

## New Course Proposal Form

### Directions:

- A. Complete this form.
- B. Attach a syllabus or course guidelines that includes
  - a. list of measurable student learning outcomes
  - b. information on how outcomes will be assessed including descriptions of reading and writing activities, projects, presentations, testing, etc
  - c. list of course requirements such as attendance, assignments, etc
- C. Have your proposal reviewed by the appropriate department and school/college committee.
- D. Submit your proposal to the University Curriculum Committee in care of the Office of Academic Affairs.

### Form information:

1. Department/Program: Biological Sciences
2. Course Information: PHYS/2300/University Physics Discussion and Integration

1/taken concurrently with PHYS 2030

3. Catalog Description for the catalog: Provides students an opportunity to participate in small-group discussions, problem solving tutorials and conceptual thinking exercises.
4. May students repeat this course for credit? If so, are there limits?  
no
5. What is the rationale for adding this course?
  - a. How does it support the philosophy and enhance the curriculum of your department? This course integrates the knowledge of Physics, chemistry and biology. It helps students develop as future scientists and to better understand the connection of Physics to other fields of science
  - b. How does it relate to the overall University curriculum? Goal #2 Advance Excellence in Teaching and Learning, Objective #2 Enhance and Expand Academic Programs
6. Should this new course be considered for General Education coding? No , attach the Application for General Education Coding Form.
7. Staffing requirements:
  - a. Qualifications necessary for instructor PhD in Physics
  - b. What staffing changes, if any, will be necessary to offer this additional course?  
none

8. When will this course be initiated? Fall 08 How often will it be taught? Each fall What sites are likely to offer this course? Webster Groves

9. Does this course affect degree requirements in your, or any other, department/program's major, emphasis, minor, or certificate. It adds one credit to the requirements  
Catalog copy attached

10. List any existing University course(s), undergraduate or graduate, which are similar in title and /or subject matter and explain how this course differs from them.

11. Are University resources adequate to support this course? (library holdings, space, specialized, equipment, etc.) yes If not, what additions are necessary?

12. What course(s), if any, will be dropped to make room for this course? No

13. What entities (department, college/school) have reviewed and approved this proposal?  
The Department of Biological Sciences, The Office of the Dean of Arts and Sciences

Signatures:

Joyce Berk / 2-20-08  
Department/ Program Chairperson Date

John Cayo / 2-20-08  
Dean of College/School Date

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Chair/Curriculum Committee Date

Rev. 2004

Electives

Electives

## Biology (B.S.)

### Degree Requirements

- **82** required credit hours
- 27 general education credit hours
- 21 elective credit hours

### Required Courses

- BIOL 1550, 1551 Essentials of Biology I 5 hours
- BIOL 1560, 1561 Essentials of Biology II 5 hours
- BIOL 3050, 3051 Genetics 4 hours
- BIOL 3080, 3081 Cell Biology 4 hours
- BIOL 3081 Cell Biology Lab 1 hour
- BIOL 3200, 3201 Ecology 4 hours
- BIOL 4400 Research Methods 3 hours
- BIOL 4430 Senior Thesis 4 hours
- CHEM 1100, 1101 General Chemistry I 4 hours
- CHEM 1110, 1111 General Chemistry II 4 hours
- CHEM 2100, 2101 Organic Chemistry I 4 hours
- CHEM 2110, 2111 Organic Chemistry II 4 hours
- CHEM 3100, 3101 Biochemistry I 4 hours
- CHEM 3110 Biochemistry II 3 hours
- MATH 1610 Calculus I \* 5 hours
- MATH 3200 Statistics 3 hours
- PHYS 2030, 2031 General Physics I 4 hours
- **PHYS 2300 University Physics Discussion & Integration 1 hour**
- PHYS 2040, 2041 General Physics II 4 hours
- **PHYS 2400 University Physics Discussion & Integration 1 hour**
- Twelve credit hours of biology or chemistry at the 3000-4000 level 12 hours

\* Students who do not have a second major or a minor in mathematics are required to take this course.

Sample schedule for required courses for B.S.:

	Fall	Spring
Freshman	BIOL 1550, 1551 CHEM 1100, 1101	BIOL 1560, 1561 CHEM 1110, 1111

	MATH 1610 Freshman Seminar	Electives
<b>Sophomore</b>	BIOL 3200, 3201 CHEM 2100, 2101 PHYS 2030, 2031 <b>PHYS 2300</b> Electives	BIOL 3050, 3051 CHEM 2110, 2111 PHYS 2040, 2041 <b>PHYS 2400</b> MATH 3200
<b>Junior</b>	BIOL 3080, 3081 CHEM 3100, 3101 BIOL Elective	BIOL Elective CHEM 3110 Electives
<b>Senior</b>	BIOL 4400 BIOL Elective Electives	BIOL 4430 Electives

## Biology (B.S.) with an Emphasis in Biotechnology

### Degree Requirements

- **93** required credit hours
- 27 general education credit hours
- 10 elective credit hours

### Required Courses

- BIOL 1550, 1551 Essentials of Biology I 5 hours
- BIOL 1560, 1561 Essentials of Biology II 5 hours
- BIOL 3050, 3051 Genetics 4 hours
- BIOL 3080, 3081 Cell Biology 4 hours
- BIOL 3120, 3121 Microbiology 4 hours
- BIOL 3200, 3201 Ecology 4 hours
- BIOL 3600 Topics: Cell Culture 3 hours
- BIOL 4000 Methods in Molecular Biology 4 hours
- BIOL 4050 Genome Organization and Expression 3 hours
- BIOL 4300 Immunology 3 hours
- BIOL 4400 Research Methods 3 hours
- BIOL 4430 Senior Thesis 4 hours
- BIOL 4500 Virology 3 hours
- CHEM 1100, 1101 General Chemistry I 4 hours
- CHEM 1110, 1111 General Chemistry II 4 hours

- CHEM 2100, 2101 Organic Chemistry I 4 hours
- CHEM 2110, 2111 Organic Chemistry II 4 hours
- CHEM 3100, 3101 Biochemistry I 4 hours
- CHEM 3110 Biochemistry II 3 hours
- MATH 1610 Calculus I 5 hours
- MATH 3200 Statistics 3 hours
- PHIL 2340 Ethics, Health Care, and Technology 3 hours
- PHYS 2030, 2031 General Physics I 4 hours
- **PHYS 2300 University Physics Discussion & Integration 1 hour**
- PHYS 2040, 2041 General Physics II 4 hours
- **PHYS 2400 University Physics Discussion & Integration 1 hour**

Sample schedule for required courses for B.S. with an emphasis in biotechnology:

	Fall	Spring
<b>Freshman</b>	BIOL 1550, 1551 CHEM 1100, 1101 MATH 1610 Freshman Seminar	BIOL 1560, 1561 CHEM 1110, 1111 Gen Ed Electives
<b>Sophomore</b>	BIOL 3200, 3201 CHEM 2100, 2101 PHYS 2030, 2031 <b>PHYS 2300</b> PHIL 2340	BIOL 3050, 3051 CHEM 2110, 2111 PHYS 2040, 2041 <b>PHYS 2400</b> MATH 3200
<b>Junior</b>	BIOL 3080, 3081 CHEM 3100, 3101 BIOL 3120, 3121 Electives	BIOL 3600 CHEM 3110 BIOL 4300 Electives
<b>Senior</b>	BIOL 4400 BIOL 4000 BIOL 4050 Electives	BIOL 4430 BIOL 4500 Electives

## Certification in Secondary Education

The Missouri requirements for secondary certification in biology may be met by completion of the following courses:

Courses under this title are designed for more advanced studies of subject matter covered in previous courses or for the treatment of material that has not been covered. The student is encouraged to suggest subjects for study. Topics might include quantum chemistry, thermodynamics, advanced kinetics, enzyme kinetics, advanced biochemistry, advanced organic or inorganic chemistry, bioenergetics, or the origin of life as examples. May be repeated for credit if content differs. Prerequisite: junior standing or permission of the instructor.

### **CHEM 4610 Reading Course (1-3)**

Prerequisites: permission of the department chair and filing of the official form. May be repeated for credit if content differs.

## **Physics Course Listings**

### **PHYS 2030 University Physics I (3)**

### **PHYS 2031 University Physics I: Lab (1)**

Introduces physics, using a calculus-based approach to derivation of relationships. Content includes vectors, kinematics, dynamics, momentum, energy, SHM, rotational motion, waves, and heat. Laboratory required. PHYS 2030 and PHYS 2031 must be taken concurrently. Prerequisites: MATH 1610 or equivalent, or permission of the instructor.

### **PHYS 2300 University Physics Discussion and Integration (1)**

**Provides students an opportunity to participate in small-group discussions, problem solving tutorials and conceptual thinking exercises.**

### **PHYS 2040 University Physics II (3)**

### **PHYS 2041 University Physics II: Lab (1)**

Continues PHYS 2030, covering electricity, magnetism, optics, and nuclear physics. Laboratory required. PHYS 2040 and PHYS 2041 must be taken concurrently. Prerequisite: PHYS 2030.

### **PHYS 2300 University Physics Discussion and Integration (1)**

**Provides students an opportunity to participate in small-group discussions, problem solving tutorials and conceptual thinking exercises.**