### INSTRUCTIONS:
Please check the items below which describe the purpose of this request.

- New course with supporting documents
- Add existing course offered at another campus
- Expiration of a course
- Change in course number
- Change in course title
- Change in course credit/type

### PROPOSED:
- Subject Abbreviation: ABE
- Course Number: 201
- Long Title: Thermodynamics in Biological Systems I
- Short Title: Thrmodyn in Bio Sys I

### EXISTING:
- Subject Abbreviation
- Course Number

### TERMS OFFERED:
- Check All That Apply:
  - Summer
  - Fall
  - Spring

### CAMPUS(ES) INVOLVED:
- Calumet
- Fort Wayne
- Indianapolis
- N. Central
- W. Lafayette
- Cont Ed
- Tech Statewide

### CREDIT TYPE:
1. Fixed Credit: Cr. Hrs.
2. Variable Credit Range: Minimum Cr. Hrs. (Check One) To Or Maximum Cr. Hrs.
3. Equivalent Credit: Yes
4. Thesis Credit: Yes

### COURSE ATTRIBUTES:
- Check All That Apply:
  - Pass/Not Pass Only
  - Satisfactory/Unsatisfactory Only
  - Repeatable
  - Maximum repeatable credit:
  - Credit by Examination
  - Designator Required
  - Special Fees

### COURSE DESCRIPTION (INCLUDE REQUISITES):
Prerequisite: CHM 116 or equivalent; Co-requisite(s): BIO 295E, BIO 295F. Thermodynamic principles associated with biological systems and processing of biological materials. Emphasis on the first law of thermodynamics. Fundamentals of steady-state mass and energy balances for reacting and non-reacting processes including multiple unit operations emphasizing living systems and bioprocessing. Applications of the first law conservation of energy to biological systems, energy conversion systems, and the environmental impacts of energy production. Development of engineering problem solving skills via MathCad and MatLab software.