**PURDUE UNIVERSITY**

**REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF A COURSE**

**DEPARTMENT**: Agricultural & Biological Engineering

**EFFECTIVE SESSION**: Fall 2004

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

- 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 credit/type
- 7. Change in course attributes
- 8. Change in instructional hours
- 9. Change in course description
- 10. Change in course requisites
- 11. Change in semesters offered

**PROPOSED**:

- **Subject Abbreviation**: ABE
- **Course Number**: 202
- **Long Title**: Thermodynamics in Biological Systems II
- **Short Title**: Thermodyn in Bio Sys II
- Abbreviated title will be entered by the Office of the Registrar if omitted. (22 CHARACTERS ONLY)

**EXISTING**:  
- **Subject Abbreviation**: [Blank]
- **Course Number**: [Blank]

**CREDITS TYPE**

- 1. Fixed Credit: Cr. Hrs: 3
- 2. Variable Credit Range:
  - Minimum Cr. Hrs: [Blank]
  - (Check One) To: [Blank]
- 3. Equivalent Credit: Yes No
- 4. Thesis Credit: Yes No

**CREDIT REQUIREMENTS**

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<tr>
<th>Type</th>
<th>Minutes Per Mgr</th>
<th>Meetings Per Week</th>
<th>% of Credit Offered</th>
<th>Credit Hours Allocated</th>
<th>Delivery Method (Asyn. Or Syn.)</th>
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**COURSE ATTRIBUTES**: Check All That Apply.

- 1. Pass/Not Pass Only
- 2. Satisfactory/Unsatisfactory Only
- 3. Repeatable
- 4. Maximum Repeatable Credit
- 5. Designator Required
- 6. Special Fees
- 7. Registration Approval Type
  - Department
  - Instructor
- 8. Variable Title
- 9. Remedial
- 10. Honors
- 11. Full Time Privilege
- 12. Off Campus Experience

**TERMS OFFERED**

- Check All That Apply:
  - Summer
  - Fall
  - Spring

**CAMPUS(ES) INVOLVED**

- Calumet
- Fort Wayne
- Indianapolis
- N. Central
- W. Lafayette
- Cont Ed
- Tech Statewide

**COURSE DESCRIPTION (INCLUDE REQUISITES):**

Prerequisites: ABE 201 & MATH 261. Thermodynamic principles and their applications to biochemical and biological systems with emphasis on the second law of thermodynamics and use of molecular interpretations of energies and entropies. Concept of entropy balances and process efficiency. Free energy and chemical equilibrium. Equilibrium between phases, colligative properties, binding of ligands and formation of biological membranes. Molecular motion and transport properties and their application in biochemical analytical methods. Development of physical chemical problem solving skills using MathCad and MatLab software.

**OFFICE OF THE REGISTRAR**