



**There are 3 specific changes to the BENGBS:**

**1) Eliminate requirement for CHEM 3813, Introductory Biochemistry.**

**2) Eliminate requirement for BIOL 3861L, General Ecology Lab.**

**3) Add requirement for BIOL 1543/1541L, Principles of Biology and Lab.**

**No net change in total course requirements of 128 hours.**

Check if either of these boxes apply and provide the necessary signature:

- Program change proposal adds courses offered by another academic college, and that college dean's office has been notified. The signature of the dean of that academic college is required here: \_\_\_\_\_
- Program change proposal deletes courses offered by another academic college, and that college dean's office has been notified. The signature of the dean of that academic college is required here: \_\_\_\_\_

Check all the boxes that apply and complete the required sections of the form:

- Change of Name and Code (Complete only sections I, II, V and VII.)
- Change Course Requirements: (Complete all sections of the form except "Proposed Name" in II, section III, and section IV.)
- Change Delivery Site/Method (Complete all sections of the form except "Proposed Name" in II, section III, and section IV.)
- Change Total Hours (Complete all sections of the form except "Proposed Name" in II, section III, and section IV.)
- Change in Program Policies

**SECTION VI: Justification**

*Justify this change and state its likely effect on any other degree program (including those outside the school or college). Identify any program or program components (other than courses) to be eliminated if this program is implemented. (Program and course change forms must also be submitted for such related changes.)*

**Biology has been a deficiency requirement and a co-requisite for the required sophomore course, BENG 2632. We decided to show the requirement explicitly to help students in their planning since more than 50% of our students had been taking the course at UA anyway. We eliminated 4 hours of other science requirements to keep the total of 128 hours for the degree. This change is not expected to significantly affect any other programs. The Chair of Biological Sciences was consulted and gave consent.**

**SECTION VII: Catalog Text and Format**

*In the box below, insert the current catalog text which is to be changed, with changes highlighted with the color yellow. Include all proposed changes identified in Section V. Only changes explicitly stated in Section V will be considered for approval by the University Course and Programs Committee, the Graduate Council and the Faculty Senate. If you are proposing a new program, give proposed text with all of the elements listed below. If you are proposing modified text, include these elements as appropriate.*

**Include the following elements, in order, in the catalog text for proposed undergraduate program(s) or program changes:**

- State complete major/program name
- Briefly define or describe the major/program or discipline.
- Identify typical career goals or paths for graduates. (Optional)
- State admission requirements (if any) for entry or entry into upper/advanced level of major/program.
- Identify location in catalog of university, college/school, and department/program requirements which the student must meet in addition to hours in the major, but do not restate these requirements.
- State course requirements in the major and any allied areas, giving number of hours and specific courses; specify electives or elective areas and give numbers of hours and courses in elective pools or categories; identify any other course requirements.
- State any other requirements (required GPA, internship, exit exam, project, thesis, etc.).
- Identify name and requirements for each concentration (if any).
- Specify whether a minor or other program component is allowed or required and provide details.
- State eight-semester plan requirements

**For minors, state requirements in terms of hours, required courses, electives, etc.**

**For Law School program/units, prepare text consistent with current catalog style.**

**For centers, prepare text consistent with current catalog style.**

### **Fall Semester Year 1**

1 GNEG 1111 Introduction to Engineering I  
3 ENGL 1013 Composition I  
3 CHEM 1113 University Chemistry for Engineers I (or CHEM 1103)  
4 MATH 2554 Calculus I  
4 PHYS 2054 University Physics I

**15 Semester hours**

### **Spring Semester Year 1**

1 GNEG 1121 Introduction to Engineering II  
3 ENGL 1023 Technical Composition II  
4 Freshman Engineering Science Elective\*  
4 MATH 2564 Calculus II  
3 HIST 2003 or HIST 2013 or PLSC 2003

**15 Semester hours**

### **Fall Semester Year 2**

2 BENG 2632 Biological Engr Design Studio  
4 MATH 2574 Calculus III  
4 Sophomore Science Elective \*\*  
4 BIOL 1543/1541L Principles of Biology and Lab  
3 MEEG 2003 Statics  
17 Semester hours

### **Spring Semester Year 2**

3 BENG 2643 Biological Engineering Design Methods  
4 MATH 2584 Differential Equations  
4 BIOL 2013/2011L General Microbiology w/Lab  
3 MEEG 2403 Thermodynamics (OR CHEG 2313)  
3 Social Science Elective (from University/State core list)  
17 Semester hours

### **Fall Semester Year 3**

3 BENG 3733 Transport Phenomena in Biological Systems  
3 BENG 3653 Global Bio-Energy Engineering  
4 CHEM 3603/3601L Organic Chemistry I w/Lab  
3 CHEM 3813 Introduction to Biochemistry  
3 CVEG 3213, Hydraulics (OR MEEG 3503 OR CHEG 2133)  
3 ELEG 3903 Electric Circuits and Machines  
16 Semester hours

### **Spring Semester Year 3**

3 BENG 3723 Unit Operations in Biological Engr  
3 BENG 4103 Measurements and Controls for Biological Systems  
4 CHEM 3613/3611L Organic Chemistry II w/Lab  
3 BIOL 3863/3861L General Ecology w/Lab  
3 CVEG 3223 Hydrology  
16 Semester hours

3 BENG 4813 Senior Biological Engineering Design I  
3 BENG 3743, Food and Bio-Product Systems Engineering  
3 BENG 3933 Sustainable Watershed Engineering  
3 Humanities Elective (from University/State core list)  
3 Social Science Elective (from University/State core list)  
15 Semester hours

**Spring Semester Year 4**

2 BENG 4822 Senior Biological Engineering Design II  
3 BENG 4663 Sustainable Biosystems Design  
3 Engineering Elective  
3 Fine Arts Elective (from University/State core list)  
3 Social Science Elective (from University/State core list)  
3 Technical Elective  
17 Semester hours

**128 Total hours**

\* The Freshman Engineering Science Elective must be chosen from either (CHEM 1133/1131L or CHEM 1123/1121L) or PHYS 2074.  
\*\* The Sophomore Science Elective must be: PHYS 2074 if (CHEM 1133/1131L or CHEM 1123/1121L) was chosen as the Freshman Engineering Elective; or (CHEM 1133/1131L or CHEM 1123/1121L) if PHYS 2074 was chosen as the Freshman Engineering Science Elective. That is, both courses are required for the degree.

**SECTION VIII: Action Recorded by Registrar's Office**

PROGRAM INVENTORY/DARS

PGRM \_\_\_\_\_ SUBJ \_\_\_\_\_ CIP \_\_\_\_\_ CRTS \_\_\_\_\_

DGRE \_\_\_\_\_ PGCT \_\_\_\_\_ OFFC&CRTY VALID \_\_\_\_\_

REPORTING CODES

PROG. DEF. \_\_\_\_\_ REQ. DEF. \_\_\_\_\_  
Initials \_\_\_\_\_ Date \_\_\_\_\_

**Distribution**

Notification to:  
(1) College (2) Department (3) Admissions (4) Institutional Research (5) Continuing Education (6) Graduate School  
(7) Treasurer (8) Undergraduate Program Committee