



SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS
New Course Request

USD/SDSM&T

Biomedical Engineering/Nanoscience & Nanoengineering

Institution

Division/Department

USD 9/10/2018 *Elizabeth M. Freeburg*

SDSM&T Senate 10/11/18

Institutional Approval Signature

Date

Section 1. Course Title and Description

Prefix & No.	Course Title	Credits
BME 306	Biomedical Engineering Thermodynamics	3

Course Description

Principles and applications of the three laws of thermodynamics with an emphasis on the fundamental equations of state for open and closed systems, reaction equilibrium constants, chemical potential, standard and reference state and solution thermodynamics. Apply fundamental thermodynamics principles to set up and solve problems in physiological systems.

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

Prefix & No.	Course Title	Pre-Req/Co-Req?
MATH 225	Calculus III	Pre-Req
BME 304	Biomedical Engineering Fluid Mechanics	Pre-Req

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?

Common Course *Indicate universities that are proposing this common course:*

BHSU DSU NSU SDSMT SDSU USD

Section 3. Other Course Information

3.1. Are there instructional staffing impacts?

No. Schedule Management, explain: Use available FTE.

3.2. Existing program(s) in which course will be offered: Biomedical Engineering, B.S.

3.3. Proposed instructional method by university: R: Lecture

3.4. Proposed delivery method by university: 025/020 DDN Host/Send Site

3.5. Term change will be effective: Fall 2019

- 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: _____ 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:** UBME/MNANO
- 4.2. **Proposed [CIP Code](#):** 14.0501

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

NEW COURSE REQUEST

Supporting Justification for On-Campus Review

Request Originator	Signature	Click here to enter a date. Date
Department Chair	Signature	Click here to enter a date. Date
School/College Dean	Signature	Click here to enter a date. Date

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

This course is a core requirement in the Biomedical Engineering Degree program. This course takes the three laws of thermodynamics and conservation of mass and applies to living systems and biomedical devices.

2. Note whether this course is: Required Elective
3. In addition to the major/program in which this course is offered, what other majors/programs will be affected by this course? None.
4. If this will be a dual listed course, indicate how the distinction between the two levels will be made. Not Applicable.
5. Desired section size 30
6. Provide qualifications of faculty who will teach this course. List name(s), rank(s), and degree(s).
Timothy Brenza, Assistant Professor, PhD
Daniel Engebretson, Department Chair, PhD
7. Note whether adequate facilities are available and list any special equipment needed for the course. Adequate Facilities are available.
8. Note whether adequate library and media support are available for the course.
Adequate library and media support are available.
9. Will the new course duplicate courses currently being offered on this campus?
 Yes 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
11. Add any additional comments that will aid in the evaluation of this request.