

Curriculum Proposal Cover Sheet – form is available on-line as an interactive PDF

13-366.

LSC Use Only Proposal No: LSC Action-Date: <u>App-9/12/13</u>	UWUCC Use Only Proposal No: <u>12-1370</u> UWUCC Action-Date: <u>AP-4/11/14</u>	Senate Action Date: <u>App-4/29/14</u>
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Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person(s) Sandra Newell	Email Address sjnewell@iup.edu
Proposing Department/Unit Biology	Phone 7-2352

Check all appropriate lines and complete all information. Use a separate cover sheet for each course proposal and/or 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

Current course prefix, number and full title: _____

Proposed course prefix, number and full title, if changing: _____

2. Liberal Studies Course Designations, as appropriate

This course is also proposed as a Liberal Studies Course (please mark the appropriate categories below)
 Learning Skills Knowledge Area Global and Multicultural Awareness Writing Intensive (include W cover sheet)
 Liberal Studies Elective (please mark the designation(s) that applies – must meet at least one)

Received

Global Citizenship Information Literacy Oral Communication APR 9 2014
 Quantitative Reasoning Scientific Literacy Technological Literacy

Liberal Studies Received

3. Other Designations, as appropriate

Honors College Course Other. (e.g. Women's Studies, Pan African)

APR 29 2013

4. Program Proposals

Catalog Description Change Program Revision Program Title Change New Track
 New Degree Program New Minor Program Liberal Studies Requirement Changes Other

Liberal Studies

Current program name: **Bachelor of Arts - Biology**

Proposed program name, if changing: _____

5. Approvals	Signature	Date
Department Curriculum Committee Chair(s)	<i>Sandra Newell</i>	7 Dec. 2012
Department Chairperson(s)	<i>[Signature]</i>	12/7/12
College Curriculum Committee Chair	<i>Anne Kandel</i>	4/24/13
College Dean	<i>[Signature]</i>	4/29/13
Director of Liberal Studies (as needed)	<i>[Signature]</i>	9/13/13
Director of Honors College (as needed)		
Provost (as needed)	<i>Charles S. Menckand (on)</i>	5/2/13
Additional signature (with title) as appropriate		
UWUCC Co-Chairs	<i>Garf S. Sechrist</i>	4/9/14

Part II. Description of Curriculum Change

1. Catalog description for the revised program in the appropriate form.

Bachelor of Arts – Biology

Liberal Studies: As outlined in Liberal Studies section with the following specifications: 44-45

Mathematics: MATH 121 or 217

Natural Science: CHEM 111-112 or CHEM 113-114

Liberal Studies Electives: 3cr, no courses with BIOL prefix

Major: 33

Required Courses:

BIOL 201 Principles of Ecology and Evolution 4cr

BIOL 202 Principles of Cell and Molecular Biology 4cr

BIOL 203 Principles of Genetics and Development 4cr

Controlled Electives:

Biology electives (major courses only) 21cr (1)

Other Requirements:

PHYS 111 Physics I Lecture 3cr

PHYS 121 Physics I Lab 1cr

Ancillary Science Courses:

An additional 4-5cr from the following (2,3):

BIOC: 301, 302, 311, 312, 401, 480, 490

CHEM: 231, 232, 321, 323, 351

GEOS: 201, 202, 203, 303, 310, 311, 312, 313, 351, 352, 353, 354, 362, 370, 371

MATH: 122, 417, 418

PHYS: 112, 122, 151, 161

PSYC 290, 291, 315, 331, 341, 342 or 345, 350, 355, 356, 359, 372

4-5cr

Planned Program in Complementary Field (requires advisor approval) with at least 6cr in 300/400-level courses (4) 15cr

Other Requirements:

Foreign Language Intermediate Level 0-6cr (5)

Exit survey for assessment purposes

0-6

Free Electives:

12-20

Total Degree Requirements:

120

(1) No more than 6cr total from Independent Study, Special Topics, or Internship applies to major; excess applied as free electives.

(2) If MATH 121 (4cr) is elected as the Liberal Studies MATH course the additional requirement is 4cr; if MATH 217 (3cr) is elected, the additional requirement is 5cr. The mathematics course counted in Liberal Studies cannot also count in ancillary courses.

(3) Other appropriate major courses at 200-level and above (excluding liberal studies courses) in the above departments may be substituted with permission of the advisor and the biology department chairperson in advance of taking the course.

(4) Recommended complementary fields include Anthropology, Art, Business, Chemistry, Communications Media, Computer Science, Criminology, Dietetics, Economics, English, Foreign Language, Geography, Geoscience, Journalism, Mathematics, Philosophy, Physics, Political Science, Psychology, Regional Planning, or Safety Science. Some courses in complementary field may also fulfill Liberal Studies requirements (see Liberal Studies section). However, if complementary field selected is Chemistry, Geoscience, Mathematics, Physics, or Psychology, courses used to fulfill other requirements above may not be applied to the complementary field requirement of 15cr. We encourage students to seek additional interdisciplinary connections not listed here.

(5) a) Two courses in one language, including the placement course; or b) intermediate level. In lieu of a foreign language, students may elect to take a sequence of courses in either Computer Science, exclusive of COSC 101 (COSC 110 and 210 recommended), or Geography/Regional Planning (from the following: GEOG/RGPL 213, 314, 316, 415, 417)

2. Summary of changes:

1. CHEM 113-114 is included as a possible substitution for CHEM 111-112.

2. BIOL 111 Principles of Biology I, BIOL 112 Principles of Biology II, and BIOL 263 Genetics have been replaced by BIOL 201 Principles of Ecology & Evolution, BIOL 202 Principles of Cell & Molecular Biology, and BIOL 203 Principles of Genetics & Development. BIOL 263 Genetics, a 3 credit course, has been replaced by BIOL 203, a 4 credit course. These three courses, BIOL 201 Principles of Ecology & Evolution, BIOL 202 Principles of Cell & Molecular Biology, and BIOL 203 Principles of Genetics & Development constitute the biology core courses. The course proposals are attached.

3. BIOL 210 Botany, BIOL 220 General Zoology, and BIOL 250 Principles of Microbiology have been removed as required courses. The credits from these courses remain in the Major requirements as controlled biology electives. These courses will count as biology electives.

4. The list of Ancillary Science courses has been updated and includes additional courses in biochemistry, geoscience, and physics. In addition, psychology courses have been added to the list.

5. The final footnote about foreign language has been revised, adding the possible substitution of Computer Science or Geography/Regional Planning courses in place of foreign language.

6. The requirement of an assessment survey was added.

7. The number of free elective credits decreased by one as the number of major credits increased by one, with the replacement of BIOL 263, a 3 credit course, by BIOL 203, a 4 credit course.

8. The list of suggested complementary fields was updated, specifically adding philosophy to the list. Footnote 4 is slightly reworded.

Comparison of Old and New Programs:

Current:

Proposed:

Bachelor of Arts – Biology		Bachelor of Arts – Biology	
Liberal Studies: As outlined in Liberal Studies section with the following specifications:	44-45	Liberal Studies: As outlined in Liberal Studies section with the following specifications:	44-45
Mathematics: MATH 121 or 217		Mathematics: MATH 121 or 217	
Natural Science: CHEM 111-112		Natural Science: CHEM 111-112 or CHEM 113-114	
Liberal Studies Electives: 3 cr, no courses with BIOL prefix		Liberal Studies Electives: 3 cr, no courses with BIOL prefix	
Major:	32	Major:	33
Required Courses:		Required Courses:	
BIOL 111 Principles of Biology I	4cr		
BIOL 112 Principles of Biology II	4cr		
		BIOL 201 Principles of Ecology and Evolution	4cr
		BIOL 202 Principles of Cell and Molecular Biology	4cr
		BIOL 203 Principles of Genetics and Development	4cr
BIOL 210 Botany	3cr		
BIOL 220 General Zoology	3cr		
BIOL 250 Principles of Microbiology	3cr		
BIOL 263 Genetics	3cr		
Controlled Electives:		Controlled Electives:	
Biology electives (major courses only)	12cr (1)	Biology electives (major courses only)	21cr (1)
Other Requirements:	23-24	Other Requirements:	23-24
PHYS 111 Physics I Lecture	3cr	PHYS 111 Physics I Lecture	3cr
PHYS 121 Physics I Lab	1cr	PHYS 121 Physics I Lab	1cr

Ancillary Science Courses:	4-5cr	Ancillary Science Courses:	4-5cr
An additional 4-5 cr from the following (2,3):		An additional 4-5cr from the following (2,3):	
BIOC: 301, 302, 311, 312		BIOC: 301, 302, 311, 312, 401, 480, 490	
CHEM: 231, 232, 321, 323, 351		CHEM: 231, 232, 321, 323, 351	
GEOS: 121 and 122, 131 and 132, 141, 310, 330, 331, 361		GEOS: 201, 202, 203, 303, 310, 311, 312, 313, 351, 352, 353, 354, 362, 370, 371	
MATH: 122, 216 or 217 (2), 417, 418		MATH: 122, 417, 418	
PHYS: 112 and 122, 151		PHYS: 112, 122, 151, 161	
		PSYC 290, 291, 315, 331, 341, 342 or 345, 350, 355, 356, 359, 372	
Planned Program in Complementary Field (requires advisor approval) with at least 6cr in 300/400-level courses (4)	15cr	Planned Program in Complementary Field (requires advisor approval) with at least 6cr in 300/400-level courses (4)	15cr
Other Requirements:	0-6	Other Requirements:	0-6
Foreign Language Intermediate Level	0-6cr (5)	Foreign Language Intermediate Level	0-6cr (5)
		Exit survey for assessment purposes	
Free Electives:	13-21	Free Electives:	12-20
Total Degree Requirements:	120	Total Degree Requirements:	120
(1) No more than 6cr total from Independent Study, Special Topics, or Internship applies to major; excess applied as free electives.		(1) No more than 6cr total from Independent Study, Special Topics, or Internship applies to major; excess applied as free electives.	
(2) If MATH 121 (4cr) is elected as the Liberal Studies MATH course the additional requirement is 4cr; if MATH 217 (3cr) is elected, the additional requirement is 5cr. The mathematics course counted in Liberal Studies cannot also count in ancillary courses.		(2) If MATH 121 (4cr) is elected as the Liberal Studies MATH course the additional requirement is 4cr; if MATH 217 (3cr) is elected, the additional requirement is 5cr. The mathematics course counted in Liberal Studies cannot also count in ancillary courses.	
(3) Other appropriate major courses in the above departments may be substituted for one or more of those on the above list with the approval of the student's advisor.		(3) Other appropriate major courses at 200-level and above (excluding liberal studies courses) in the above departments may be substituted with permission of the advisor and the biology department chairperson in advance of taking the course.	
(4) Recommended complementary fields include Anthropology, Art, Business, Chemistry, Communications Media, Computer Science, Criminology, Dietetics, Economics, English,		(4) Recommended complementary fields include Anthropology, Art, Business, Chemistry, Communications Media, Computer Science, Criminology, Dietetics, Economics, English,	

<p>Foreign Language, Geography, Geoscience, Journalism, Mathematics, Physics, Political Science, Psychology, Regional Planning, or Safety Science. Some courses in complementary field may also fulfill Liberal Studies requirements (see Liberal Studies section). However, if complementary field selected is Chemistry, Geoscience, Mathematics, or Physics, courses used to fulfill the ancillary science requirement above may not be applied to the complementary field requirement of 15cr.</p>	<p>Foreign Language, Geography, Geoscience, Journalism, Mathematics, Philosophy, Physics, Political Science, Psychology, Regional Planning, or Safety Science. Some courses in complementary field may also fulfill Liberal Studies requirements (see Liberal Studies section). However, if complementary field selected is Chemistry, Geoscience, Mathematics, Physics, or Psychology, courses used to fulfill other requirements above may not be applied to the complementary field requirement of 15cr. We encourage students to seek additional interdisciplinary connections not listed here.</p>
<p>(5) Two courses beyond placement or intermediate level.</p>	<p>(5) a) Two courses in one language, including the placement course; or b) intermediate level. In lieu of a foreign language, students may elect to take a sequence of courses in either Computer Science, exclusive of COSC 101 (COSC 110 and 210 recommended), or Geography/Regional Planning (from the following: GEOG/RGPL 213, 314, 316, 415, 417)</p>

3. Rationale for changes:

1. Students who are adequately prepared may take a higher level of freshman chemistry than CHEM 111-112. We are clarifying this option for students by including it here.

2. The revision of the core courses is a complete restructuring of the Principles of Biology. We are revising our core curriculum to create three pillars of biology: BIOL 201 Principles of Ecology & Evolution, BIOL 202 Principles of Cell & Molecular Biology, and BIOL 203 Principles of Genetics & Development. The change in the core curriculum constitutes a shift in philosophy, moving away from a lengthy list of topics to a more integrated and focused cluster of courses. Also, we are shifting away from the old-fashioned botany-zoology dichotomy to a modern levels-of-organization approach.

BIOL 201 Principles of Ecology & Evolution is designed to be the first biology course for freshman biology majors. We have reversed the order of the material, placing the more familiar concepts of ecology and evolution in the first semester and moving the less familiar concepts of molecular and cellular biology into the second semester. BIOL 201 will replace BIOL 112 Principles of Biology II. BIOL 112 included evolution, ecology, and reproduction and development. The new course will focus only on ecology and evolution. As BIOL 201 Principles of Ecology & Evolution is proposed to be the first biology course for incoming students, the amount of content is being reduced to better serve the needs of students with diverse levels of preparation for college-level work.

BIOL 202 Principles of Cell & Molecular Biology will replace BIOL 111 Principles of Biology I. Placing the cell and molecular topics in the spring semester allows for the prerequisite of CHEM 111 or CHEM 113 to better prepare students for these topics.

BIOL 203 Principles of Genetics & Development will replace BIOL 263 Genetics. Modern developmental biology emphasizes cell, molecular, and genetic aspects of development, so development is being shifted to the third and final course in the core, linking it with genetics. The subject of genetics has expanded into a multidisciplinary science that covers material from population genetics to molecular genetics. The current system only allows two 50 minute lectures a week, which results in the elimination of a great deal of material from the course. A schedule with 3 lectures a week would allow for a more complete coverage for the student. In order to provide the level of rigor necessary, the course needs additional time in the lecture component.

The numbering system follows the model of the Geoscience department, in which majors courses begin at the 200-level and the 100-level courses are designated for nonmajors and liberal studies courses.

3. BIOL 210, 220 and 250 are not being deleted, simply removed from the general program as required courses. These courses will be electives for the B.A. in Biology. This will provide greater flexibility for students in developing their program, especially for students who are transferring credits from other institutions.

4. Updating included deleting obsolete course numbers, adding new courses that are relevant for biology majors. Psychology is closely allied with biology and highly relevant for many biology majors. Inclusion of psychology in the ancillary sciences will allow biology students who are interested in neuroscience to develop a program that includes a psychology minor.

5. The current B.S. in Biology (no track) offers the substitution of computer science courses or geography and regional planning courses for foreign language. This option is being expanded to include the B.A. in Biology. The two programs (B.S. – Biology and B.A. – Biology) will be consistent in their Foreign Language requirements. The GEOG prefix was included with the dual-listed courses to avoid confusion. Additional GEOG or COSC courses were added because the content is relevant to biology majors.

6. The exit survey is added to insure compliance so that assessment data are complete and reliable.

7. The number of free elective credits decreased by one as the number of major credits increased by one, with the replacement of BIOL 263, a 3 credit course, by BIOL 203, a 4 credit course. This change is necessary to remain at 120 credits total for the program.

8. Footnote 4 was reworded to improve clarity. Philosophy is highly relevant as a complementary field to science, and its addition to the list is a correction of an earlier oversight.

Part III. Implementation

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

Students may elect to finish with the requirements of the catalog at the time of their matriculation, or students may choose to switch to the new requirements.

2. Are faculty resources adequate?

Faculty resources are adequate. By removing BIOL 210, 220, and 250 from the list of required courses, the enrollment in these courses will likely decrease and fewer sections of each will be necessary.

3. Are other resources adequate?

Other resources are adequate.

4. Do you expect an increase or decrease in the number of students as a result of these revisions?

We do not expect the revisions to affect the number of students in the program.

Part IV. Periodic Assessment

1. Describe the evaluation plan.

The Biology Department conducts a review of all programs every five years. Criteria include both quantitative and qualitative evaluation of the programs. In addition, every year the outgoing seniors will be surveyed, using the required exit survey, for feedback about the nature of their experiences in the various programs within the department.

Part V. Course Proposals

BIOL 201 Principles of Ecology & Evolution – proposal attached
BIOL 202 Principles of Cell & Molecular Biology – proposal attached
BIOL 203 Principles of Genetics & Development – proposal attached

Part VI. Letters of Support or Acknowledgment

Allied Health Professions: Clinical Laboratory Science
Biochemistry
Chemistry
Foreign Languages
Geography
Geosciences
Mathematics
Philosophy
Physics
Psychology