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| S:\Communications\Logos and photos\SDBORLogos\final_sdbor_webreadyBW_trans.gif | **SOUTH DAKOTA BOARD OF REGENTS**ACADEMIC AFFAIRS FORMS |
| New Graduate Degree Program |
|  |  |

Use this form to propose a new graduate 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 Chief Academic Officer. Only post the New Graduate Degree Program Form to the university website for review by other universities after approval by the Executive Director and Chief Academic Officer. The university should consult the “Campus Guide to the New Graduate Program Approval Process” for information on specific aspects of the approval process.

|  |  |
| --- | --- |
| **UNIVERSITY:** | DSU |
| **PROPOSED GRADUATE PROGRAM:** |  |
|  **EXISTING OR NEW MAJOR(S):** | **Ph.D.** |
| **DEGREE:** |  |
|  **EXISTING OR NEW DEGREE(S):** | **Information Systems** |
| **INTENDED DATE OF IMPLEMENTATION:** | **Summer 2018**  |
| **PROPOSED CIP CODE:** | **11.0101** |
| **SPECIALIZATIONS:[[1]](#footnote-1)** |  |
| **IS A SPECIALIZATION REQUIRED (Y/N):** | **Y** |
| **DATE OF INTENT TO PLAN APPROVAL:** | **5/9/2018** |
| **UNIVERSITY DEPARTMENT:** | **College of Business and Information Systems** |
| **UNIVERSITY DIVISION:** |  |

**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.*

|  |  |  |
| --- | --- | --- |
|  |  | **5/11/2018** |
| President of the University |  | Date |

|  |
| --- |
|  |

1. **What is the nature/purpose of the proposed program?**

DSU is proposing a change in the degree designation from the Doctor of Science (D.Sc.) to the Doctor of Philosophy (Ph.D.). DSU received authority to offer the D.Sc. in Information Systems at the April 2014 Board meeting. The Ph.D. would be a new degree designation to the university.

Information systems is an organized system for the collection, organization, storage and communication of information. Specifically, it is the study of complementary networks that people and organizations use to collect, filter, process, create, and distribute data.

When DSU proposed this first doctoral program in Information Systems in 2005, the Board of Regents issued the D.Sc. rather than the traditional Ph.D. designation. In 2014, DSU received authorization from the Board to offer a second doctoral degree, the D.Sc. in Cyber Security. During our doctorate program review, we found the more traditional nomenclature (Ph.D.) to be more relevant to the field and the program’s change in designation will more accurately reflect our current intensive, dissertation required, 88 credit hour program. It is essential that DSU programming reflect current and evolving market awareness and because we have developed a national reputation for excellence in our existing doctoral programs, offering the Ph.D., the most recognizable doctoral degree in the field, helps DSU maintain that reputation. The Ph.D. degree serves us better in this highly competitive and demanding market. Preserving and expanding our niche or place depends on quality programming along with a quality reputation. Although the D.Sc. in Information Systems has a very healthy enrollment of 73 students we only accept about 1/3 of the applicants. This robust enrollment and very selective process allows the program to maintain the highest quality of program. The Ph.D. designation will only further enhance the program’s reputation and it will further benefit in meeting the student’s professional goals because the Ph.D. is more universally recognized.

1. **How does the proposed program relate to the university’s mission and strategic plan, and to the current Board of Regents Strategic Plan 2014-2020?**[[2]](#footnote-2)

The Legislature established Dakota State University as an institution specializing in programs in computer management, computer information systems, and other related undergraduate and graduate programs as outlined in SDCL 13-59-2.2. The Business and Information Systems provides complete realization of this mission in its programs related to Information Systems. The Board implemented SDCL 13-59-2.2 by authorizing undergraduate and graduate programs that are technology-infused and promote excellence in teaching and learning. These programs support research, scholarly and creative activities and provide service to the State of South Dakota and the region.

This request to change the name from D.Sc. to Ph.D. relies on the same logic: the program is a strong, integrated and effective culmination degree consistent with the mandated mission of the university and the College of Business and Information Systems.

The transition to the Ph.D. from the D.Sc. also recognizes the Board’s Strategic Plan 2014-2020, including goals to improve academic quality and to graduate more students from STEM fields by offering the most recognizable degree in the field. DSU is a STEM institution with 65% of all degree seeking students in SDBOR STEM CIP disciplines.

1. **Describe the workforce demand for graduates of the program, including national demand and demand within South Dakota.** *Provide data and examples; data sources may include but are not limited to the South Dakota Department of Labor, the US Bureau of Labor Statistics, Regental system dashboards, etc.*

Employment demand for occupations requiring expertise in information systems remains high. For example, positions in computer and information technology are projected to grow 13% nationally from 2016 to 2026, faster than the average for all occupations.[[3]](#footnote-3) More specifically, computer and information research scientists trained at the master’s level or above are expected to grow by 19%.[[4]](#footnote-4)

1. **How will the proposed program benefit students?**

The Ph.D. in Information Systems provides learners who possess a solid foundation in computer science, information systems (IS) or information technology (IT) (BS or MS) an opportunity to pair their computer science emphasis with research in the many forms of IT/IS. In this program students learn how to take leadership roles in technology environments. Students are pushed to think in innovative and creative ways about IT/IS issues and are prepared for roles as researchers and educators as well as a variety of technology leadership roles in both government and private organizations. Upon graduation, students are well prepared to lead, innovate and support IT/IS initiatives. Students have specializations in healthcare, big data & analytics, or information assurance and are prepared to lead organizations into the future.

1. **Program Proposal Rationale:**
	1. **If a new degree is proposed, what is the rationale[[5]](#footnote-5)**

The College of Business and Information Systems at Dakota State University seeks to change the degree designation from D.Sc. to Ph.D. for the following reasons:

* The Ph.D. more accurately reflects the nature of the DSU programs as research focused, dissertation driven, intensive graduate program.
* The Ph.D. is accepted as the terminal academic doctoral degree in the U.S. In terms of student community and issues of recognizability and legitimacy, the Ph.D. has a higher reputation simply because it is known in nearly all parts of the world.
* The College of Business and Information Systems feels awarding the Ph.D. will better serve our students who work in trans-national and higher education settings.
	1. **What is the rationale for the curriculum?**

The curriculum is unchanged from the existing successful D.Sc. program.

* 1. **Demonstrate/provide evidence that the curriculum is consistent with current national standards.** *Complete the tables below and explain any unusual aspects of the proposed curriculum?*
	2. **Summary of the degree program (complete the following tables):**

|  |  |  |
| --- | --- | --- |
| **Ph.D. Information Systems** | **Credit Hours** | **Percent** |
| Required courses, all students | 79 | 90% |
| Required option or specialization, if any | 9 | 10% |
| Electives | 0 | % |
| Total Required for the Degree Total | 88 |  |

**Required Courses**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Prefix** | **Number** | **Course Title***(add or delete rows as needed)* | **Credit Hours** | **New****(yes, no)** |
| INFS | 720 | Systems Analysis and Design Using Case Tools | 3 | No |
| INFS | 724 | Project and Change Management  | 3 | No |
| INFS | 730 | Web Application Development | 3 | No |
| INFS | 750 | IT Infrastructure, Technology and Network Management | 3 | No |
| INFS | 760 | Enterprise Modeling and Data Management | 3 | No |
| INFS | 780 | Information Technology Strategy and Policy | 3 | No |
| Select one specialization: Application Development or Network Administration or Network Administration & Security or Data Management or Healthcare Information Systems or General | 9 | No |
| Research Methods Courses | 9 | No |
| Research specialization including research seminars, core, and elective courses | 27 | No |
| Dissertation | 25 | No |
|  |  | Subtotal | 88 |  |

**Elective Courses:** **List courses available as electives in the program. Indicate any proposed new courses added specifically for the program.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Prefix** | **Number** | **Course Title***(add or delete rows as needed)* | **Credit Hours** | **New****(yes, no)** |
| INFA | 713 | Managing Security Risks | 3 | no |
| INFA | 715 | Data Privacy | 3 | no |
| INFA | 719 | Software Security | 3 | no |
| INFA | 720 | Incident Response | 3 | no |
| INFA | 721 | Computer Forensics | 3 | no |
| INFA | 723 | Cryptography | 3 | no |
| INFA | 725 | Advanced Network Hacking | 3 | no |
| INFA | 727 | Advanced Cryptography | 3 | no |
| INFA | 729 | Advanced Web Hacking | 3 | no |
| INFA | 732 | Malware Analysis | 3 | no |
| INFA | 734 | Web Software Security | 3 | no |
| INFA | 735 | Offensive Security | 3 | no |
| INFS | 762 | Data Warehousing/Data Mining | 3 | no |
| INFS  | 764 | Information Retrieval | 3 | no |
| INFS | 766 | Advanced Database | 3 | no |
| INFS  | 768 | Predictive Analytics Decisions | 3 | no |
| INFS | 770 | Adv Data Mining Applications | 3 | no |
| INFS | 830 | Decision Support Systems | 3 | no |
| INFS | 834 | Knowledge Management | 3 | no |
| HIMS  | 746 | Health Information Lifecycle Governance | 3 | no |
| HIMS | 747 | Leadership/Management Health Informatics | 3 | no |
| HIMS | 748 | Research Design for Health Informatics | 3 | no |
| INFS | 700T | Graduate Transfer Elective | TBD | no |
| INFS | 800T | Graduate Transfer Elective | TBD | no |
|  |  | Subtotal | 66 |  |

1. **Student Outcomes and Demonstration of Individual Achievement**
	1. **What specific knowledge and competencies, including technology competencies, will all students demonstrate before graduation**? *The knowledge and competencies should be specific to the program and not routinely expected of all university graduates.* **Complete Appendix A – Outcomes using the system form.** *Outcomes discussed below should be the same as those in Appendix A.*

Please see Appendix A, which contains the student learning outcomes developed to ensure that graduates are prepared to perform successfully in the information systems profession.

* 1. **Are national instruments (i.e., examinations) available to measure individual student achievement in this field? If so, list them.**

None

* 1. **How will individual students demonstrate mastery?** **Describe the specific examinations and/or processes used, including any external measures.[[6]](#footnote-6)** **What are the consequences for students who do not demonstrate mastery?**

Admission requirements for this program requires students to have a baccalaureate degree from an institution of higher education with full regional accreditation for that degree. Students who enter without a master’s degree in information systems or related field and without an undergraduate background in information systems will be required to complete a series of foundational courses. Students must also have a minimum undergraduate grade point average of 3.0 on a 4.0 scale or equivalent on an alternative grading system. Each student will demonstrate mastery through successful fulfillment of the requirements of each outcome specified in Appendix A. DSU Program Guidelines require students to maintain a 3.0 GPA in the program, receive no grades below a C, and have no more than two grades of C. If a student does not maintain the required “B” average, they are placed on academic probation and given the opportunity to raise their GPA to 3.0 within the next nine credit hours. If a student does not raise their GPA to 3.0, they will be suspended from the program. If a student receives more than six credits of “C” or any grade lower than a “C” they will be suspended from the program.

1. **What instructional approaches and technologies will instructors use to teach courses in the program?** *This refers to the instructional technologies and approaches used to teach courses and NOT the technology applications and approaches expected of students.*

Standard outcome-oriented techniques will be used for instruction including lecture, videos, and project-based instruction. The SDBOR learning management system, Desire2Learn, will be used for all courses.

1. **Did the University engage any developmental consultants to assist with the development of the curriculum?[[7]](#footnote-7) 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 curriculum?**

When this degree was first proposed, a consultant was brought to campus to assist with the development of the curriculum. Because the requirements nor the curriculum is changing, a consultant visit was not necessary.

1. **Are students enrolling in the program expected to be new to the university or redirected from other existing programs at the university? Complete the table below and explain the methodology used in developing the estimates (*replace “XX” in the table with the appropriate year*)?** *If question 12 includes a request for authorization for off-campus or distance delivery, add lines to the table for off-campus/distance students, credit hours, and graduates.*

|  |  |
| --- | --- |
| **See Information Below for Enrollment Information#** | **Fiscal Years**\* |
| **1st** | **2nd** | **3rd** | **4th** |
| Estimates | FY XX | FY XX | FY XX | FY XX |
| Students new to the university |  |  |  |  |
| Students from other university programs |  |  |  |  |
| Continuing students |  |  |  |  |
| = Total students in the program (fall) |  |  |  |  |
|  |  |  |  |  |
| Program credit hours (major courses)\*\* |  |  |  |  |
| Graduates |  |  |  |  |

 \*Do not include current fiscal year.

\*\*This is the total number of credit hours generated by students in the program in the required or elective program courses. Use the same numbers in Appendix B – Budget.

#Recent enrollment numbers show strong interest and high yield in the doctorate program in the College of Business and Information Systems. Yield is the proportion of students who enrolled divided by those who are accepted.  The higher the yield, the higher the desirability of a program/school; it is a metric of a school’s selectivity.

Following is information for number of applications and acceptance percentage for our current program in Information Systems:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 2017 | 72 applicants | 22 enrolled | 28 accepted | 39% acceptance | 79% yield |
| 2016 | 70 applicants | 13 enrolled | 21 accepted | 30% acceptance | 72% yield |
| 2015 | 83 applicants | 16 enrolled | 28 accepted | 34% acceptance | 57% yield |

Fall 2017, we admitted 22 students and we anticipate an incoming group of approximately 20 students on an annual basis. Fall 2017 census data showed an enrollment of 73 students in this program.

1. **Is program accreditation available? If so, identify the accrediting organization and explain whether accreditation is required or optional, the resources required, and the University’s plans concerning the accreditation of this program.**

No

1. **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, enter “None.”*

None

1. **Delivery Location[[8]](#footnote-8)**
2. **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 program through distance technology (e.g., as an online program)?**

|  |  |  |
| --- | --- | --- |
|  | **Yes/No** | ***Intended Start Date*** |
| **On campus** | Yes | **Fall 2018**  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Yes/No** | ***If Yes, list location(s)*** | ***Intended Start Date*** |
| **Off campus** | No |  | Choose an item.Choose an item. |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Yes/No** | ***If Yes, identify delivery methods[[9]](#footnote-9)*** | ***Intended Start Date*** |
| **Distance Delivery (online/other distance delivery methods)** | Yes | This program is now delivered both F2F and Online | **Summer 2018**  |

1. **Complete the following chart to indicate if the university seeks authorization to deliver more than 50% but less than 100% of the certificate through distance learning (e.g., as an online program)? [[10]](#footnote-10)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Yes/No** | ***If Yes, identify delivery methods*** | ***Intended Start Date*** |
| **Distance Delivery (online/other distance delivery methods)** | No |  |  |

1. **Cost, Budget, and Resources: 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 & software, other operations and maintenance, facilities, etc., needed to implement the proposed major. Address off-campus or distance delivery separately.** *Complete Appendix B – Budget and briefly summarize to support Board staff analysis.*

|  |  |  |
| --- | --- | --- |
|  | Development/Start-up | Long-term Operation |
| Reallocate existing resources | No | No |
| Apply for external resources[[11]](#footnote-11) | No | No |
| Ask Board to seek new State resources[[12]](#footnote-12) | No | No |
| Ask Board to approve a new or increased student fee | No | No |

The university is not requesting any one-time money.  Because our request is to only change the degree designation from a D.Sc. to a Ph.D., DSU is not submitting a budget worksheet (Appendix B) since all courses in the program are already offered both on-campus and online.  It is anticipated that the change from D.Sc. to Ph.D. will further enhance the reputation of the program and student’s professional outcomes.  Currently, the university does not plan to increase the accepted enrollment numbers significantly. Our Ph.D. programs will remain highly competitive and selective in admissions (39% acceptance rates in 2017).

1. **Board Policy 2:1 states: “*Independent external consultants retained by the Board shall evaluate proposals for new graduate programs unless waived by the Executive Director.”*  Identify five potential consultants (including contact information and short 1-2 page CVs) and provide to the System Chief Academic Officer (the list of potential consultants may be provided as an appendix). In addition, provide names and contact information (phone numbers, e-mail addresses, URLs, etc.) for accrediting bodies and/or journal editors who may be able to assist the Board staff with the identification of consultants.**

The requirement for an outside reviewer was waived for this request since the program already exits.

1. **Is the university requesting or intending to request permission for a new fee or to attach an existing fee to the program (*place an “X” in the appropriate box*)?** *If yes, explain.*

|  |  |  |
| --- | --- | --- |
|  |  | X |
| Yes |  | No |

*Explanation (if applicable):*

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

|  |  |
| --- | --- |
|  | YES,  |

*the university is seeking approval of new courses related to the proposed program in conjunction with program approval. All New Course Request forms are included as Appendix C and match those described in section 5D.*

|  |  |
| --- | --- |
| X | NO,  |

*the university is not seeking approval of all new courses related to the proposed program in conjunction with program approval; the institution will submit new course approval requests separately or at a later date in accordance with Academic Affairs Guidelines.*

1. **Additional Information:** *Additional information is optional. Use this space to provide pertinent information not requested above. Limit the number and length of additional attachments. Identify all attachments with capital letters. Letters of support are not necessary and are rarely included with Board materials. The University may include responses to questions from the Board or the Executive Director as appendices to the original proposal where applicable. Delete this item if not used.*
* In 2018, ranked by Best Value Schools as #1 Best Online doctorate in information system assurance & security programs, <https://www.bestvalueschools.com/rankings/online-phd-info-systems-assurance-security/>

**Appendix A – Student Learning Outcomes**

|  |  |  |
| --- | --- | --- |
|  **Upon completion of the Ph.D. degree in Information Systems, students will be able to:** |  | **Program Courses that Address the Outcomes** |
| INFS 720 | INFS 724 | INFS 730 | INFS 750 | INFS 760 | INFS 780 | INFS 805 | INFS 810 | INFS 815 | INFS 890 | INFS 898D |
| demonstrate a broad and comprehensive understanding of core knowledge and fundamental practices in information systems.  | x | x | x | x | x | x |  |  |  |  |  |
| demonstrate conceptual knowledge and ability to utilize prevalent technologies of information systems.  | x | x | x | x | x | x |  |  |  |  |  |
| demonstrate a highly developed knowledge of information systems literature, particularly in their area of specialization.  |  |  |  |  |  |  | x | x | x | x | x |
| demonstrate a scholarly understanding of milestones and seminal works of leading researchers in their area of specialization.  |  |  |  |  |  |  | x | x | x | x | x |
| demonstrate an understanding of information systems research methods and an ability to conduct research and evaluate research results.  |  |  |  |  |  |  | x | x | x | x | x |
| effectively formulate, communicate, present and defend the results of their research and any conclusions drawn from it.  |  |  |  |  |  |  | x | x | x | x | x |

1. If the proposed new 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 of Regents approval. [↑](#footnote-ref-1)
2. South Dakota statutes regarding university mission are located in SDCL 13-57 through 13-60; Board of Regents policies regarding university mission are located in Board Policies 1:10:1 through 1:10:6. The Strategic Plan 2014-2020 is available from <https://www.sdbor.edu/the-board/agendaitems/Documents/2014/October/16_BOR1014.pdf>. [↑](#footnote-ref-2)
3. Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Computer and Information Technology Occupations,
on the Internet at <https://www.bls.gov/ooh/computer-and-information-technology/home.htm>  (visited *January 05, 2018*). [↑](#footnote-ref-3)
4. Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Computer and Information Research Scientists, on the Internet at <https://www.bls.gov/ooh/computer-and-information-technology/computer-and-information-research-scientists.htm> (visited *December 27, 2017*). [↑](#footnote-ref-4)
5. “New Degree” means new to the university. Thus if a campus has degree granting authority for a Ph.D. program and the request is for a new Ph.D. program, a new degree is not proposed. [↑](#footnote-ref-5)
6. What national examination, externally evaluated portfolio or student activity, etc., will verify that individuals have attained a high level of competence and identify those who need additional work? [↑](#footnote-ref-6)
7. Developmental consultants are experts in the discipline hired by the university to assist with the development of a new program (content, courses, experiences, etc.). Universities are encouraged to discuss the selection of developmental consultants with Board staff. [↑](#footnote-ref-7)
8. The accreditation requirements of the Higher Learning Commission (HLC) require Board approval for a university to offer programs off-campus and through distance delivery. [↑](#footnote-ref-8)
9. Delivery methods are defined in [AAC Guideline 5.5](https://www.sdbor.edu/administrative-offices/academics/academic-affairs-guidelines/Documents/5_Guidelines/5_5_Guideline.pdf). [↑](#footnote-ref-9)
10. This question responds to HLC definitions for distance delivery. [↑](#footnote-ref-10)
11. If checking this box, please provide examples of the external funding sites identified [↑](#footnote-ref-11)
12. Note that requesting the Board to seek new State resources may require additional planning and is dependent upon the Board taking action to make the funding request part of their budget priorities. Universities intending to ask the Board for new State resources for a program should contact the Board office prior to submitting the intent to plan. [↑](#footnote-ref-12)