakota's AI-ready workforce
c. Responding to National and Global Workforce Trends
At the national level, the United States faces an urgent and growing need for Artificial Intelligence experts to

sustain global competitiveness, strengthen national security, and advance critical capabilities across sectors. Federal workforce analyses, including those from the U.S. Department of Labor, consistently show that demand for AI professionals—particularly those with doctoral-level training—far exceeds current supply. The most acute shortages are in emerging and high-stakes areas such as AI ethics and policy, explainable and trustworthy AI, autonomous systems, edge and federated learning, and human–AI collaboration. These gaps have been highlighted not only by the National AI Research Resource Task Force but also by national policy documents such as the America's AI Action Plan (2025), (https://www.whitehouse.gov/wp-content/uploads/2025/07/Americas-AI-Action-Plan.pdf) which calls for significant expansion of the advanced AI talent pipeline. Together, these findings underscore the importance of doctoral programs that can prepare researchers and leaders equipped to address both the technical challenges and societal implications of AI.

The Ph.D. in AI at DSU is designed to help close this gap by preparing scholars who can conduct rigorous, responsible research; lead public-sector AI initiatives; teach and mentor the next generation of AI professionals; and develop secure, mission-critical AI systems.

This focus aligns with DSU's research strengths in computer science, cyber defense, and cyber operations, as well as the applied work of MadLabs® and the Applied Research Lab (ARL), where AI is increasingly used to support national security, threat detection, and the protection of critical infrastructure.

d. Creating a Research and Innovation Ecosystem
The Ph.D. in AI will play a pivotal role in expanding DSU's research and innovation ecosystem, both on campus and across South Dakota. The program will increase participation in sponsored research, foster interdisciplinary collaboration across AI, cybersecurity, education, health, and business, and provide valuable mentoring and research opportunities for undergraduate and master's students. It will also strengthen DSU's ability to attract competitive federal funding from agencies such as the NSF, NIH, DOE, and DoD.

By cultivating a robust, multi-level research environment, the Ph.D. in AI will position DSU as a regional and national leader in AI research and innovation—fully aligned with its special focus mission in computing and cyber sciences.

6. **What modality/modalities will be used to offer the new program?**
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.

	Yes/No	Intended Start Date	
On Campus	Yes	Fall 2026	

	Yes/No	Location(s)	Intended Start Date
Off Campus Location	No		

	Yes/No	Delivery Method(s)	Intended Start Date
Distance Delivery	Yes		Fall 2026

	Yes/No	Identify Institutions
Does another BOR institution already have authorization to offer the program online?	No	

7. **If the program will be offered through distance delivery, identify the planned instructional modality:**

Asynchronous : Students are not required to attend the course at a specific time or location.

8. What are the student learning outcomes for this program?

    a.   Conduct original, high-impact research in Artificial Intelligence.
    b.   Develop and analyze advanced AI theory and methods.
    c.   Design and evaluate trustworthy, secure, and ethical AI systems.
    d.   Communicate AI research effectively to scholarly and professional audiences.
    e.   Produce original scholarly contributions that advance the field of Artificial Intelligence.

9. For associate's and bachelor's degree proposals, identify the 3-5 AAC&U Essential Learning Outcomes that have been selected for this program.
   Use the chart below to indicate the student learning outcomes that align to the selected ELOs (See BOR Policy 2.11 and Guideline 8.5).

Essential Learning Outcomes (AAC&U)	Student Learning Outcomes
Inquiry and Analysis	
Critical and Creative Thinking	
Information Literacy	
Teamwork	
Problem Solving	
Civic Knowledge and Engagement	
Intercultural Knowledge	
Ethical Reasoning	
Foundational Lifelong Learning Skills	
Integrative Learning	

10. Enter the number of credit hours required to graduate

Credit Hours	

72

11.Complete the following tables to provide a degree program curriculum summary.

A. Table 1 –Total Program Degree Credit Hours

	Credit Hours In Program	
	Hours Per Requirement	**%Total Hours**
System General Education Requirements		
Subtotal - Gen Ed Requirements		%
Program Requirements		
Required Support Courses		
Major Requirements	48	
Major Electives	24	
Subtotal - Program Requirements	72	%
Free Electives		
Subtotal - Free Electives		%
Degree Total	72	%

*Board Policy 2:29 requires each baccalaureate level degree program to require 120 credit hours and each associate degree program to require 60 credit hours. Exceptions to this policy require documentation that programs must comply with specific standards established by external accreditation, licensure, or regulatory bodies or for other compelling reasons, and must receive approval by the Executive Director in consultation with the President of the Board of Regents.

B. Table 2 – Insert Required Program Support Courses Impacting Other Programs (outside department). Do not include General Education courses.

*The individual curriculum tables should be included as a word document **attached** to the TDX ticket.*

C. Table 3 – Insert Major Requirements (within department)

*The individual curriculum tables should be included as a word document **attached** to the TDX ticket.*

D. Table 4 – Insert Major Electives

*The individual curriculum tables should be included as a word document **attached** to the TDX ticket.*

12. New Course Approval
New courses required to implement the new degree program may receive approval in conjunction with program approval or receive approval separately. Please check the appropriate statement:

Academic Quality

13. What peer institutions and current national standards will be referenced to develop the curriculum for this program?
Peer Institution: Regional and Competitive institutions. Include links to at least 3 comparable programs at peer institutions and links to national or accreditation standards, if any.

University of North Dakota – Ph.D. in Artificial Intelligence
https://und.edu/programs/artificial-intelligence-Ph.D./index.html

University of Nebraska Omaha – Ph.D. in Computing & Information Science
https://www.unomaha.edu/college-of-information-science-and-technology/Ph.D.-it/index.php

University of Nebraska Lincoln – Ph.D. in Computer Science with AI Emphasis
https://graduate.unl.edu/academics/programs/COMP-PH.D./

University of Georgia – Ph.D. in Artificial Intelligence
https://www.ai.uga.edu/Ph.D.-artificial-intelligence

University of Pittsburgh – Ph.D. in Intelligent Systems
https://www.sci.pitt.edu/academics/doctoral-degrees/intelligent-systems-Ph.D.

Carnegie Mellon University – Ph.D. in Machine Learning
https://ml.cmu.edu/academics/machine-learning-Ph.D.

14. What program accreditation is available, if any?

Currently, there is no specialized accrediting body that accredits Ph.D. programs in Artificial Intelligence specifically.

15. Will the proposed program pursue accreditation or certifications?

No

If no, why has the department elected not to pursue accreditation for the program?

There is no specialized accrediting body that accredits Ph.D. programs in Artificial Intelligence

16. Did the university engage any developmental consultants to assist with the development of the curriculum? Did the university consult any professional or accrediting associations during the development of the curriculum? What were the contributions of the consultants and associations to the development of the curriculum?
Developmental consultants are experts in the discipline hired by the university to assist with the development of a new program, including content, courses, and experiences, etc. Universities are encouraged to discuss the selection of developmental consultants with Board staff.

No

17. Inclusion of High Impact Practices (HIP) across all undergraduate programs is a strategic priority of the Board of Regents to enhance academic quality and increase student engagement. For associate's and bachelor's degree proposals, which HIPs will faculty embed into the program?
Mark all that apply. To be considered as a HIP program, two or more should be selected and required in the program.

High Impact Practices	Included
Capstone courses and projects	
Collaborative assignments and projects	

High Impact Practices	Included
Common intellectual experiences	
Diversity/global learning	
ePortfolios	
First year experiences	
Internships	
Learning communities	
Service learning, community-based learning	
Writing intensive courses	
Undergraduate research	

18. For associate's and bachelor's degree proposals, discuss how HIPs will be embedded into the program
Your discussion should provide examples and include whether the HIP is required or an optional component. It should also indicate at what point the experience is offered or required. (eg "students will be required to participate in an internship during their third year of enrollment in order to develop skills in…").

NA

Student Success

This section outlines the university's plan to assess student achievement of the program learning outcomes.

19. Complete the table below to provide evidence of a preliminary assessment plan. Place an asterisk next to assessments that are national or state-level instruments.
Note: It is only necessary to indicate the summative assessment for each outcome, not the formative assessments used throughout the program.

Program Learning Outcome	Course	Summative Assessment
Conduct original, high-impact research in Artificial Intelligence.	CSC 898 Dissertation; CSC 804 Computer and Cyber Security Research Methodology, CSC 807 Computer and Cyber Security Research Implementation	Dissertation research demonstrating rigorous
Develop and analyze advanced AI theory and methods.	CSC 726 Neural Networks, CSC 727 Professional Application and Ethics of AI, CSC 777 Secure and Adversarial AI Systems	Projects and reports on advanced AI models, algorithms, and theoretical methods • Project presentation, documentation, and technical evaluation • Comprehensive and qualifying examinations assessing theoretical depth • Dissertation research demonstrating rigorous analysis of AI theory and methods
Design and evaluate trustworthy, secure, and ethical AI systems.	CSC 727 Professional Applications and Ethics of AI, CSC 777 Secure and Adversarial AI Systems, CSC 779 Autonomous and Intelligent Systems, CSC 807 Computer and Cyber Security Research Implementation	Projects and reports on data/computing culture, ethics, bias, and social responsibility • Project presentation, documentation, and demonstration • Comprehensive and qualifying examinations assessing theoretical depth
Communicate AI research effectively to scholarly and professional audiences.	CSC 727 Professional Applications and Ethics of AI, CSC 804 Computer and Cyber Security Research Methodology, CSC 890 Seminar, CSC 898 Dissertation	Project presentation, documentation, and demonstration
Produce original scholarly contributions that advance the field of Artificial Intelligence.	CSC 804 Computer and Cyber Security Research Methodology, CSC 807 Computer and Cyber Security Research Implementation, CSC 890 Seminar, CSC 898 Dissertation	Project presentation, documentation, and demonstration

20. How will outcomes for graduates of the program be assessed?
Outcomes may include employment and placement rates, licensure examination pass rates, acceptance rates to graduate school, student or employer surveys, or other assessments of graduate outcomes.

Outcomes for graduates of the Ph.D. in Artificial Intelligence will be assessed through a combination of direct and indirect measures that evaluate scholarly achievement, research competency, and post-graduation outcomes. Direct assessment will occur through summative evaluations embedded in doctoral coursework, qualifying and candidacy milestones, and the successful completion and defense of the dissertation, which serves as the primary demonstration of attainment of program learning outcomes. Indirect measures will include tracking

employment and placement in academic, industry, government, or research positions; continued engagement in advanced research or innovation activities; and feedback from graduate and employer surveys, including input from the Beacom College of Computer and Cyber Sciences Industrial Advisory Board. Together, these measures ensure the program maintains rigorous doctoral standards and remains aligned with institutional goals and workforce needs.

Duplication and Competition

21. Do any related programs exist at other public universities in South Dakota?
*A list of existing programs is available through the university websites and the RIS Reporting: Academic Reports Database. If there are no related programs within the Regental system, indicate **none.***

Several South Dakota public universities offer related, but not equivalent, graduate programs that use AI within broader disciplinary contexts. The USD/SDSM&T collaborative Ph.D. in Data Science & Engineering is interdisciplinary and built around a broad elective structure drawing from many departments, rather than a concentrated AI core. The DSU/SDSU joint Ph.D. in Computer Science includes areas such as artificial intelligence and machine learning, but only as part of a broader computer science doctorate. In short, while STEM graduate programs in the state increasingly prepare students to use AI within their fields, there is no South Dakota Ph.D. dedicated specifically to Artificial Intelligence designed to prepare students to create and advance AI systems.

A. If yes, defend the need for an additional program within the state, Include IPEDS enrollment data and additional data as needed.

National projections show continued double-digit growth in AI-related occupations, with shortages particularly acute for Ph.D.-trained researchers. DSU's undergraduate and master's programs in AI are thriving, and faculty report consistent interest from students seeking a pathway to a terminal AI degree. At present, many of these students must leave South Dakota to pursue doctoral opportunities elsewhere. The proposed Ph.D. in AI would meet this demand, expand DSU's enrollment pipeline, and attract new students from across the nation and abroad. Importantly, the program will complement DSU's existing Ph.D. offerings in Computer Science and Cyber Operations by providing a distinct doctoral credential in AI. While DSU's Ph.D. in Computer Science and Ph.D. in Cyber Operations allow AI research, they do not offer the dedicated AI curriculum and research depth this new Ph.D. would provide.

B. If yes, would this program be a candidate for Regental system collaboration?

The proposed Ph.D. in Artificial Intelligence requires students to complete technical coursework in machine learning, neural architectures, natural language processing, computer vision, and federated learning. The program will also emphasize the intersection of AI and cybersecurity, preparing graduates to address challenges such as adversarial AI, secure model deployment, and ethical AI use in critical infrastructure. DSU's program will be offered in both online and face-to-face formats, ensuring accessibility for working professionals across the U.S. as well as traditional students. In contrast, STEM doctoral programs at other Regental institutions are largely designed for on-campus students, which limits access for professionals seeking flexible options. Accordingly, this doctoral program would not be well suited for Regental collaboration.

22. Do any related programs exist at any non-Regental college or university within 150 miles of the university?
List those programs here:

At present, no Ph.D. programs in Artificial Intelligence or related fields are offered by non-Regental institutions in South Dakota nor within 100 miles of Dakota State University.

Recently, the University of North Dakota in Grand Forks, ND launched a new Ph.D. in Artificial Intelligence (program started in Fall 2025). However, Grand Forks is well outside the 100-mile radius posed by this question.

A. If yes, use IPEDS to identify the enrollment in those programs.

B. What evidence suggests there is unmet student demand for the proposed program, or that the proposed program would attract students away from the existing program?

Market Demand

This section establishes the market demand for the proposed program (eg Regental system need, institutional need, workforce need). Use the following sources for your data:

- [South Dakota Department of Labor & Regulation](#)
- [O-Net](#)
- [US Department of Labor Projections Central](#)
- SDBOR Workforce and Degree Gap Analysis Report

23. What is the expected growth of the industry or occupation in South Dakota and nationally?
Include the number of openings, as well as the percentage of growth when possible.

In South Dakota, occupational projections indicate strong demand for advanced computing and AI-related professionals. The South Dakota Department of Labor and Regulation projects overall employment to grow 7.7% between 2022 and 2032, significantly above the national average of 2.8% (SD DLR Projectionshttps://dlr.sd.gov/lmic/menu_projections_occupation_statewide.aspx). Within this trend, key AI-related occupations stand out: Data Scientists are expected to grow by 40.5%, and Information Security Analysts by 37.8%, placing them among the fastest-growing occupations statewide (SDPB summary of DLR projectionshttps://www.sdpb.org/business-economics/2024-10-01/states-2032-employment-projections-show-growth).

At the national level, the U.S. Bureau of Labor Statistics projects employment for Computer and Information Research Scientists to grow by 20% from 2024 to 2034 and Data Scientists to grow by 34% from 2024 to 2034, both classified as "much faster than average" (BLS Computer and Information Research, , https://www.bls.gov/ooh/computer-and-information-technology/computer-and-information-research-scientists.htm; BLS Data Scientistshttps://www.bls.gov/ooh/math/data-scientists.htm?src_trk=em663ccfe799c3b3.012538641904244899#tab-1). The broader field of computer and information technology occupations is expected to produce over 356,000 job openings annually through the mid-2030s, reflecting both new growth and replacement demand (BLS Computer & IT Occupationshttps://www.bls.gov/ooh/computer-and-information-technology/home.htm).

O*NET Online further designates Data Scientists and Computer and Information Research Scientists as "Bright Outlook" occupations, underscoring both rapid expansion and high employer demand (O*NET Bright Outlookhttps://www.onetonline.org/find/family?f=25&g=Go). Similarly, Projections Central confirms that South Dakota mirrors these national trends, with consistent positive growth across computing, analytics, and cybersecurity occupations (Projections Centralhttps://projectionscentral.org/home).

24. What evidence, if any, suggests there are unfilled openings in South Dakota or nationally?

The South Dakota Department of Labor and Regulation projects significant growth in AI-related occupations, with Data Scientists expected to grow by 40.5% and Information Security Analysts by 37.8% through 2032 (South Dakota Department of Labor and Regulation, SDPBhttps://dlr.sd.gov/lmic/menu_projections_occupation_statewide.aspx). Yet the pipeline of advanced-degree graduates remains too small to meet this demand.

According to the US Department of Labor - Career OneStop, it is projected that between 2023 – 2033 the number of Data Science openings in the United States will go from 202,900 in 2023 to 276,000 in 2033 (OneStop Data Scientisthttps://www.careeronestop.org/Toolkit/StateAndLocal/ProjectedEmployment.aspx?soccode=152051&location=South%20Dakota) and the number of Computer and Information Research Scientists will go from 36,600 in 2023 to 46,000 in 2033 (OneStop Computer and Information Research Scientisthttps://www.careeronestop.org/Toolkit/StateAndLocal/ProjectedEmployment.aspx?soccode=151221&location=South%20Dakota).

Crucially, the White House's 2025 "America's AI Action Plan" emphasizes that bolstering the AI talent pipeline is essential for advancing U.S. leadership in areas such as trustworthy AI, human-AI collaboration, and national security (America's AI Action Plan, 2025).

25. What salaries can program graduates expect to earn in South Dakota and nationally?

According to Glassdoor, the typical pay range for a Data Scientists is between $120,000 to $195,000 per year (Glassdoor Data Scientisthttps://www.glassdoor.com/Salaries/data-scientist-salary-SRCH_KO0,14.htm), a Computer and Information Research Scientist is between $124,000 and $211,000 per year (Glassdoor Computer and Information Research Scientisthttps://www.glassdoor.com/Salaries/united-states-computer-and-information-research-scientist-salary-SRCH_IL.0,13_IN1_KO14,57.htm), and ML Engineer is between $118,000 and $181,000 per year (Glassdoor ML Engineerhttps://www.glassdoor.com/Salaries/united-states-ml-engineer-salary-SRCH_IL.0,13_IN1_KO14,25.htm)

This is consistent with the median annual wages for data scientists ($112,590) and Computer and Information Research Scientist ($140,910) according to the U.S. Bureau of Labor Statistics (BLS Data Scientisthttps://www.bls.gov/ooh/math/data-scientists.htm?src_trk=em663ccfe799c3b3.012538641904244899#tab-5; BLS Computer and Information Research Scientisthttps://www.bls.gov/ooh/computer-and-information-technology/computer-and-information-research-scientists.htm#tab-5)

26. Optional: Provide any additional evidence of regional demand for the program.
e.g. prospective student interest survey data, letters of support from employers, community needs...

The proposed Ph.D. in AI builds on DSU's expanding network of interdisciplinary and cross-sector collaborations. Within the institution, the program will engage faculty across The Beacom College of Computer and Cyber Sciences to explore AI applications in cybersecurity, data science, digital health, and intelligent systems.

Externally, DSU has established or is developing strategic partnerships that directly support the research and applied learning goals of the Ph.D. program. These include:
• Case New Holland (CNH), partnering with DSU to develop and refine intrusion detection models and the development of secure (on-premise) AI tools and models to enhance their security operations.
• AI Sweden, advancing international collaboration on ethical and applied AI innovation along with 120+ industrial partners. Current and previous industrial partners include Volvo Group, Centiro, VGR, Aixia, HPE, and others.
• East River Electric, supporting AI-driven research in smart grid technologies, predictive maintenance, and critical infrastructure resilience.
• LifeScape, offering opportunities to apply AI in assistive technologies and personalized care.
• SBS Cybersecurity, collaborating with DSU on the development of AI tools to support cybersecurity education and awareness across a range of emerging challenges.

These partnerships provide Ph.D. students with meaningful opportunities to engage in applied research, address real-world AI problems, and contribute to innovation across critical sectors in South Dakota and beyond.

Student Demand

27. Provide evidence of student completers/graduates at that degree level at peer institutions that offer the same/similar program using data obtained from IPEDS.

Peer Institution: Regional and Competitive institutions. Choose programs not already listed in question 11. Use the most recent year available.

University Name	State	Program Name	Number of Degrees Conferred in Program	Total Number of Conferrals at Level (Undergrad or Grad)
University of Nebraska-Omaha	NE : Nebraska	Computer and Information Sciences	3	31
University of Nebraska-Lincoln	NE : Nebraska	Ph.D. Computer Science	9	454
Illinois Institute of Technology	IL : Illinois	Ph.D. Computer Science	12	293

28. What evidence suggests there is interest from prospective students for this program at the university?

Evidence of strong student interest in a Ph.D. in Artificial Intelligence can be seen in the rapid growth of DSU's Master of Science in Artificial Intelligence (M.S. AI) program, which has already surpassed enrollment expectations with 40 active students since its launch in Fall 2024. This demand reflects both regional and national appeal, with students seeking advanced preparation for AI-driven careers and many expressing interest in continuing to the doctoral level. In addition, DSU's proven track record of strong enrollment in its other doctoral programs in Cyber Defense, Cyber Operations, and Computer Science further demonstrates the university's ability to attract, enroll, and retain students at the highest level of graduate study.

Enrollment

29. Are students enrolling in this program expected to be new to the university or redirected from existing programs at the university?

Students enrolling in the proposed Ph.D. in Artificial Intelligence (Ph.D. AI) are expected to come from both new applicants to Dakota State University as well as internal pathways from existing graduate programs. In particular, students may filter upward from our Master of Science in Computer Science (M.S. CS) and Master of Science in Artificial Intelligence (M.S. AI) programs into the Ph.D. in Artificial Intelligence (Ph.D. AI), providing a strong internal feeder pipeline. We anticipate a steady inflow of new doctoral students drawn by the national demand for AI expertise and DSU's established strengths and reputation in cybersecurity.

30. Complete the enrollment worksheet to provide an enrollment projection for the next six academic years

Worksheet Completed	Yes

31. What is the minimum number of students required in this program to break even, with respect to the budget?

By year three, 22 students are needed in the program to cover the operating expenses and the proposed new full-time tenure track faculty position.

32. Discuss the assumptions informing your enrollment estimates.
(e.g. current enrollment and trends in similar programs, IPEDS data, recruitment strategies, partnerships)

DSU's M.S. in Artificial Intelligence (M.S. AI) program has demonstrated strong demand since its launch (launched Fall 2024). In AY24–25, the program enrolled 20 new students, establishing a solid foundation of interest. Building on this momentum, another 20 students enrolled in Fall 2025 (total enrollment of 40 students), with an additional 10–20 students anticipated for Spring 2026. This steady growth highlights a clear and expanding base of students pursuing advanced training in AI, underscoring the need for a doctoral pathway to retain talent and support further specialization. National data show that about 20% of master's graduates eventually pursue a Ph.D. (NCES, 2022), suggesting that 4–8 of DSU's M.S. AI students annually may continue to doctoral-level study. Building on this internal pipeline, the Ph.D. in AI is projected to launch with 6–8 new students in Fall 2026, growing to 12–15 new students annually by Year 5. At maturity, the program will sustain 40–50 active doctoral students, positioning DSU as a leader in doctoral-level AI education and research.

33. If projected program enrollment is not realized in year two, what actions is the university prepared to take?

If the program enrollment for the Ph.D. in Artificial Intelligence is not realized in year two, Dakota State University is prepared to implement several responsive strategies to support sustainability and mitigate potential risks:

1. Target Marketing and Recruitment. DSU will evaluate and refine its marketing and recruitment efforts to better reach prospective doctoral students. This includes targeted outreach to graduates of DSU's AI and related graduate programs, expanded national and international recruitment, and increased promotion through academic, professional, and research networks.

2. Expanded Partnerships. The University will leverage and expand partnerships with industry, government, and research organizations to strengthen the doctoral pipeline. These partnerships may include collaborative research opportunities, employer-supported doctoral study, and increased engagement with alumni and institutional partners.

3. Program Review and Adjustment. DSU will conduct a focused review of the program's curriculum, delivery structure, and resource alignment. Based on the findings, adjustments may be made to elective offerings, delivery formats, or admission pathways to better align with student demand and workforce needs while maintaining academic rigor.

34. Discuss the marketing and recruitment plan for the program
Include information on partnerships and pipelines (e.g. articulation agreements with BOTE, collaboration with partner university, community partnerships).

Dakota State University will implement a targeted marketing and recruitment strategy to support enrollment in the Ph.D. in Artificial Intelligence, focusing on both traditional graduate students and working professionals at the regional, national, and international levels.

Recruitment will draw from multiple pipelines, including graduates of AI, computer science, data science, and cybersecurity master's programs at DSU and peer institutions. Outreach will include digital marketing, participation in academic and professional networks, faculty research collaborations, and visibility at conferences and scholarly venues. These efforts will emphasize DSU's strengths in artificial intelligence, cybersecurity, and applied research.

The program will also target working professionals seeking advanced AI research training and leadership roles. Recruitment messaging will highlight the program's applied research focus, alignment with national AI priorities, and accessibility for professionals in industry, government, and defense-related sectors.

Partnerships will play a key role in recruitment and pipeline development. DSU will leverage collaborations with industry, government agencies, and research organizations to promote the program, identify qualified applicants, and support pathways such as employer-sponsored doctoral study and collaborative research.

Financial Health

35. Complete the budget worksheet to provide a budget projection for the next six academic years.

Worksheet Completed		Yes				

Financial Health Summary						
	1st FYxx	**2nd FYxx**	**3rd FYxx**	**4th FYxx**	**5th FYxx**	**6th FYxx**
Tuition & Fee Revenues	71783	215349	349942	466590	538373	538372
Program Expenses	21319	21319	140397	125106	125106	125106
NET	50464	194030	209545	341484	413267	413266
Other Supporting Revenues	0	0	0	0	0	0
NET (Other)	50464	194030	209545	341484	413267	413266

36. Explain the amount and source(s) of any one-time and continuing investments in personnel, professional development, release time, time redirected from other assignments, instructional technology and software, other operation and maintenance expenses, facilities, etc., needed to implement the proposed major.
Address off-campus or distance delivery separately.

The proposed Ph.D. in Artificial Intelligence will be implemented using a combination of existing institutional resources and phased investments to support program growth. During the first three years, DSU will utilize adjunct instructors to support course delivery, with funding for up to three courses annually. Beginning in year three, the University plans to add one full-time, permanent tenure-track faculty position to support instruction, research supervision, and program development. Enrollment projections indicate sufficient tuition revenue to support these faculty investments.

Additional one-time start-up funds will be allocated to support the tenure-track faculty hire, and short-term and ongoing expenses are documented in the Financial Health worksheet. Ongoing support will include instructional computing tools, software and applications, and faculty professional development, including travel. The program will leverage existing facilities, research infrastructure, and administrative support, and no significant new facilities are required to implement the proposed major.

37. If new faculty are not requested, describe how existing faculty will be utilized and indicate whether this action will impact other existing programs.

No new faculty lines will be required during the first two years of the Ph.D. in Artificial Intelligence. Early coursework in the program will draw from existing graduate courses offered through the M.S. in Artificial Intelligence and related programs, which have sufficient capacity to absorb initial doctoral enrollments without negatively impacting other programs.

Beginning in year three, and contingent upon achieving projected enrollment levels, student demand is expected to support the addition of a faculty line to further support instruction and doctoral supervision. To ensure flexibility during the initial launch period, the budget model includes support for limited adjunct instruction, with an adjunct teaching up to three courses annually during the first two years if enrollment in shared introductory courses exceeds existing faculty capacity. These measures allow the program to scale responsibly while minimizing impact on current programs and maintaining instructional quality.

38. Is the university requesting or intending to request permission for a new fee or to attach an existing fee to the program?.

Requesting Permission for Fee?	Yes, existing fee
Explanation	No new fee is being requested. The existing Computer Science special discipline fee should be attached to all Artificial Intelligence courses.

39. Use the table below to describe potential risks to the program's implementation over the next four years.
For each risk, identify the severity (low, medium, high), probability of occurrence (low, medium, high) and the institution's mitigation strategy for each risk.

Risk	Severity	Probability	Mitigation Strategy
Faculty workload limitations/faculty availability	Low	Low	Review departmental capacity and course rotation. Investigate possible roles for adjunct or emeritus faculty.
Low enrollment	Medium	Low	More selective acceptance. Review full-time or adjunct hiring options.
Overestimate interest in the program	Medium	Medium	Engage on expertise in marketing strategy.

External Review

40. If this proposal is for a graduate program, provide information below for at least five potential consultants who may be considered to conduct the external review.

Reviewer Name	Title	Institution
See Question 41		
/		
/		
/		
/		
/		

Additional Information

41. (Optional) Use this space to provide pertinent information not requested above that may assist the Board in understanding the proposal.

Dakota State University requests a waiver of the external review requirement for the Ph.D. in Artificial Intelligence. The proposed program builds directly upon DSU's recently launched M.S. in Artificial Intelligence, which completed a successful external review and has demonstrated strong enrollment and market demand. The Ph.D. in AI will leverage many existing graduate-level courses from the MSAI and MSCS programs, as well as established doctoral infrastructure already in place through DSU's Ph.D. programs in Computer Science, Cyber Operations, and Cyber Defense.

In addition, the program will utilize existing faculty expertise, research facilities, and administrative support structures, and will require no significant new investments in faculty, infrastructure, or technology at launch. This strategic use of current resources ensures that the Ph.D. in Artificial Intelligence can be implemented and sustained efficiently while maintaining high academic quality, rigorous research expectations, and appropriate student support.

Approvals

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.*

President of the University	Date
	2/19/2026

Dr. Jose Marie Griffiths

Academic Affairs, Provost	Date
	2/19/2026

Dr. Rebecca Hoey

Finance and Administration, Vice President	Date
	2/19/2026

Mr. Stacy Krusemark

Enrollment Management, Vice President	Date
	2/19/2026

Ms. Amy Crissinger