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

Use this form to request a new common or unique course. Consult the system database through Colleague or the [Course Inventory Report](http://apps.sdbor.edu/ris-reporting/CourseInventoryOptions.cfm) for information about existing courses before submitting this form.

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| DSU |  | **Beacom College of Computer & Cyber Sciences** | | |
| **Institution** |  | **Division/Department** | | |
| C:\Users\slaughts\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Dr. McKay Signature.jpg | | |  | 4/1/2019 |
| **Institutional Approval Signature** | | |  | **Date** |

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**Section 1. Existing Course Title and Description**

If the course contains a lecture and laboratory component, identify both the lecture and laboratory numbers (xxx and xxxL) and credit hours associated with each. Provide the complete description as you wish it to appear in the system database in Colleague and the [Course Inventory Report](http://apps.sdbor.edu/ris-reporting/CourseInventoryOptions.cfm) including pre-requisites, co-requisites, and registration restrictions.

|  |  |  |
| --- | --- | --- |
| **Prefix & No.** | **Course Title** | **Credits** |
| CSC 402 CSC 502 | Mathematical Foundations of Artificial Intelligence | 3 |

*NOTE: The Enrollment Services Center assigns the short, abbreviated course title that appears on transcripts. The short title is limited to 30 characters (including spaces); meaningful but concise titles are encouraged due to space limitations in Colleague.*

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| **Course Description** |  |
| This course will cover fundamental mathematical and computational objectives and knowledge units necessary for a student to successfully study artificial intelligence and machine learning. Material may be taken from the included topics: partial derivatives, optimization, probability theory, linear algebra, principal component analysis, Markov chains, information theory, Bayes theory, iterative techniques, and Monte Carlo simulations. | |

*NOTE: Course descriptions are short, concise summaries that typically do not exceed 75 words. DO: Address the content of the course and write descriptions using active verbs (e.g., explore, learn, develop, etc.). DO NOT: Repeat the title of the course, layout the syllabus, use pronouns such as “we” and “you,” or rely on specialized jargon, vague phrases, or clichés.*

**Pre-requisites or Co-requisites (add lines as needed)**

|  |  |  |
| --- | --- | --- |
| **Prefix & No.** | **Course Title** | **Pre-Req/Co-Req?** |
| CSC 250 | Computer Science II | Prerequisite |
| MATH 123 | Calculus I | Prerequisite |
| MATH 281 MATH 381 | Introduction to Statistics or  Introduction to Probability and Statistics | Prerequisite |

**Registration Restrictions**

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**Section 2. Review of Course**

1. **Was the course first offered as an experimental course (*place an “X” in the appropriate box*)?**

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| --- | --- | --- | --- |
|  | Yes *(if yes, provide the course information below)* |  | No |

1. **Will this be a unique or common course (*place an “X” in the appropriate box*)?**

*If the request is for a unique course, verify that you have reviewed the common course catalog via Colleague and the system* [*Course Inventory Report*](http://apps.sdbor.edu/ris-reporting/CourseInventoryOptions.cfm) *to determine if a comparable common course already exists. List the two closest course matches in the common course catalog and provide a brief narrative explaining why the proposed course differs from those listed. If a search of the common course catalog determines an existing common course exists, complete the Authority to Offer an Existing Course Form.*

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|  | **Unique Course** |

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| **Prefix & No.** | **Course Title** | **Credits** |
| CSC 449 | Advanced Topics: Artificial Intelligence | 3 |
| CSC 761 | Advanced Artificial Intelligence | 3 |
| *Provide explanation of differences between proposed course and existing system catalog courses below:* | | |
| CSC 449 focuses on topics in AI such as neural networks, fuzzy logic, and expert systems. This course serves a different purpose in the curriculum. It has a prerequisite of CSC 315 Data Structures and Math 225 Calculus III. The proposed course covers a few select topics typically found in Calculus III from a different approach and does not require the 8 credits of Math 125 & Math 225.  CSC 761 is a graduate-only course with similar topics as CSC 449, but it also includes a focus on research on new areas of AI problem solving.  In summary, these courses are applied AI algorithms, methods, and techniques. What we're proposing is a mathematical course to understand the underlying theory and principles necessary to develop these new algorithms and models. | | |

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|  | **Common Course** | | | | *Indicate universities that are proposing this common course:* | | | | | | | | |
|  |  | | | |  | | | | | | | | |
|  |  | BHSU |  | DSU | |  | NSU |  | SDSMT |  | SDSU |  | USD |

**Section 3. Other Course Information**

1. **Are there instructional staffing impacts?**

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|  | **No**. Replacement of |  | | |
|  |  | (course prefix, course number, name of course, credits) | | |
|  |  | \*Attach course deletion form | | |
|  |  |  | | |
| Effective date of deletion: | | | Click here to enter a date. |  |

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|  | **No**. Schedule Management, explain below: Course will be taught by current instructors as well as adjunct instructors. |

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|  | **Yes**. Specify below: |

1. **Existing program(s) in which course will be offered**: BS in Computer science – Machine Learning specialization; MS in Computer Science
2. **Proposed instructional method by university**: lecture
3. **Proposed delivery method by university**: 001, 018
4. **Term change will be effective**: Fall 2019
5. **Can students repeat the course for additional credit?**

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|  | Yes, total credit limit: |  |  |  | No |

1. **Will grade for this course be limited to S/U (pass/fail)?**

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|  | Yes |  | No |

1. **Will section enrollment be capped?**

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| --- | --- | --- | --- | --- | --- |
|  | Yes, max per section: | 25 |  |  | No |

1. **Will this course equate (i.e., be considered the same course for degree completion) with any other unique or common courses in the common course system database in Colleague and the** [**Course Inventory Report**](http://apps.sdbor.edu/ris-reporting/CourseInventoryOptions.cfm)**?**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Yes |  | No |
| *If yes, indicate the course(s) to which the course will equate (add lines as needed):* | | | |
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| **Prefix & No.** | **Course Title** |
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1. **Is this prefix approved for your university?**

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|  | Yes |  | No |
| *If no, provide a brief justification below:* | | | |
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**Section 4. Department and Course Codes (Completed by University Academic Affairs)**

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| 1. **University Department Code:** | DSCSC |

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| 1. **Proposed** [**CIP Code**](http://nces.ed.gov/ipeds/cipcode/default.aspx?y=55)**:** | 11.0102 |
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