

LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
	App-4/5/12	11-144a	AP-4/10/12	App-5/10/12

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person Sharon Sowa	Email Address ssowa@iup.edu
Proposing Department/Unit Biochemistry	Phone 74481

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

1. Course Proposals (check all that apply)

New Course Course Prefix Change Course Deletion
 Course Revision Course Number and/or Title Change Catalog Description Change

<u>Current</u> Course prefix, number and full title	<u>Proposed</u> course prefix, number and full title, if changing
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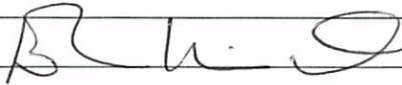

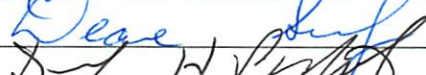
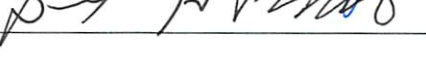

2. Additional Course Designations: check if appropriate

This course is also proposed as a Liberal Studies Course. Other: (e.g., Women's Studies, Pan-African)
 This course is also proposed as an Honors College Course.


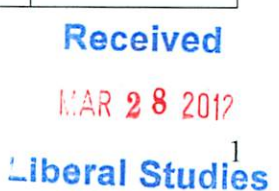
3. Program Proposals

New Degree Program Program Title Change Program Revision
 New Minor Program New Track

B.S. BIOC	
<u>Current</u> program name	<u>Proposed</u> program name, if changing

4. Approvals		Date
Department Curriculum Committee Chair(s)		2/24/12
Department Chair(s)		2/24/12
College Curriculum Committee Chair		3/28/12
College Dean		3/28/12
Director of Liberal Studies *		4/6/12
Director of Honors College *		
Provost *		
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs		4/13/12

* where applicable

Part I. Curriculum Proposal Cover Sheet

Part II. Description of Curriculum Change

1. Catalog description for the revised program in the appropriate form. This includes both the description about the program and the list of courses and credits for the revised program.

Biochemistry

The B.S. degree with a major in Biochemistry is a four-year degree curriculum offered as a cooperative program by the Biology and Chemistry departments. This Biochemistry Program also offers a minor in Biochemistry.

The curriculum leading to a B.S. degree with a major in Biochemistry begins with foundation courses in biology, chemistry, mathematics and physics in the first two years. Specialization in biochemistry commences in the third year with courses in biochemistry, genetics, physical chemistry, special topics in biochemistry, and biochemistry seminar.

A unique feature of this undergraduate program is that Research in Biochemistry is a requirement. After consultation with faculty, the student will define a problem and devise an experimental plan through library research. Laboratory research will be done under the direct supervision of a faculty member. Finally, the student will report on the results of the research in both written and oral forms.

This program is intended for students whose interests lie in a most exciting field of modern interdisciplinary science. Graduates can expect to be qualified to enter graduate programs in biochemistry, biology, chemistry, and molecular biology, professional schools in the health sciences, and positions in industrial and government research laboratories and in industrial production facilities.

Liberal Studies: As outlined in Liberal Studies section with the following specifications: Mathematics: MATH 125 Natural Science: PHYS 131-141 and 132-142 Liberal Studies Electives: 3cr MATH 126		44
Major:		52
Required Courses:		
BIOC 301	Foundations of Biochemistry	3cr
BIOC 302	Advanced Biochemistry	3cr
BIOC 311	Biochemistry Laboratory I	1cr
BIOC 312	Biochemistry Laboratory II	1cr
BIOC 401	Laboratory Methods in Biology and Biotechnology	3cr
BIOC 480	Biochemistry Seminar I	1cr(1)
BIOC 481	Special Topics in Biochemistry	3cr
BIOC 482	Independent Research in Biochemistry	2cr
BIOC 490W	Biochemistry Seminar II	1cr(1)
BIOL 111	Principles of Biology I	4cr
BIOL 250	Principles of Microbiology I	3cr
BIOL 263	Genetics	3cr
CHEM 113	Advanced General Chemistry I	4cr
CHEM 114	Advanced General Chemistry II	4cr
CHEM 231	Organic Chemistry I	4cr
CHEM 232	Organic Chemistry II	4cr
CHEM 325	Analytical Chemistry I	4cr
CHEM 341	Physical Chemistry I	4cr
Controlled Electives:		
Two courses from the following:		6-8cr
Any 300- or 400-level BIOC/BIOL/CHEM courses COSC 110 Problem Solving and Structured Programming MATH 216 Probability and Statistics for the Natural Sciences		
Other Requirements:		
MATH 225	Calculus III for Physics, Chemistry, and Mathematics	3cr
Free Electives:		13-15
Total Degree Requirements:		120
(1) 1 cr for each semester of senior year		

II. 2. Summary of changes:

Table comparing old and new programs.

Present		Proposed			
Bachelor of Science – Biochemistry					
Liberal Studies: As outlined in Liberal Studies section with the following specifications: Mathematics: MATH 125 and 126 Natural Science: PHYS 131-141 and 132-142 Liberal Studies Electives: 0cr	48	Liberal Studies: As outlined in Liberal Studies section with the following specifications: Mathematics: MATH 125 Natural Science: PHYS 131-141 and 132-142 Liberal Studies Electives: 3cr MATH 126	44		
Required Courses		52	Required Courses	52	
BIOC 301	Biochemistry I	3cr	BIOC 301	Foundations of Biochemistry	3cr
BIOC 302	Biochemistry II	3cr	BIOC 302	Advanced Biochemistry	3cr
BIOC 311	Biochemistry Laboratory I	1cr	BIOC 311	Biochemistry Laboratory I	1cr
BIOC 312	Biochemistry Laboratory II	1cr	BIOC 312	Biochemistry Laboratory II	1cr
BIOC 401	Laboratory Methods in Biology and Biotechnology	3cr	BIOC 401	Laboratory Methods in Biology and Biotechnology	3cr
BIOC 480	Biochemistry Seminar I	1cr (1)	BIOC 480	Biochemistry Seminar I	1cr(1)
BIOC 481	Special Topics in Biochemistry	3cr	BIOC 481	Special Topics in Biochemistry	3cr
BIOC 482	Independent Research in Biochemistry	2cr	BIOC 482	Independent Research in Biochemistry	2cr
BIOC 490W	Biochemistry Seminar II	1cr(1)	BIOC 490W	Biochemistry Seminar II	1cr(1)
BIOL 111	Principles of Biology I	4cr	BIOL 111	Principles of Biology I	4cr
BIOL 250	Principles of Microbiology I	3cr	BIOL 250	Principles of Microbiology I	3cr
BIOL 263	Genetics	3cr	BIOL 263	Genetics	3cr
CHEM 113	Concepts in Chemistry I	4cr	CHEM 113	Advanced General Chemistry I	4cr
CHEM 114	Concepts in Chemistry II	4cr	CHEM 114	Advanced General Chemistry II	4cr
CHEM 231	Organic Chemistry I	4cr	CHEM 231	Organic Chemistry I	4cr
CHEM 232	Organic Chemistry II	4cr	CHEM 232	Organic Chemistry II	4cr
CHEM 323	Analytical Methods	4cr	CHEM 325	Analytical Chemistry I	4cr
CHEM 340	Physical Chemistry for the Biological Sciences	3cr	CHEM 341	Physical Chemistry I	4cr
Controlled Electives:			Controlled Electives		
Two courses from the following:		6-8cr	Two courses from the following:		6-8cr
Any 300- or 400-level BIOC/BIOL/CHEM courses COSC 110 Problem Solving and Structured Programming MATH 216 Probability and Statistics for the Natural Sciences			Any 300- or 400-level BIOC/BIOL/CHEM courses COSC 110 Problem Solving and Structured Programming MATH 216 Probability and Statistics for the Natural Sciences		
Other Requirements			Other Requirements		
MATH 225 Calculus III for Physics, Chemistry and Mathematics		3 cr	MATH 225 Calculus III for Physics, Chemistry and Mathematics		3 cr
Free Electives		10-12	Free Electives		13-15
Total Degree Requirements		120	Total Degree Requirements		120
(1) 1 cr for each semester of senior year			(1) 1 cr for each semester of senior year		

b. List of all associated course changes (new or revised courses, number, title, or description changes, and deletions).

Changed Liberal Studies credits to 44 to meet new requirements.

Moved MATH 126 (3 cr Liberal Studies MATH) to MATH 126 (3 cr Liberal Studies)

Replaced: BIOC 301 Biochemistry I with BIOC 301 Foundations of Biochemistry

Replaced BIOC 302 Biochemistry II with BIOC 302 Advanced Biochemistry

Replaced CHEM 340 with CHEM 341

Replaced CHEM 323 with CHEM 325

Included the 'W' designation for BIOC480/490.

Changed course titles of CHEM 113/114.

3. Rationale for Change.

The liberal studies program has implemented new requirements.

BIOC 301 and BIOC 302 have been revised (course proposals approved).

The Chemistry Department has replaced CHEM 340 with CHEM 341.

The Chemistry Department has replaced CHEM 323 with CHEM 325.

BIOC 480/490W, although previously approved as writing intensive, was not indicated as such in the catalog.

The Chemistry Department has revised CHEM 113/114.

Part III. Implementation. Provide answers to the following questions:

1. How will the proposed revision affect students already in the existing program?

The proposed revision should have no effect on students in the existing program. All course changes reflect comparable content. The change in liberal studies requirements allows them more flexibility in terms of free electives.

2. Are faculty resources adequate? If you are not requesting or have not been authorized to hire additional faculty, demonstrate how this course will fit into the schedule(s) of current faculty.

This change has no impact on our faculty resources.

3. Are other resources adequate? (Space, equipment, supplies, travel funds)

This change has no impact on our resources.

4. Do you expect an increase or decrease in the number of students as a result of these revisions? If so, how will the department adjust?

We hope that the increased flexibility in the curriculum might slightly increase our number of students, which will be accommodated by current resources.

Part IV. Periodic Assessment

Departments are responsible for an on-going review of curriculum. Include information about the department's plan for program evaluation:

1. Describe the evaluation plan. Include evaluation criteria. Specify how student input will be incorporated into the evaluation process.

This revision is not expected to change the existing evaluation process, which includes the program student learning outcomes assessment survey, and the five-year program evaluation. Students are given the ACS standardized Biochemistry exam at the end of the BIOC301/302 sequence as a measure of student competency. Student seminars, the capstone experience of BIOC480/490 are also evaluated by their peers and a public audience. Evaluation summaries are maintained along with ACS test score results.

2. Specify the frequency of the evaluations.

Evaluations occur annually.

3. Identify the evaluating entity.

Faculty and students of the program conduct the evaluations.

Part V. Course Proposals

Course proposals for BIOC 480 and 490W are included separately as part of the liberal studies revision requirements.

Part VI. Letters of Support or Acknowledgement

Sign-off letters from interested or affected departments including a letter from the Liberal Studies Committee if appropriate. (See page 3 for guidelines.)

Letters from Carl Luciano, Biology Chair and George Long, Chemistry Chair in support of the Biochemistry Program revision are attached.

Aleksandra Ola Kaniasty

From: "Bharathan Narayanaswamy" <bharathn@iup.edu>
Date: Tuesday 28 February 2012 3:24 AM
To: "Carl S. Luciano" <luciano@iup.edu>; "George R. Long" <grlong@iup.edu>
Cc: "Sharon Sowa" <ssowa@iup.edu>; "Jonathan N. Southard" <southard@iup.edu>; <akaniast@iup.edu>; <bharathn@iup.edu>
Subject: Re: Fw: Biochemistry program revision

Hello Carl and George: Gentle reminder. Please send your letter of support for Biochemistry Program revision ASAP directly to the Deans office. I have got one more reminder last night and it is being discussed this Thursday.

Ola--I will at CMU for my White paper presentation for DTRA this thursday from 11: 00 to 4:00. Since Sharaon is already there she may represent Biochemistry. If Jon is free I may ask him to attend too.

Thank you.

N.Bharathan

On Thu, 23 Feb 2012 09:17:35 -0500

"N. Bharathan" <bharathn@iup.edu> wrote:

> Hello Carl and George: Sharon has a taken a lead role in completing
 > the BIOC BS program revision. We will need letter of support from
 > both of you. Please see email below. Thanks--Bharathan

>

> -----

> From: "Sharon Sowa" <ssowa@iup.edu>

> Sent: Wednesday, February 22, 2012 5:39 PM

> To: <bharathn@iup.edu>; <southard@iup.edu>; <jvillema@iup.edu>

> Subject: program revision

>

>> BIOC Colleagues,

>> Attached please find a draft of the BIOC BS program revision. When

>> combined with the BIOC480/490 course proposals I previously sent, we

>> should be 'good to go' for this liberal studies round.

>> A couple things - I could not format the side-by-side comparison

>>(and

>> frankly am too bleary to figure it out) - so if someone could

>> manage

>> this, it would be greatly appreciated.

>> Bharathan, I made the LS revisions as we discussed them this

>> morning.

>> We also need letters of support from the Chairs of Biology and

>> Chemistry. Again, could someone please get these to attach for the

>> submitted proposal.

>>

>> The signed coversheet (and I have no idea who signs for the program

>> except perhaps Bharathan in all capacities) and 9 copies of the

>> program and course revision proposals, should be submitted to the

>> College Curriculum Committee (i.e. the Dean's Office) by noon friday

>> (that's 2/24 - THIS WEEK) to meet the supposed/imposed University

>> deadline.

>>

>> If there is anything else I can do to expedite this process, please

>> let me know - at this point, I am hoping that someone else will

>> complete the task since most of the work has already been done.

>>

>> FYI - the chemistry course proposals (changes in pchem and

>> analytical)

>> will also be submitted by friday. And, I have no idea how far the

>> BIOC course revisions have gone - all I know is they made to the

>> College Committee quite some time ago.

>>

>> Thank you for your help,

>> SS

>>