



SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS
New Course Request

USD	Arts & Sciences/Computer Science
Institution	Division/Department
<i>Elizabeth M. Freeburg</i>	3/23/2020
Institutional Approval Signature	Date

Section 1. Course Title and Description

Prefix & No.	Course Title	Credits
CSC 488/588	Pattern Recognition & Machine Learning	3

Course Description
This course covers fundamental concepts, theories, and algorithms for pattern recognition and machine learning. It includes basic ideas on probability and statistics, parametric and non-parametric learning, data clustering, support vector machine, and neural networks. It covers multiple applications, such as pattern recognition in bioinformatics and pattern analysis & machine intelligence in healthcare.

Pre-requisites or Co-requisites

Prefix & No.	Course Title	Pre-Req/Co-Req?
CSC 155/155L	Introduction to Computer Science & Programming	Pre-Req.

Registration Restrictions N/A

Section 2. Review of Course

2.1. Was the course first offered as an experimental course (place an "X" in the appropriate box)?
 Yes (if yes, provide the course information below) No

2.2. Will this be a unique or common course (place an "X" in the appropriate box)?

Unique Course

Prefix & No.	Course Title	Credits
CSC 448/548	Machine Learning	3
CSC 449/549	Advanced Topics Artificial Intelligence	3

Provide explanation of differences between proposed course and existing system catalog courses below:

The scope of the proposed in this new course goes beyond the material covered in the CSC 548/448 Machine learning and CSC 449/549 topics Artificial Intelligence courses. The proposed course covers pattern recognition applications using machine learning tools/techniques. Pattern recognition applications can be varied from healthcare and/or bioinformatics to computational physics and chemistry, where anomaly detection, for example, in large data is crucial.

Section 3. Other Course Information

3.1. Are there instructional staffing impacts?

- No.** Schedule Management, explain: This course will be taught with current faculty. CSC-488/588 will be part of the regular faculty teaching load on the course rotation. No new hiring will be necessary.

- 3.2. Existing program(s) in which course will be offered: B.A./B.S./M.S. in Computer Science.
- 3.3. Proposed instructional method by university: D Discussion/Recitation
- 3.4. Proposed delivery method by university: U01: Face-to-face Term Based Instruction and U18 Online Synchronous/U15 Asynchronous
- 3.5. Term change will be effective (enter catalog year): 2020-21
- 3.6. Can students repeat the course for additional credit?
 Yes, total credit limit: _____ No
- 3.7. Will grade for this course be limited to S/U (pass/fail)?
 Yes No
- 3.8. Will section enrollment be capped?
 Yes, max per section: 30 No
- 3.9. 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](#)?
 Yes No
- 3.10. Is this prefix approved for your university?
 Yes No

Section 4. Department and Course Codes (Completed by University Academic Affairs)

- 4.1. University Department Code: UCSC _____
- 4.2. Proposed [CIP Code](#): 11.0701 _____

Is this a new CIP code for the university? Yes No