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

- [X] 1. New course with supporting documents
- [ ] 2. Add existing course offered at another campus
- [ ] 3.Expiration of a course
- [ ] 4. Change in course number
- [ ] 5. Change in course title
- [ ] 6. Change in course credittype

### PROPOSED:
- **Subject Abbreviation:** BME
- **Course Number:** 304
- **Long Title:** Bioheat and Mass Transfer
- **Short Title:**

### EXISTING:
- **Subject Abbreviation:**
- **Course Number:**

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

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

### CREDIT TYPE
1. Fixed Credit: Cr. Hrs. [ ] 3
2. Variable Credit Range: Minimum Cr. Hrs. (Check One) To [ ] 3, Of [ ] 4
   - Maximum Cr. Hrs
3. Equivalent Credit: Yes [ ] No [ ]
4. Thesis Credit: Yes [ ] No [ ]

### COURSE ATTRIBUTES:
- Check All That Apply:
  - 1. Pass/Not Pass Only
  - 2. Satisfactory/Unsatisfactory Only
  - 3. Repeatable
  - 4. Credit by Examination
  - 5. Designator Required
  - 6. Special Fees

### Instructional Type
- Lecture
  - Minutes Per Mtg [ ] 50
  - Meetings Per Week [ ] 3
  - Weeks Offered [ ] 16
  - % of Credit Allocated
- Delivery Method (Asyn. Or Syn.):
  - [ ] Live
  - [ ] Live, Text-Based, Video

### COURSE DESCRIPTION (INCLUDE REQUISITES):
Sem. 2. Class 3 or 3. Prerequisite: ME 309 or equivalent

Fundamentals of heat and mass transport concepts in the context of biomedical applications. Heat transfer concepts include: steady- and unsteady-state thermal conductivity, convection, radiation, and combined mechanisms of heat transfer. Mass transport concepts include: steady and unsteady-state molecular mass transfer, diffusion, interphase mass transfer, and convective mass transport. Integrated biological topics include fluid and mass transport in the body, pathological conditions (such as fever and arteriosclerosis), forced convection (i.e., dialysis), radiation exposure to cells/tissues, unsteady-state molecular diffusion such as in drug delivery mechanisms.

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### Signatures
- Calumet Undergrad Curriculum Committee: [Signature]
- Calumet Department Head: [Signature]
- Calumet School Dean: [Signature]
- Fort Wayne Department Head: [Signature]
- Fort Wayne School Dean: [Signature]
- Fort Wayne Chancellor: [Signature]
- Indianapolis Department Head: [Signature]
- Indianapolis School Dean: [Signature]
- Undergrad Curriculum Committee: [Signature]
- North Central Department Head: [Signature]
- North Central Chancellor: [Signature]
- Date Approved by Graduate Council: [Signature]
- Graduate Council Secretary: [Signature]
- West Lafayette Department Head: [Signature]
- West Lafayette School Dean: [Signature]
- West Lafayette Registrar: [Signature]

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**OFFICE OF THE REGISTRAR**