



**SOUTH DAKOTA BOARD OF REGENTS  
ACADEMIC AFFAIRS FORMS**

**New Course Request**

<u>USD</u>	<u>Biology</u>	
<b>Institution</b>	<b>Division/Department</b>	
<u>Elizabeth M. Freeburg</u>		<u>3/20/2017</u>
<b>Institutional Approval Signature</b>		<b>Date</b>

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

Prefix & No.	Course Title	Credits
BIOL 780	Bioinformatics Computing and Applications	3

Course Description
The main objective of this course is to introduce students to concepts and recent developments in bioinformatics and computational biology, with a focus on computing algorithms and their applications in bioinformatics. Students will learn how to design and analyze computational algorithms for use in analyzing and interpreting biological data. Topics include fundamentals of bioinformatics and computational biology, computing algorithms with their applications in mapping DNA, comparing sequences, finding signals and patterns, predicting genes, and analyzing multi-omics data.

**Pre-requisites or Co-requisites**

Prefix & No.	Course Title	Pre-Req/Co-Req?
BIOL 769	Programming for Biology	Pre-Req or permission of the instructor

**Registration Restrictions N/A**

**Section 2. Review of Course**

**2.1. Was the course first offered as an experimental course?**

- 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
BIOL 580	Bioinformatics	3
CPHD/CSC 601	Introduction to Bioinformatics	3
STAT 736	Bioinformatics	3

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

In addition to the two courses listed above, we also identified another closely related course CPHD/CSC 601 Introduction to Bioinformatics. Both BIOL 580 and CPHD/CSC 601 introduce the computational methods and tools for students, but would not cover the algorithmic aspects of the methods. STAT 736 was specifically designed for students in mathematics and physical sciences, and also focuses on introducing computational tools. The proposed course will be designed for students in the bioinformatics specialization of the PhD program in Biological Sciences, and for computer science students who are interested in bioinformatics. The focus of this proposed course will be on how to design and analyze computing algorithms for specific bioinformatics applications.
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### **Section 3. Other Course Information**

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

- No. Schedule Management, explain below: Will be taught by existing faculty member as part of load.

**3.2. Existing program(s) in which course will be offered:** Graduate Programs in Biology

**3.3. Proposed instructional method by university:** R-Lecture

**3.4. Proposed delivery method by university:** 001-Face-to-face

**3.5. Term change will be effective:** Fall 2017

**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: 15  No

**3.9. Will this course equate 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:** UBIOL

**4.2. Proposed [CIP Code](#):** 26.1103 Bioinformatics

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