

SOUTH DAKOTA BOARD OF REGENTS ACADEMIC AFFAIRS FORMS

New Course Request

SDSU	College of Natural Sciences / Chemistry & Biochemistry	
Institution	Division/Department	
Dennis D. Hedge	-	4/28/2023
Institutional Approval Signature		Date

Section 1. Course Title and Description			
Prefix & No.	Course Title	Credits	
CHEM 468	Chemical Biology	3	

Course Description

Chemical biology is the interdisciplinary field of study at the interface of chemistry and the biological sciences. Chemical Biology applies concepts and tools from chemistry that are uniquely enabling of solving biological problems and making biological discovery. It utilizes experimental techniques from a wide range of chemical and biological fields. The chemistry of proteins, nucleic acids, lipids, and glycans, as well as biorthogonal chemistry, protein and nucleic acid modifications, and glycotherapeutics will be covered.

Pre-requisites or Co-requisites

Prefix & No.	Course Title	Pre-Req/Co-Req?
CHEM 464	Biochemistry I	Prereq
	•	

Registration Restrictions

None

Section 2. Review of Course

2.1. Will this be a unique or common course?

Unique Course

Prefix & No.	Course Title	Credits
BIOC 310-310L	Biological Chemistry and Laboratory	5
BIOC 430-430L	Principles of Biochemistry and Laboratory	3+2
CHEM 464	Biochemistry I	3
CHEM 466	Laboratory Methods – Biochemistry	1

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

Biochemistry is the study of the chemical processes found in biological systems, while chemical biology is the application of chemical techniques to study and manipulate biological systems, for example, chemotherapeutics. While there are biochemistry courses in the BOR system, there are no chemical biology courses. BIOC 430-430L Principles of Biochemistry and Laboratory, taught at USD, is somewhat similar to CHEM 464 Biochemistry I which is common to SDSU, SDSMT, and BHSU and CHEM 466 Laboratory Methods – Biochemistry which is unique to SDSU. This is the beginning biochemistry course. BIOC 310-310L Biological Chemistry and Laboratory, unique to USD, is designed specifically for medical laboratory science majors. These courses are biochemistry courses, not chemical biology.

Section 3. Other Course Information

3.1. Are there instructional staffing impacts?

 \boxtimes No. Schedule Management, explain below: This course will be offered in alternate years.

3.2. Existing program(s) in which course will be offered: Biochemistry (B.S.), Chemistry (B.S.), Chemistry Education (B.S.)

3.3. Proposed instructional method by university (as defined by <u>AAC Guideline 5.4</u>): D - Discussion

3.4. Proposed delivery method by university (*as defined by* <u>AAC Guideline 5.5</u>): 001- Face to Face Term Based Instruction

3.5. Term change will be effective: fall 2023

3.6. Can students repeat the course for additional credit? DYes, total credit limit: DNO

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: □ 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? \boxtimes Yes \Box No

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

4.1. University Department: Department of Chemistry & Biochemistry

4.2. Banner Department Code: SCHB

4.3. Proposed CIP Code: 26.0202

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

NEW COURSE REQUEST

Supporting Justification for On-Campus Review

Douglas Raynie	Douglas Raynie	3/23/2023
Request Originator	Signature	Date
Douglas Raynie	Douglas Raynie	3/23/2023
Department Chair	Signature	Date
Greg Heiberger	Greg Heiberger	3/28/2023
School/College Dean	Signature	Date

1. Provide specific reasons for the proposal of this course and explain how the changes enhance the curriculum.

Chemical biology is the application of chemical techniques to biological systems. It is multidisciplinary in nature, drawing on the fields of organic chemistry, analytical chemistry, biochemistry, molecular biology, biophysical chemistry, and cell biology. Chemical biology leads to the development, for example, of novel chemotherapy approaches to cancer treatment and other research in drug discovery and development. Course content will complement research in the Colleges of Natural Sciences and Pharmacy and Allied Health, especially associated with the NIH COBRE grant.

- 2. Note whether this course is: \Box Required \boxtimes Elective
- In addition to the major/program in which this course is offered, what other majors/programs will be affected by this course?
 Pre-professional students, such as those in the Human Biology programs, may be interested in this course.
- 4. If this will be a dual listed course, indicate how the distinction between the two levels will be made. N/A
- 5. Desired section size 18
- 6. Provide qualifications of faculty who will teach this course. List name(s), rank(s), and degree(s).

Rachel Willand-Charnley, Assistant Professor, Ph.D.

- 7. Note whether adequate facilities are available and list any special equipment needed for the course. Adequate facilities exist. Course instruction will be in a standard classroom.
- 8. Note whether adequate library and media support are available for the course. Yes, no additional library or media support is needed.
- 9. Will the new course duplicate courses currently being offered on this campus? \Box Yes \boxtimes No
- 10. If this course may be offered for variable credit, explain how the amount of credit at each offering is to be determined.

N/A