

LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		02-119	App 4/25/03	App 4/29/03

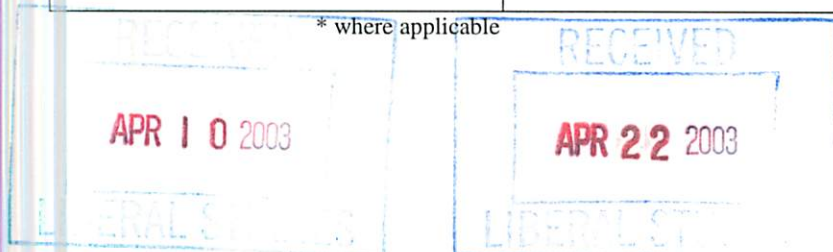
Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person Andrew C. Browe	Email Address acbrowe@iup.edu
Proposing Department/Unit Natural Science	Phone 724-357-2191

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	
Current Course prefix, number and full title Proposed course prefix, number and full title, if changing	
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 ☐ Other	
Current program name Proposed program name, if changing	
4. Approvals	
Department Curriculum Committee Chair(s)	Andrew C. Browe 03/30/03
Department Chair(s)	Andrew C. Browe 03/30/03
College Curriculum Committee Chair	[Signature] 04/09/03
College Dean	[Signature] 04/10/03
Director of Liberal Studies *	
Director of Honors College *	
Provost *	
Additional signatures as appropriate: (include title)	
UWUCC Co-Chairs	Gail S. Sedquist 4/25/03

* where applicable



Part II: Description of Curriculum Change

1. Complete Catalog Description for Program Change

Bachelor of Science in Natural Science:

The program leading to the Bachelor of Science degree in Natural Science is designed to prepare students for admission to professional schools including: optometry, dentistry, chiropractic, physical therapy, pharmacy, podiatry, and physician assistant. A separate track prepares students for further study in engineering. The Bachelor of Science degree in Natural Science will be earned by students who transfer to professional school's which have an articulation agreement with IUP. In some cases, students interested in obtaining a four-year baccalaureate degree before entering a medical or professional school should enroll in program leading to a Bachelor of Arts or Bachelor of Science degree in the departments of Biology or Chemistry. Students considering a professional career in a high technology or health oriented businesses or industries may wish to obtain a foundation in the Natural Sciences while using their free electives to pursue additional work in areas such as Molecular Biology, Biochemistry, Psychology, Economics, Pre-Law, or Athletic Training. For further information about these programs, contact the Coordinator of the Natural Science Program. The Bachelor of Science in Natural Science may not be used for a second major or a second degree by majors in the College of Natural Sciences and Mathematics.

Bachelor of Science in Natural Science

LIBERAL STUDIES COURSES: As outlined in the Liberal Studies **49 sh** Section with the following specifications

Mathematics:	MATH 121
Natural Science:	CHEM 111-112
Social Science:	PSYC 101
Liberal Studies Electives:	BTED, COSC, or IFMG 101; No courses with SCI prefix

Synthesis: Not required for three-year students who transfer to a professional school with an articulation agreement

Writing Intensive: Majors writing intensive course only required for three-year students who transfer to a professional school with an articulation agreement.

MAJORS:**Biology Core Courses** **21sh**

BIOL 111	Principles of Biology I	4 sh
BIOL 112	Principles of Biology II	4 sh
BIOL 150	Human Anatomy	3 sh
BIOL 151	Human Physiology	4 sh
BIOL 241	General Microbiology	3 sh
BIOL 263	Genetics	3 sh

Chemistry Core Courses **8sh**

CHEM 231	Organic Chemistry I	4 sh
CHEM 232	Organic Chemistry II or	
CHEM 351	Biochemistry	4 sh

Physics Core Courses **8sh**

PHYS 111	General Physics I Lecture	3 sh
PHYS 121	General Physics I Lab	1 sh
PHYS 112	General Physics II Lecture	3 sh
PHYS 122	General Physics II Lab	1 sh

Mathematics Core Courses: **4sh**

MATH 216	Probability and Statistics	4 sh
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OTHER REQUIREMENTS **0-6sh**

Foreign Language Intermediate Level	0-6 sh
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FREE ELECTIVES: **24-30sh****TOTAL DEGREE REQUIREMENTS** **120sh**

Bachelor of Science in Natural Science

(Revised Spring, 2003)

1 st Semester				2 nd Semester			
BIOL	111	Principles of Biology I	4sh	BIOL	112	Principles of Biology II	4sh
CHEM	111	General Chemistry I	4sh	CHEM	112	General Chemistry II	4sh
ENGL	101	College Writing	4sh	HIST	195	History of Modern Era	3sh
HPED	143	Health and Wellness <u>or</u>		ARHI	101	Introduction to Art <u>or</u>	
FDNT	143	Nutrition and Wellness ¹	<u>3sh</u>	MUHI	101	Introduction to Music <u>or</u>	
			15sh	THTR	101	Introduction to Theater <u>or</u>	
				THTR	102	Introduction to Dance	<u>3sh</u>
							14sh
3 rd Semester				4 th Semester			
CHEM	231	Organic Chemistry I	4sh	CHEM	232	Organic Chemistry II	4sh
BIOL	150	Human Anatomy	3sh	BIOL	151	Human Physiology	4sh
—	—	Foreign Language ³	3-4sh	—	—	Foreign Language	3sh
—	—	Social Science Elective ²	3sh	ENGL	202	Research Writing	<u>3sh</u>
PSYC	101	General Psychology	<u>3sh</u>				14sh
			16-17sh				
5 th Semester				6 th Semester			
PHYS	111	General Physics I	3sh	PHYS	112	General Physics II	3sh
PHYS	121	General Physics I Lab	1sh	PHYS	122	General Physics II Lab	1sh
MATH	121	Calculus I for Nat. Sci. ⁴	4sh	BIOL	263	Genetics (W-major)	3sh
COSC	101	Micro. Computer Lit.	3sh	PHIL/RLST		Philosophy or Religion	3sh
—	—	Social Science Elective ²	<u>3sh</u>	—	—	Free Elective	3sh
			14sh	MATH	216	Probability & Statistics	<u>4sh</u>
							17sh
7 th Semester				8 th Semester			
ENGL	121	Humanities Literature	3sh	LBST	499	Synthesis Course	3sh
BIOL	241	Microbiology	3sh	—	—	Writing Intens.(Non-Maj)	3sh
—	—	Free Elective	3sh	—	—	Free Elective	3sh
—	—	Free Elective	3sh	—	—	Free Elective	3sh
—	—	Social Science Elective ²	<u>3sh</u>	—	—	Free Elective	<u>3sh</u>
			15sh				15sh

¹ MLSC 101 (Intro to Military Science) and MLSC 102 (Fundamentals of Military Science) may be substituted for Health and Wellness.

² Should select a course that will satisfy the Non-Western Cultures Requirement.

³ Foreign Language must be passed at the intermediate level. If elementary foreign language is taken prior to the intermediate level, those credits will count as free electives. Intermediate foreign language (German/French II and IV or Spanish II and Intermediate Spanish) may be used toward the Liberal Studies.

⁴ The summer testing program will determine whether MATH 105 (College Algebra) is to be taken before MATH 121. If it is, MATH 105 will count as a free elective

2) Detailed description of the Track

Rationale and Justification

The proposed Natural Science program will provide students with a formal curriculum that meets the requirements of health professional schools in the disciplines of optometry, dentistry, pharmacy, physical therapy, podiatry, physician assistant, and chiropractic. The proposed program also is designed to enhance the student's ability to apply to any of the professional schools during either their third or fourth year of matriculation. The new program will also ensure that each Natural Science student is thoroughly prepared for each health professional school.

The proposed program includes 21 semester hours of Biology courses (BIOL 111, 112, 150, 151, 241, and 263). The program also includes 16 semester hours of Chemistry courses (CHEM 111, 112, 231, and 232 or 351), eight semester hours of Physics courses (PHYS 111, 121, 112, and 122), eight semester hours of Mathematics (MATH 121, 216). Students who complete this program will receive a Bachelor of Science in Natural Science.

Sequencing of the Natural Science Program: see attached

Restrictions

Provided they meet the prerequisites, students from other departments and programs may enroll in the Natural Science Program.

PROPOSED CHANGES IN BACHELOR OF SCIENCE IN NATURAL SCIENCE CURRICULUM
COMPARING OLD AND NEW DEGREE REQUIREMENTS

Current Program

Bachelor of Science – Natural Science

Liberal Studies: As outlined in the Liberal Studies section with the following specifications **43-44sh**

Mathematics: Included in major
Natural Science: included in major

Liberal Studies Electives: No courses with SCI prefix

Synthesis: Not required for three-year students who transfer to a professional school with an articulation agreement

Writing Intensive: One course required for three-year students who transfer to a professional school with an articulation agreement

Major: **44-46sh**

Controlled Electives
BIOL courses 8sh

Controlled Electives
CHEM courses 8sh

Controlled Electives
PHYS courses 8sh

Controlled Electives
MATH courses 7-8sh

Controlled Electives
Computer Science and/or advanced courses
In Biology, Chemistry, Mathematics
or Physics 13-14sh

Other Requirements: **0-9sh**
Foreign Language Intermediate Level 0-6sh
COSC 101 Microbased Computer Literacy 0-3sh

Free Electives **25-37sh**

Total Degree Requirements: **124sh**

Proposed Program

Bachelor of Science – Natural Science

Liberal Studies: As outlined in Liberal Studies section with following specifications. **49sh**

Mathematics: MATH 121
Natural Sciences: CHEM 111-112
Social Sciences: PSYC 101

Liberal Studies Electives: BTED, COSC, or IFMG 101; No courses with SCI prefix

Synthesis: Not required for three-year students who transfer to a professional school with an articulation agreement

Writing Intensive: Majors writing intensive course only required for three-year students who transfer to a professional school with an articulation agreement

Major **41sh**

Required Courses: (BIOLOGY)
BIOL 111 Principles of Biology I 4sh
BIOL 112 Principles of Biology II 4sh
BIOL 150 Human Anatomy 3sh
BIOL 151 Human Physiology 4sh
BIOL 241 General Microbiology 3sh
BIOL 263 Genetics 3sh

Required Courses: (CHEMISTRY)
CHEM 231 Organic Chemistry I 4sh
CHEM 232 Organic Chemistry II or
CHEM 351 Biochemistry 4sh

Required Courses: (PHYSICS)
PHYS 111 General Physics I 3sh
PHYS 121 General Physics I Lab 1sh
PHYS 112 General Physics II 3sh
PHYS 122 General Physics II Lab 1sh

Required Course: (MATHEMATICS)
MATH 216 Probability & Statistics 4sh

Other Requirements: **0-6sh**
Foreign Language Intermediate Level 0-6sh

Free Electives **24-30sh**

Total Degree Requirements: **120sh**

Part III Implementation

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

The introduction of this program will have little or no effect on the students in the existing Natural Science Program. Most of the students presently take these courses because of the professional school requirements. All of the courses in the program are currently taught with the Biology, Chemistry, Physics, and Mathematics department's existing faculty

2. Are faculty resources adequate?

Yes. This program does not add any new courses to the affected science departmental offerings. At the present time all students in the Natural Science Program are enrolled in the appropriate science departmental courses and thus this program will cause no changes in the teaching loads of each department. All affected science departments endorse the new program.

3) Are other resources adequate?

Space: Existing laboratory space with the science departments is adequate.

Equipment: Equipment on hand is adequate, requiring the normal replacement with time.

Supplies: Current supply budgets for each science department is not affected by this program

Travel Funds: Travel to the professional schools by the Natural Science Coordinator is provided within the Dean of the College of Natural Science and Mathematics budget.

Library: Library resources can always be improved but are adequate

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

The total enrollment in all the Natural Science Program tracks has remained stable at 100-120 students for the past 4 years. It is not anticipated that the new program will have any effect on the number of students enrolled in the science courses

5. Intended implementation date

Fall 2003 semester.

Part IV. Periodic Assessment

The new Natural Science Program will be annually reviewed by the Natural Science Coordinator to reflect the changes that occur periodically in the professional school requirements

Part V. Course Proposals

There are no new courses being proposed

Part VI. Letters of Support

See attachments

Bachelor of Science in Natural Science

(Revised Spring, 2003)

1 st Semester				2 nd Semester			
BIOL	111	Principles of Biology I	4sh	BIOL	112	Principles of Biology II	4sh
CHEM	111	General Chemistry I	4sh	CHEM	112	General Chemistry II	4sh
ENGL	101	College Writing	4sh	HIST	195	History of Modern Era	3sh
HPED	143	Health and Wellness <u>or</u>		ARHI	101	Introduction to Art <u>or</u>	
FDNT	143	Nutrition and Wellness ¹	<u>3sh</u>	MUHI	101	Introduction to Music <u>or</u>	
			15sh	THTR	101	Introduction to Theater <u>or</u>	
				THTR	102	Introduction to Dance	<u>3sh</u>
							14sh
3 rd Semester				4 th Semester			
CHEM	231	Organic Chemistry I	4sh	CHEM	232	Organic Chemistry II	4sh
BIOL	150	Human Anatomy	3sh	BIOL	151	Human Physiology	4sh
_____	_____	Foreign Language ³	3-4sh	_____	_____	Foreign Language	3sh
_____	_____	Social Science Elective ²	3sh	ENGL	202	Research Writing	<u>3sh</u>
PSYC	101	General Psychology	<u>3sh</u>				14sh
			16-17sh				
5 th Semester				6 th Semester			
PHYS	111	General Physics I	3sh	PHYS	112	General Physics II	3sh
PHYS	121	General Physics I Lab	1sh	PHYS	122	General Physics II Lab	1sh
MATH	121	Calculus I for Nat. Sci. ⁴	4sh	BIOL	263	Genetics (W-major)	3sh
COSC	101	Micro. Computer Lit.	3sh	PHIL/RLST		Philosophy or Religion	3sh
_____	_____	Social Science Elective ²	<u>3sh</u>	_____	_____	Free Elective	3sh
			14sh	MATH	216	Probability & Statistics <u>or</u>	<u>3sh</u>
				MATH	217		16sh
7 th Semester				8 th Semester			
ENGL	121	Humanities Literature	3sh	LBST	499	Synthesis Course	3sh
BIOL	241	Microbiology	3sh	_____	_____	Writing Intensv(Non-Maj)	3sh
_____	_____	Free Elective	3sh	_____	_____	Free Elective	3sh
_____	_____	Free Elective	3sh	_____	_____	Free Elective	3sh
_____	_____	Social Science Elective ²	<u>3sh</u>	_____	_____	Free Elective	<u>3sh</u>
			15sh				15sh

¹ MLSC 101 (Intro to Military Science) and MLSC 102 (Fundamentals of Military Science) may be substituted for Health and Wellness.

² Should select a course that will satisfy the Non-Western Cultures Requirement.

³ Foreign Language must be passed at the intermediate level. If elementary foreign language is taken prior to the intermediate level, those credits will count as free electives. Intermediate foreign language (German/French II and IV or Spanish II and Intermediate Spanish) may be used toward the Liberal Studies.

⁴ The summer testing program will determine whether MATH 105 (College Algebra) is to be taken before MATH 121. If it is, MATH 105 will count as a free elective.

Andrew C. Browe

From: Dr. Ruess Van Fossen Ramsey <rvbravo@iup.edu>
To: Andrew C. Browe <acbrowe@iup.edu>
Cc: Ruess Ramsey <RVBRAVO@grove.iup.edu>
Sent: Monday, February 24, 2003 4:56 PM
Subject: Re: Natural Science requirements

Dear Dr. Browe,

The Chemistry Department supports the change in chemistry requirements for the Natural Science major. The new requirements will better serve the students in their efforts to enter professional schools. Also, the additional chemistry requirements will make your students eligible for many of the summer undergraduate research opportunities (most of which require two years of chemistry).

As far as resources are concerned, all of the chemistry courses are offered on a regular basis. We do not anticipate that any new resources will be required by this change.

Sincerely yours,
Ruess Van Fossen Ramsey, Chairperson
Chemistry Department

----- Original Message -----

From: Andrew C. Browe
To: RVBRAVO@iup.edu
Sent: Friday, February 21, 2003 4:15 PM
Subject: Natural Science requirements

Ruiss: I am changing the chemistry requirements for the Natural Science major. The present requirements simply include 8 hours of chemistry (usually CHEM 111 and CHEM 112). I would like to change the requirements to the following

General Chemistry I CHEM 111
General Chemistry II CHEM 112
Organic Chemistry I CHEM 231

Organic Chemistry II CHEM 232 or Biochemistry CHEM 351

These changes reflect the requirements of most of the professional schools that natural science students apply to. I need a letter of support from the Chemistry Dept. supporting these changes.

Andy Browe
Natural Science Coordinator

Andrew C. Browe

From: Ken Hershman <hershman@iup.edu>
To: Andrew C. Browe <acbrowe@iup.edu>
Sent: Tuesday, March 04, 2003 8:20 AM
Subject: Re: changes in natural science

Andy,

We wholeheartedly support the addition of PHYS 111/121 and PHYS 112/122 as requirements in your natural science program.

Ken Hershman
Chairman,
IUP Physics Department

----- Original Message -----

From: Andrew C. Browe
To: HERSHMAN@iup.edu
Sent: Monday, March 03, 2003 1:23 PM
Subject: changes in natural science

Ken:

I need a email of support for the changes in the natural science program that we talked about. The present program stipulates that the student take 8 credit hours of physics (presumably any physics at any level).

The new requirement states that the students must take General Physics I and II for their 8 hours. In fact this should not change your enrollment in this course because 98% of the natural science students actually do take General Physics I and II. This change really just eliminates a loop hole (such as taking medical physics or physical science) in the program. I hope the Physics Dept. can support me on this. I may actually get the greatest resistance from my own dept. when I change from two required biology courses to 6 biology courses required in the new proposal.

Andy

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Andrew C. Browe

From: Gary Stoudt <gsstoudt@iup.edu>
To: 'Andrew C. Browe' <acbrowe@iup.edu>
Cc: 'Gary Stoudt' <GSSTOUDT@iup.edu>
Sent: Tuesday, February 25, 2003 9:11 AM
Subject: Nat Sci Support

Andy,

The Mathematics Department supports the specifying of MATH 121 and MATH 216 or 217 as liberal studies mathematics requirements for natural science majors. This requirement will then match the requirements for the other Natural Science Pre-Professional programs.

Gary

Gary Stoudt, Chairperson
Mathematics

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02.25.2003

Andy

This has been discussed by our Department's curriculum committee and by the Department at the February 28, 2003 regular meeting. I am happy to indicate my support for the change with the note that the expected impact upon the Biology Department will be minimal.

Carl Luciano
Professor and Department Chair
Department of Biology

----- Original Message -----

From: Andrew C. Browe

To: luciano@iup.edu

Sent: Wednesday, March 26, 2003 6:05 PM

Subject: natural science program

Carl: Would you send me an email supporting the changes in the natural science program. These changes consist of going from 8 hours of biology courses to requiring the following courses

BIOL 111	Principles of Biology I	4 hr
BIOL 112	Principles of Biology II	4 hr
BIOL 150	Human Anatomy	3 hr
BIOL 151	Human Physiology	4 hr
BIOL 241	General Microbiology	3 hr
BIOL 263	Genetics	3 hr

Presently the vast majority of natural science students take these courses in order to get into professional school. Thus these changes have minimal (insignificant) impact on the Biology Dept course offerings. Thanks for the support of the Department

Andy