

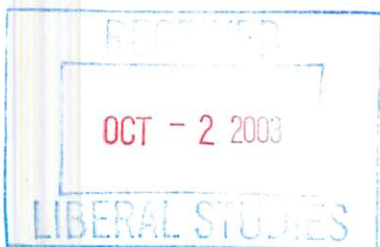
LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		03-206	Apr 11/18/03	Apr 12/2/03

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person Dr. Art Hulse	Email Address ntcc
Proposing Department/Unit Biology	Phone 72279

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) <input type="checkbox"/> New Course <input type="checkbox"/> Course Prefix Change <input type="checkbox"/> Course Deletion <input type="checkbox"/> Course Revision <input type="checkbox"/> Course Number and/or Title Change <input type="checkbox"/> Catalog Description Change	
<hr/>	
<u>Current</u> Course prefix, number and full title	<u>Proposed</u> course prefix, number and full title, if changing
2. Additional Course Designations: check if appropriate <input type="checkbox"/> This course is also proposed as a Liberal Studies Course. <input type="checkbox"/> Other: (e.g., Women's Studies, Pan-African) <input type="checkbox"/> This course is also proposed as an Honors College Course.	
3. Program Proposals <input type="checkbox"/> New Degree Program <input type="checkbox"/> Program Title Change <input checked="" type="checkbox"/> Program Revision <input type="checkbox"/> New Minor Program <input type="checkbox"/> New Track <input type="checkbox"/> Other	
<hr/>	
B.S. in Biology	
<u>Current</u> program name	<u>Proposed</u> program name, if changing
4. Approvals	
Department Curriculum Committee	Date
Chair(s) <i>Art Hulse</i>	3-14-03
Department Chair(s) <i>Art Hulse</i>	3/14/03
College Curriculum Committee Chair <i>[Signature]</i>	4/03/03
College Dean <i>Jahn D. Dean</i>	10/03/03
Director of Liberal Studies *	
Director of Honors College *	
Provost *	
Additional signatures as appropriate: (include title)	
UWUCC Co-Chairs <i>Gail Schuist</i>	11-18-03



PART II. Description of Curriculum Change

1 - Catalog Description for the Revised Bachelor of Science degree in Biology

Bachelor of Science – Biology

Liberal Studies: As outlined in Liberal Studies section with the following specifications:

Mathematics: MATH 121 or MATH 217 48cr

Natural Sciences: CHEM 111 – 112

Liberal Studies Electives: 3 cr

Major: 38cr

Required Courses:

BIOL 111	Principles of Biology I	4cr
BIOL 112	Principles of Biology II	4cr
BIOL 210	Botany	3cr
BIOL 220	General Zoology	3cr
BIOL 250	Principles of Microbiology	3cr
BIOL 263	Genetics	3cr

Controlled Electives:

Biology electives (major courses only) 18cr(1)

Other requirements: 24-25cr(2)

PHYS 111 (3cr)

PHYS: 121 (1cr)

Ancillary Science Courses:

An additional 20 to 21 credits in Ancillary sciences to be selected from the following(3,4)

CHEM: 231, 232, 321, 323, 351

BIOC: 301,302,311, 312

GEOS: 121 and 122, 131 and 132, 141, 310, 330, 331 and 361

MATH: 122, 216, 217, 417, 418

PHYS: 112 and 122, 151

Foreign Language:(5) 0 –6cr

Free Electives: 3 – 10cr

Total Degree Requirements: 120cr

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

(2) Twenty-one hours if the student elects MATH 121 in Liberal Studies or 22 hours if the student elects to take MATH 217)

(3) If MATH 121 (4cr) is selected as Liberal Studies mathematics course the additional requirement is 20 hours, if MATH 217 (3scr) is selected the additional requirement is 21 hours.

- (4) 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.
- (5) Two courses beyond placement or intermediate level. In lieu of a foreign language the student may elect to take a sequence of courses in either Computer Science exclusive of COSC 101 (COSC 110 and 210 recommended) or Regional Planning (from the following: RGPL 213, 314,316,415).

Current Program:

Bachelor of Science – Biology

Liberal Studies: As outlined in Liberal Studies section with the following specifications:

Mathematics: MATH 121 or 217

Natural Science: CHEM 111-112

Liberal Studies Electives: 3cr, PHYS 111, no courses with BIOL prefix

Major:

Required Courses:

BIOL 111 Principles of Biology I

BIOL 112 Principles of Biology II

BIOL 210 Botany

BIOL 220 General Zoology

BIOL 250 Principles of Microbiology

BIOL 263 Genetics

Controlled Electives:

Biology electives (major courses only)

Other Requirements:

PHYS 121 Physics I Lab

Ancillary Science Courses:

An additional 20-21 cr from the following (3,4):

BIOC: 301, 302, 311, 312

CHEM: 231, 232, 321, 323, 351

GEOS: 121 and 122, 131 and 132, 141, 310, 330, 331, 361

MATH: 122, 216, 217, 417, 418

PHYS: 112 and 122, 151

Other Requirements:

Foreign Language Intermediate Level

Free Electives:

Total Degree Requirements:

- (1) No more than 6cr total from Independent Study, Special Topics or Internship applies to major; excess applied as free electives.
- (2) 21cr if the student elects MATH 121 in Liberal Studies or 22cr if the student elects to take MATH 217.
(3cr) is elected the additional requirement is 5cr.
- (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.
- (4) Recommended complementary fields include Anthropology, Art, Business, Chemistry, Communications Media, Computer Science, Criminology, Dietetics, Economics, English, Foreign Language, Geography, Geoscience, Journalism, Mathematics, Physics, Political Science, Psychology, Regional Planning, or Safety Sciences. 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.
- (5) Two courses beyond placement or intermediate level.

Proposed Program:

Bachelor of Science – Biology

Liberal Studies: As outlined in Liberal Studies section with the following specifications:

Mathematics: MATH 121 or 217

Natural Science: CHEM 111-112

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

Major:

Required Courses:

BIOL 111 Principles of Biology I

BIOL 112 Principles of Biology II

BIOL 210 Botany

BIOL 220 General Zoology

BIOL 250 Principles of Microbiology

BIOL 263 Genetics

Controlled Electives:

Biology electives (majors courses only)

Other Requirements:

PHYS 111 Physics I Lecture

PHYS 121 Physics I Lab

Ancillary Science Courses:

An additional 20-21 cr from the following (3,4):

BIOC: 301, 302, 311, 312

CHEM: 231, 232, 321, 323, 351

GEOS: 121 and 122, 131 and 132, 141, 310, 330, 331, 361

MATH: 122, 216, 217, 417, 418

PHYS: 112 and 122, 151

Other Requirements:

Foreign Language Intermediate Level

Free Electives:

Total Degree Requirements:

- (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.
- (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.
- (4) Recommended complementary fields include Anthropology, Art, Business, Chemistry, Communications Media, Computer Science, Criminology, Dietetics, Economics, English, Foreign Language, Geography, Geoscience, Journalism, Mathematics, Physics, Political Science, Psychology, Regional Planning, or Safety Sciences. 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.
- (5) Two courses beyond placement or intermediate level.

Rationale: In the versions approved in December 2003, Physics 111 was placed under Liberal Studies and the department would prefer to have it under other requirements.

b) List of all Associated Course Changes (new or revised courses, number, title, or description changes, and deletions)

Revised Courses with New Titles, Numbers or Descriptions

None

New Courses

None

Existing Course Additions

- Allows for substitution of MATH 217(Probability and Statistics) for MATH 121 (Calculus I) at the student's option.
- Addition of a suite of "Ancillary Science Courses" that the student may select from, for 21 or 22sh.

Course Deletions

- Reduces Liberal Studies Electives from 9sh to 3sh
- Removal of CHEM 231 and 232 (Organic Chemistry 1 and 2) and CHEM 351 (Biochemistry) from absolute requirements and incorporates them into the suite of "Ancillary Science Courses" from which the student may choose.
- Removal of PHYS 112 and 122 (Physics II Lecture and Laboratory) from absolute requirements and incorporates them into the suite of "Ancillary Science Courses" from which the student may choose.
- Removes the absolute requirement for either MATH 122 or 216 and incorporates them into the suite of "Ancillary Science Courses" from which the student may choose.
- Option of selecting either 6sh of Computer Science courses or 6sh of Regional Planning courses in lieu of foreign language courses

3. Rationale for Change

INTRODUCTION: The current program revision primarily involves changes in the nature of the "Ancillary Science Courses" that our majors are required to take. The Biological Sciences rely heavily on the findings of other natural science disciplines such as Chemistry, Biochemistry, Geoscience, Mathematics and Physics, far more so than any of the other natural sciences. We currently require our majors to take 36sh in ancillary science and mathematics courses. This is only 2 sh less than they are required to take in the biological sciences. This is far more required hours than any of the other natural sciences. For example the B.S. in Chemistry requires 23 sh, the B.S. in Physics requires 21 sh and the B.S. in Geology/Geoscience track requires 24 sh. We do not propose either increasing nor decreasing the number of hours of ancillary natural science and mathematics courses. Instead what we propose is to allow our majors more freedom in the ancillary courses from which they may choose. Currently our majors have almost no freedom of choice with regard to the ancillary sciences.

This, at one time was appropriate. However, the study of biology is rapidly expanding into many disciplines. We are probably the most diverse of the sciences with regard to the number of sub-disciplines housed within a major discipline. Students in biology have many options open to them ranging from molecular and cellular biology to systems ecology and behavior along with a host of taxon related sub-fields (e.g. Entomology, Herpetology, Mammalogy etc.). While all of these varied sub-disciplines require a strong background in ancillary science and mathematics fields they do not all require the same background. What might be extremely appropriate for a student interested in molecular biology would not necessarily be appropriate for a student interested in ecology or herpetology, which in turn would not be appropriate for a student interested in entering medical fields .

Our current program contains a fairly rigid set of ancillary requirements comprised of 20 hours in chemistry, 8 hours in physics and 8 hours in mathematics with no requirements in the earth sciences. We propose to allow our students more flexibility in their ancillary science program by reducing the credit hours that must absolutely be taken and increasing the number of hours of elective ancillary sciences that they may take, while retaining the total number (36sh) that they are required to take. This will allow the students to select a suite of ancillary science and mathematics courses that are appropriate to their interests within the field of Biology. This will, in turn, better prepare our students for entry into specific graduate programs and make them more competitive when applying for employment in specific job markets. The changes and rationale for the changes are listed below.

- **Removal of Physics II Lecture and Laboratory as a requirement.** The new program requires that the student take only PHYS 111 and 121. We recognize that a basic understanding of Physics is necessary for a Biology major, but do not feel that a two semester course is necessary for all Biology majors. Those tracks where PHYS 112 and 122 are still necessary requirements (e.g., Pre-Met and Pre-Veterinary) will retain them as requirements. The ideal situation, to meet the needs of our majors, would be to have a one semester Physics course tailored to the needs of Biology students. This would be similar to the “designer” courses the Department of Biology offers in Human Anatomy (BIOL 150, for nurses etc.), Human Anatomy and Physiology (BIOL 155, for Dietetics, Food and Nutrition etc.), Microbiology (BIOL 232 for Food and Nutrition, Dietetics etc. and BIOL 241 for Nursing, Respiratory Therapy etc.) Unfortunately such a course does not at present exist. As a result PHYS 111 and 121 are the logical courses to meet the requirements of our majors.
- **Mathematics option.** In our old program all B.S. students were required to take MATH 121 (Calculus 1) and either MATH 122 or MATH 216. In the revision, the students are required to take only one MATH course and have the option of taking either MATH 121 or MATH 217 (Probability and Statistics). The reasons for the inclusion of MATH 217 as an option are that Biology is, to a large degree, a probabilistic science and most biological data undergoes statistical analysis of one sort or another and that MATH 217 does not require MATH 121 as a prerequisite. As a consequence for many, but certainly not all, of our students a firm grounding in statistical methods and analysis is more appropriate than an introductory course in Calculus. With the addition of the “Ancillary Science Courses” the student would then have the option of continuing with additional mathematics courses. Indeed, with the proper selection of “Ancillary Science Courses” a Biology major could minor in Applied Statistics.
- **Removal of CHEM 231 and 351 as absolute requirements.** CHEM 231 and 351 have been removed as absolute requirements for the revised B. S. in Biology, but have not been completely removed from the program, Rather they have been placed as electives with a number of other courses in the “Ancillary Science Courses” requirement for the revised program. This move again reflects the fact that while students in the Biological Sciences require a strong background in other scientific disciplines, a “one size fits all” approach is not appropriate. For example some of our majors would be far better served with other Chemistry courses such as CHEM 321 (Quantitative Analysis) or CHEM 323 (Analytical Methods) rather than Organic Chemistry or Biochemistry.
- **Inclusion of the large number of ancillary courses.** The Department of Biology recognizes the fact that Biological Sciences is a diverse field and that a “one-size fits all” approach to ancillary sciences is not going to serve the needs of a diverse group of majors. Courses that may be appropriate for a student interested in Cell Biology or Molecular Genetics would not necessarily be appropriate for a student who was interested in Ecology, Behavior, or specific taxon related fields such as Entomology or Herpetology. As a result, we have greatly expanded the number of courses that our majors may select from to meet their Ancillary Science requirements. Our current program allows realistically for our majors to only minor in Chemistry. In our revised program students could still minor in Chemistry if they cared to but could instead obtain minors in Biochemistry, Geoscience, or Applied Statistics. Furthermore with the proper use of free electives a Biology major could obtain a minor in Physics or in Mathematics.
- **Option to replace foreign language courses with courses either in Computer Science or in Regional Planning.** We have decided to pursue this option to allow our students to gain necessary

skills in areas other than a foreign language. While many of our students will benefit most from taking a foreign language others would be better served by increasing their skills in computer programming. Many areas of biology now use computer models and simulations to address biological problems. As a result for some of our students a sequence of courses in computer science would be more appropriate than a foreign language. The other area that is beginning to have a major impact on biological studies at the population level and higher is remote sensing and the utilization of Geographical Information Systems (GIS). One of IUP's Department of Geography and Regional Planning's greatest strengths is in GIS and remote sensing. We feel that a number of our students would be better served by being able to take a sequence of courses in GIS and remote sensing than by taking a foreign language.

PART III. Implementation

1- How will the proposed revision effect students already in the existing program?

Changes will not effect students in the existing program unless they elect to enter the new program. This would most likely only occur in students entering their Sophomore year of the old program.

2- Are faculty resources adequate?

Faculty resources are adequate within the Department of Biology since there is no change in BIOL course requirements. Other departments may see a slight increase in students enrolled in their courses due to the additional ancillary science course that our majors could choose from. There may be a reduction in number of students taking CHEM 231, 232 and 351 and PHYS 112 and 121 and MATH 122 and 216 due to the fact that these will no longer be absolute requirements for the revised B.S. in Biology degree. However, these courses are still listed among the suite of "Ancillary Science Courses" and may be required in one or more tracks (e.g. the new Pre-Med and Pre-Veterinary tracks requires the students to take PHYS 112 and 122, CHEM 231, 232, and 351 and MATH 122 for Pre-Med or MATH 216 for Pre-Vet) within the Department of Biology that are being developed for inclusion under the general B. S. in Biology degree. All departments have been notified of our program revisions (see attached letters of notification and response).

3. Are other resources adequate?

Other resources are expected to be adequate.

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?

It is our hope that the proposed revision will make the Bachelor of Science degree from IUP more attractive to potential students. However, we do not initially expect such an inordinately large influx of students as to affect the operations of either the Department of Biology or any department associated with our Ancillary Science Courses.

PART IV. Periodic assessment

We plan a two-pronged method of evaluation of the program. This will involve a survey of graduating seniors as well as a five-year evaluation of the program by the Department of Biology.

Upon submission of their graduation application to their advisors, students will be given a Senior Survey that they will be required to complete and return to their advisor in a sealed envelope bearing the letterhead of the Department of Biology. These sealed envelopes will be given to the department secretary and not opened until after graduation (either Fall or Spring). The department secretary will then transcribe the results and distribute the results to the entire faculty of the Department of Biology. If students so choose, they may identify themselves on the survey form for follow-up interviews by phone or e-mail.

At the end of the first five years of the program and every five years thereafter the Student Affairs Committee of the Department of Biology will evaluate all of the Senior Surveys for the last five years. In addition, enrollment trends during each five year period will be examined and included in the

evaluation. All faculty within the Department of Biology will also be asked to submit their individual evaluations regarding the success of the program

PART V. Course proposals

Not applicable, no new courses are being proposed

PART VI. Letters of support or acknowledgement

See the attached letters of notification and acknowledgement.

APPENDIX

LETTERS OF NOTIFICATION AND RESPONSES

03-206

APPENDIX
LETTERS OF NOTIFICATION AND RESPONSES

Art Hulse

From: "Art Hulse" <ntcc@iup.edu>
To: "Dr. Gary Stoudt" <GSSTOUDT@iup.edu>
Sent: Tuesday, February 04, 2003 1:14 PM
Attach: BS Program Revision.doc
Subject: Revision of B.S. in Biology program

Dear Dr. Stoudt:

The Department of Biology is in the process of revising its Bachelor of Science degree in Biology. Some of our revisions have the potential to impact your department. I wanted to inform you of these changes and solicit your comments relative to the changes. I have attached a copy of the Proposed Revision for you to examine.

The changes that might impact your department are as follows:

- 1- Currently we require or majors to take MATH 121 and either MATH 122 or 216. In the new proposal we give them the option of selecting either MATH 121 or MATH 217 as their only absolute requirement in Mathematics
- 2- We are broadening our controlled ancillary science courses that the students may select from. In our proposal the students have the following choices in Mathematics: MATH 121, 122, 216, 217, 417, 418. A student, may however, only take either MATH 216 or MATH 217 since the course content of the overlap significantly.

As a consequence of this you may have additional Biology majors enrolling in some of your courses and fewer in others depending upon which courses the students elect to take.

We are however, at the moment also developing a series of tracks within the B.S. degree that may require additional mathematics courses beyond those required for the revised major. Our B.S. Environmental Biology track will require students to take both MATH 121 and 217. Our Cell Molecular Biology Track will require students to take both MATH 121 and 217. Our Pre-med and Pre-vet tracks will require both MATH 121 and 216. As a consequence

I would greatly appreciate your comments on this proposal. If you wish, I will be happy to discuss the proposal with you. My extension is 72279

Sincerely yours,

Arthur C. Hulse,
Chair, Curriculum Committee

Art Hulse

From: "Gary Stoudt" <gsstoudt@iup.edu>
To: "Art Hulse" <ntcc@iup.edu>
Cc: "Gary Stoudt" <GSSTOUDT@iup.edu>
Sent: Tuesday, February 18, 2003 9:35 AM
Subject: B.S. Biology

The Mathematics Department supports the revisions to the B.S. in Biology program.

The rationale for changing the Liberal Studies Mathematics requirement from MATH 121 to MATH 121 or MATH 217 is a good one. The Mathematics Department can adjust to the slight decrease in enrollment in MATH 121 and the slight increase in MATH 217.

We support removing MATH 122 from the Liberal Studies Elective requirement even though a biology major might be well served to study MATH 122, which includes an introduction to differential equations (e.g. population models). Under the revised program a student could still choose to take MATH 122.

We support the proposed broadening of the controlled ancillary science courses to include mathematics courses and the addition of mathematics as a complementary field of study. The Mathematics Department can adjust to the potential increase in enrollments in MATH 121, 122, 216, 217, 417, 418.

Gary Stoudt
Mathematics

Art Hulse

From: "Art Hulse" <ntcc@iup.edu>
To: "Dr. Robert Sechrist" <RPSECRST@iup.edu>
Sent: Tuesday, February 04, 2003 9:41 AM
Attach: BS Program Revision.doc
Subject: B.S. in Biology Program Revision

Dear Dr. Sechrist

The Department of Biology is in the process of doing a revision of our B.S. in Biology program. Part of the revision may impact your department. Previously we have not required our students to take any courses in Geography and Regional Planning. In our revision we are going to allow our students the option of taking 6sh hours of courses in Geography and Regional Planning in lieu of their foreign language requirement. The courses that we recommend they choose from are RGOL 213,314,316 and/or 415 While we recognize that taking a foreign language is a valuable experience for a student we feel that some of our students would be far better served by having a background in GIS, remote sensing, cartography or photo interpretation.

At this time we have no idea how many of our majors might, in the future, select the option. I have attached a copy of our proposed revision to this e-mail. I would appreciate your department's response to our proposed revisions. If you have any questions or concerns I would be happy to discuss them with you. My office extension is 72279.

Sincerely yours,

Arthur C. Hulse

Art Hulse

From: "Robert Sechrist" <rpsechrst@iup.edu>
To: "Art Hulse" <ntcc@iup.edu>
Cc: "joe bencloski" <joeben@iup.edu>; "kevin patrick" <kpatrick@iup.edu>; "brian okey" <bokey@iup.edu>; "calvin masilela" <cmasilel@iup.edu>; "robert wilson" <rewilson@iup.edu>; "john benhart" <jbenhart@iup.edu>; "whit watts" <whit@iup.edu>; "bob begg" <bobbegg@iup.edu>; "Don Buckwalter" <donaldb@grove.iup.edu>; "gail sechrist" <gailsech@iup.edu>; "ROBERT P. SECHRIST" <RPSECRST@GROVE.IUP.EDU>; "Ruth Shirey" <rishirey@iup.edu>
Sent: Tuesday, February 04, 2003 10:54 AM
Attach: ATT00333.eml
Subject: RE: B.S. in Biology Program Revision

The department of geography & regional planning is pleased to support the attached proposition.

We also lament the loss of language skill development, but there are many precedents. At many institutions, statistical techniques are accepted as a foreign language. Mapping, spatial analysis, and GIS technology are certainly foreign to most people.

We have long realized that there will be increased demand for our techniques courses and are prepared to accommodate that need. As you know, we have offered special sections of GEOG 316 for natural sciences major that waived the 213 pre-requisite. We shall continue this practice and expand the frequency of its offering as demand increases.

Art Hulse

From: "Art Hulse" <ntcc@iup.edu>
To: "Dr. Charles McCreary" <CHASMC@iup.edu>
Sent: Tuesday, February 04, 2003 9:33 AM
Attach: BS Program Revision.doc
Subject: Revision of the B.S. In Biology Program

Dear Dr. McCreary

The Department of Biology is in the process of doing a revision of our B.S. in Biology program. Part of the revision may impact your department. Previously we required that all of our majors take two foreign language courses beyond placement or the intermediate level course of a foreign language. We are now going to give our majors the option of taking courses either in Computer Science or Regional Planning in lieu of a Foreign Language. While we recognize that taking a foreign language is a valuable experience for a student we feel that some, but certainly not all, of our students would be far better served by having a background in GIS, remote sensing, cartography or photo interpretation as offered by the Geography and Regional Planning Department or in Computer Science. In doing this we are not attempting to equate these courses with foreign language courses.

Along with our revision of the B.S. program we are also in the process of developing several tracks within the department. Two of these tracks (Pre-Med and Pre-Vet) will continue to require that all students in the tracks take two course beyond placement in a foreign language or the intermediate level of a foreign language. At present more than half of all of our majors entering the B.S. program in Biology enter with an primary interest in going to either medical school or vet school and as such would continue to take the old foreign language sequence. There will undoubtedly be some reduction of students in your classes, but I do not anticipate that it will be very great. The majority of our students will continue to take a foreign language.

I have attached a copy of our proposed revision to this e-mail. I would appreciate your department's response to our proposed revisions. If you have any questions or concerns I would be happy to discuss them with you. My office extension is 72279.

Sincerely,

Arthur C. Hulse

Art Hulse

From: "Charles R. McCreary" <chasmc@iup.edu>
To: "Art Hulse" <ntcc@iup.edu>
Cc: "Anita Henry" <ahenry@grove.iup.edu>; "Foster Jones" <ftjones@grove.iup.edu>; "LaurieHurt" <lhurt@iup.edu>; "Irene Wallaert" <wallaert@iup.edu>; "Peter Sullivan" <psulliv@iup.edu>; "Ken Brode" <kwbrode@iup.edu>; "Ludo op de Beeck" <pzcc@iup.edu>; "Ludo op de Beeck" <drlodb@hotmail.com>; "Peter M. Sullivan" <vze2xhgh@verizon.net>; <rsmith@iup.edu>
Sent: Monday, February 24, 2003 3:03 PM
Subject: Re: Revision of the B.S. In Biology Program

Dear Dr. Hulse,

I would first like to apologize for the delay in getting back to you. The 120 credit-hour mandate has been most demanding for us all.

I have studied your proposal and thank you for sharing it with us. While we are gratified that you recognize the importance of foreign languages in a well-rounded university degree, we regret that you feel compelled to reduce your department's language requirement to that of an *option* for students in one of your tracks. It is our position that a true liberal arts education must include the study of other languages and cultures. That university students are in need of an understanding of the internationalized world in which we live should not be a question for debate. Again, we regret your decision but realize that the 120 hour mandate is causing hardships throughout the university.

Sincerely,

On Tue, 4 Feb 2003 09:33:22 -0500, Art Hulse wrote:

>Dear Dr. McCreary

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>

>The Department of Biology is in the process of doing a revision of
 >our B.S. in Biology program. Part of the revision may impact your
 >department. Previously we required that all of our majors take two
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 >Planning in lieu of a Foreign Language. While we recognize that
 >taking a foreign language is a valuable experience for a student we
 >feel that some, but certainly not all, of our students would be
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 >process of developing several tracks within the department. Two of
 >these tracks (Pre-Med and Pre-Vet) will continue to require that
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 >foreign language or the intermediate level of a foreign language.
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 >either medical school or vet school and as such would continue to
 >take the old foreign language sequence. There will undoubtedly be
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 >that it will be very great. The majority of our students will
 >continue to take a foreign language.

>
 >I have attached a copy of our proposed revision to this e-mail. I
 >would appreciate your department's response to our proposed
 >revisions. If you have any questions or concerns I would be happy
 >to discuss them with you. My office extension is 72279.

>
>
>
 >Sincerely,

>
>
>
 >Arthur C. Hulse

Art Hulse

From: "Art Hulse" <ntcc@iup.edu>
To: "James Wolf" <JLWOLFE@iup.edu>
Sent: Tuesday, February 04, 2003 8:48 AM
Subject: Proposed B.S> in Biology Program Revision

Dear Dr. Wolfe:

The Department of Biology is in the process of doing a revision of our B.S. in Biology program. Part of the revision may impact your department. Previously we have not required our students to take any courses in Computer Science. In our revision we are going to allow our students the option of taking 6sh hours of courses in computer science (exclusive of COSC 101) in lieu of their foreign language requirement. While we recognize that taking a foreign language is a valuable experience for a student we feel that some of our students would be better served by having a background in Computer Science.

At this time we have no idea how many of our majors might, in the future, select the option. I have attached a copy of our proposed revision to this e-mail. I would appreciate your department's response to our proposed revisions. If you have any questions or concerns I would be happy to discuss them with you. My office extension is 72279.

Sincerely yours,

Arthur C. Hulse

Art Hulse

From: "Jim Wolfe" <jlwolfe@iup.edu>
To: "Art Hulse" <ntcc@iup.edu>
Sent: Friday, February 07, 2003 5:52 PM
Subject: Re: Proposed B.S> in Biology Program Revision

Art,

The Computer Science department is happy to support the proposed revision to the BS in Biology. We recognize that learning a foreign language is valuable experience for students - we require it of all Computer Science majors. However, we also recognize that for some majors learning a programming language can be equally valuable.

We would estimate that a small number of Biology majors would choose the Computer Science alternative to foreign language, perhaps 15-40 students per year. If the number is at the low end of this range, the students can be accommodated in existing sections. If it is at the high end, an additional section of programming classes can be opened. This will not create the need for additional faculty because of the number of departments which are choosing to drop COSC 101 from their requirements. We will be able to shift a 3-credit load from teaching to COSC 101 to a programming class.

Note that in your proposal you show COSC 110 - COSC 310 as a programming course sequence. This is not correct. The programming course sequence is COSC 110 - COSC 210 - COSC 310. So to get six credits of programming, Biology majors could take the first two (110 and 210). This would take them through the basics of programming and include object oriented elements and the making of GUIs. The students would not feel like they are stopping in the middle of a topic - many useful things can be done based on the first two courses. And, if the Biology majors decided that they wanted to minor in Computer Science, they would be ready to complete the sequence and form a good foundation for a minor.

Good luck with your program revision.

Jim Wolfe
Chair, Computer Science

Art Hulse

From: "Art Hulse" <ntcc@iup.edu>
To: "Darlene Richardson" <drchrdsn@iup.edu>
Sent: Tuesday, February 04, 2003 8:45 AM
Subject: Proposed B.S. In Biology Program Revision

Hi Darlene:

The Department of Biology is in the process of doing a revision of our B.S. in Biology program. Part of the revision may impact your department. Previously we have not required our students to take any courses in Geoscience. However, for some of our majors a background in Geoscience would be very desirable. As a result, with the new revision they will have the option of selecting from several courses offered by the Geoscience Department. In fact with a careful selection of courses a major in our department would be able to receive a minor in Geoscience. I have attached a copy of our proposed revision to this e-mail.

At this time we have no idea how many of our majors might, in the future, might elect to take Geoscience courses as part of their ancillary science package. Geoscience courses would be of greatest interest to those students of ours that are interested in fields such as ecology, environmental science, biogeography or marine biology and limnology. I would appreciate your department's response to our proposed revisions. If you have any questions or concerns I would be happy to discuss them with you. My office extension is 72279.

Best wishes,

Art

Art Hulse

From: "Darlene Richardson" <drchrdsn@iup.edu>
To: "Art Hulse" <ntcc@iup.edu>
Cc: "Darlene Richardson" <Drchrdsn@iup.edu>
Sent: Wednesday, February 05, 2003 2:15 PM
Subject: Re: Proposed B.S. In Biology Program Revision

Hi, Art. Thanks for the opportunity to review the revised BS Biology program. Your students are welcome to these courses that are appropriate for them. I believe there will be no problems with additional students in these courses. Good luck with the review process.
Darlene Richardson

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

From: [Art Hulse](#)
To: [Darlene Richardson](#)
Sent: Tuesday, February 04, 2003 8:45 AM
Subject: Proposed B.S. In Biology Program Revision

Hi Darlene:

The Department of Biology is in the process of doing a revision of our B.S. in Biology program. Part of the revision may impact your department. Previously we have not required our students to take any courses in Geoscience. However, for some of our majors a background in Geoscience would be very desirable. As a result, with the new revision they will have the option of selecting from several courses offered by the Geoscience Department. In fact with a careful selection of courses a major in our department would be able to receive a minor in Geoscience. I have attached a copy of our proposed revision to this e-mail.

At this time we have no idea how many of our majors might, in the future, elect to take Geoscience courses as part of their ancillary science package. Geoscience courses would be of greatest interest to those students of ours that are interested in fields such as ecology, environmental science, biogeography or marine biology and limnology. I would appreciate your department's response to our proposed revisions. If you have any questions or concerns I would be happy to discuss them with you. My office extension is 72279.

Best wishes,

Art

Art Hulse

From: "Art Hulse" <ntcc@iup.edu>
To: "Bharathan" <BHARATHN@iup.edu>; "J. Southard" <SOUTHARD@iup.edu>
Sent: Tuesday, February 04, 2003 9:05 AM
Attach: BS Program Revision.doc
Subject: Proposed Revision in the B.S> in Biology Program

Dear Drs. Bharathan and Southard:

The Department of Biology is in the process of doing a revision of our B.S. in Biology program. Part of the revision may impact your department. Previously we have not required our students to take any courses in Biochemistry. In our old program all B.S. in Biology students were required to take CHEM 351 (Biochemistry). Students will now have the option of taking BIOC courses instead of CHEM 351. CHEM 351 is a non-laboratory course and while it may be suitable for some of our majors others interested in biochemistry would be better served by taking a course that is associated with a laboratory. In addition, with a careful selection of biology courses and ancillary science courses a B.S. in Biology major would be able to obtain a minor in Biochemistry.

At this time we have no idea how many of our majors might, in the future, select to take Biochemistry courses as part of their ancillary science package. Biochemistry courses would be of greatest interest to those students of ours that are interested in fields such as molecular genetics, cell biology, physiology and microbiology. I would appreciate your programs response to our proposed revisions. If you have any questions or concerns I would be happy to discuss them with you. My office extension is 72279

To: Curriculum Committee
The University Senate
IUP

From: Dr. N. Bharathan, Dr. Jonathan N. Southard,
Co-Coordinators
Biochemistry Program
IUP

Date: March 15, 2003

Subject: Revised Bachelor of Science Degree in Biology

As Co-Coordinators of the Biochemistry Program, we support the inclusion of the biochemistry sequence courses (BIOC 301, 311, 302, and 312) as ancillary science options for the Bachelor of Science in Biology. Since the establishment of a minor in Biochemistry, a number of Biology majors have already enrolled in these courses. Inclusion of the BIOC courses (along with CHEM 351) as options in the Biology B.S. degree program allows students the flexibility to include biochemistry in their training at various levels (one semester lecture only, one semester lecture/lab or two semester lecture/lab). Given the broad range of interests and needs among these students, such flexibility is appropriate.

It is difficult to precisely predict the effect of the proposed change on faculty and other resources within the Biochemistry Program. Until recently, the BIOC courses have served only Biochemistry majors and have historically been under-enrolled. However, the laboratory courses have reached full enrollment (12 students) with the addition of Biology majors seeking a minor in Biochemistry. The pending proposal for a B.S. in Biology - Cellular and Molecular Biology (CMB) track lists the BIOC courses as required ancillary science courses. In addition, pending proposals for the B.S. and B.A. Chemistry degree programs and the B.S. Chemistry Education program include the BIOC courses as options (similar to the B.S. Biology program). Given the nature of these upper-level laboratory courses, we feel that while more than 12 students could be accommodated, the limit should be no higher than 16 students. This increase would require a modest supplementation of laboratory equipment and supplies. If the number of Biochemistry majors plus CMB majors exceeds 16, then it would be necessary to open a second laboratory section in to allow students to fulfill degree requirements. As the Biochemistry Program has no faculty complement *per se*, additional laboratory sections would impact faculty complement within the cooperating departments, Biology and Chemistry. Students requiring these courses (Biochemistry and CMB track Biology majors) will have priority for enrollment with any remaining seats made available for those in programs with the BIOC courses as options.

SUGGESTED COURSE SEQUENCE FOR STUDENTS IN THE B.S. IN BIOLOGY PROGRAM

First Semester		Credits	Second Semester		Credits
Course	Title		Course	Title	
BIOL 111	Principles of Biology I	4	BIOL 112	Principles of Biology II	4
CHEM 111	General Chemistry I	4	CHEM 112	General Chemistry II	4
HPED 143	Health and Wellness (or)	3	HIST 195	History of the Modern Era	3
FDNT 143	Nutrition and Wellness	3	ENGL 121	Humanities Literature	3
ENGL 101	College Writing	3	ARHI 101	Intro. To Art (or)	3
			MUH 101	Intro. Of Music (or)	
			THTR 101	Intro. to Theatre (or)	
			THTR 102	Intro. to Dance	
		14			17
Third Semester			Fourth Semester		
BIOL 210	Botany (or)	3	BIOL 210	Botany (or)	3
BIOL 220	General Zoology (or)		BIOL 220	General Zoology (or)	
BIOL 250	Principles of Microbiology		BIOL 250	Principles of Microbiology	
MATH 121	Calculus I (or)	4		Social Science Elective	3
MATH 217	Probability and Statistics	3		Foreign Language or Free Elective	3
ENGL 202	Research Writing	3		Ancillary Science	4
	Foreign Language or Free Elective	3			
	Free Elective	3			
		16			13
Fifth Semester			Sixth Semester		
BIOL 210	Botany (or)	3	BIOL	Elective	3
BIOL 220	General Zoology (or)		BIOL	Elective	3
BIOL 250	Principles of Microbiology			Social Science Elective	3
BIOL 263	Genetics	3		Ancillary Science	4
PHYS 111	Physics I Lecture	3		Free Elective	3
PHYS 121	Physics I Laboratory	1			
	Ancillary Science	4			
		14			16
Seventh Semester			Eighth Semester		
BIOL	Elective	3	BIOL	Elective	3
BIOL	Elective	3	BIOL	Elective	3
	Social Science Elective	3		Synthesis	3
	Philosophy	3		Ancillary Science	4
	Ancillary Science	4			
		16			13

Art Hulse

From: "Art Hulse" <ntcc@iup.edu>
To: "Dr. Roger Smith" <RSMITH@iup.edu>
Sent: Tuesday, February 04, 2003 9:35 AM
Attach: BS Program Revision.doc
Subject: B.S. In Biology Program Revision

Dear Dr. Smith:

The Department of Biology is in the process of doing a revision of our B.S. in Biology program. Part of the revision may impact your department. Previously we required that all of our majors take two foreign language courses beyond placement or the intermediate level course of a foreign language. We are now going to give our majors the option of taking courses either in Computer Science or Regional Planning in lieu of a Foreign Language. While we recognize that taking a foreign language is a valuable experience for a student we feel that some, but certainly not all, of our students would be far better served by having a background in GIS, remote sensing, cartography or photo interpretation as offered by the Geography and Regional Planning Department or in Computer Science. In doing this we are not attempting to equate these courses with foreign language courses.

Along with our revision of the B.S. program we are also in the process of developing several tracks within the department. Two of these tracks (Pre-Med and Pre-Vet) will continue to require that all students in the tracks take two course beyond placement in a foreign language or the intermediate level of a foreign language. At present more than half of all of our majors entering the B.S. program in Biology enter with an primary interest in going to either medical school or vet school and as such would continue to take the old foreign language sequence. There will undoubtedly be some reduction of students in your classes, but I do not anticipate that it will be very great. The majority of our students will continue to take a foreign language.

I have attached a copy of our proposed revision to this e-mail. I would appreciate your department's response to our proposed revisions. If you have any questions or concerns I would be happy to discuss them with you. My office extension is 72279.

Sincerely,

Arthur C. Hulse

*No response received
027 March 14, 2003*

Art Hulse

From: "Art Hulse" <ntcc@iup.edu>
To: "Dr. Ken Hershman" <HERSHMAN@iup.edu>
Sent: Tuesday, February 04, 2003 9:02 AM
Attach: BS Program Revision.doc
Subject: Proposed B.S. in Biology Program Revision

Dear Ken:

The Department of Biology is in the process of doing a revision of our B.S. in Biology program. Part of the revision may impact your department. In our old program our B.S. in Biology majors were required to take 36sh hours of ancillary sciences. The 36 hours were rigidly set with virtually no options for our students. In our old program our B.S. in Biology majors were required to take PHYS 111, 121, 112, and 122. In our revision our students will still be required to take 36sh of ancillary sciences however the new revision is far more flexible with regard to student choice in selecting ancillary science course. This change reflects the great diversity of disciplines under the general heading of biology. Ancillary science courses that might be very appropriate for a student with one interest would not necessarily be the best selections for a student with different interests. In the new program students will be required to take PHYS 111 and 121 and have the option of selecting, if they wish, other Physics courses. Students will also have choices from other sciences.

Along with our revision of the B.S. program we are also in the process of developing several tracks within the department. Two of these tracks (Pre-Med and Pre-Vet) will continue to require that all students in the tracks take PHYS 112 and 122. At present more than half of all of our majors entering the B.S. program in Biology enter with an primary interest in going to either medical school or vet school and as such would continue to take the old Physics sequence. There will undoubtedly be some reduction of biology students from PHYS 112 and 122, however it will not be a massive reduction since many of our students will still be required (by track option) to take these courses.

I have attached a copy of our proposed revision to this e-mail. I would appreciate your department's response to our proposed revisions. If you have any questions or concerns I would be happy to discuss them with you. My office extension is 72279. I would also welcome the opportunity to discuss with you or your department's Curriculum Committee the possibility of developing an introductory physics course for Biology majors that would deal primarily with those topics that are most relevant to a student of biology.

Sincerely,

Art Hulse

*No response received
as of March 14, 2003*

Art Hulse

From: "Art Hulse" <ntcc@iup.edu>
To: "Dr. Ruiess Ramsey" <RVBRAVO@iup.edu>
Sent: Tuesday, February 04, 2003 8:58 AM
Attach: BS Program Revision.doc
Subject: Proposed B.S. in Biology Program Revision

The Department of Biology is in the process of doing a revision of our B.S. in Biology program. Part of the revision may impact your department. In our old program our B.S. in Biology majors were required to take 36sh hours of ancillary sciences. The 36 hours were rigidly set with virtually no options for our students. In our old program our B.S. in Biology majors were required to take CHEM 111 and 112, 231, 232, and 351. In our revision our students will still be required to take 36sh of ancillary sciences however the new revision is far more flexible with regard to student choice in selecting ancillary science course. This change reflects the great diversity of disciplines under the general heading of biology. Ancillary science courses that might be very appropriate for a student with one interest would not necessarily be the best selections for a student with different interests. In the new program students will be required to take CHEM 111 and 112 and have the option of selecting, if they wish, a series of other chemistry courses as part of their ancillary science package. These courses include CHEM 231, 232, 351 along with CHEM 321 and 323. Students will also have choices from other sciences.

Along with our revision of the B.S. program we are also in the process of developing several tracks within the department. Two of these tracks (Pre-Med and Pre-Vet) will continue to require that all students in the tracks take CHEM 231, 232 and 351. At present more than half of all of our majors entering the B.S. program in Biology enter with an primary interest in going to either medical school or vet school and as such would continue to take the old chemistry sequence of CHEM 111,112,231, 232, and 351. In addition we are developing a Cell Molecular Track in which all of the students enrolled in that track would be required to take CHEM 231 and 232. There will undoubtedly be some reduction of biology students from CHEM 231,232, and 351, however it will not be a massive reduction since many of our students will still be required (by track option) to take these courses. In addition we have added two other courses from Chemistry that our students might select from for to partially fulfill their ancillary science requirements. These are CHEM 321 and CHEM 323.

I have attached a copy of our proposed revision to this e-mail. I would appreciate your department's response to our proposed revisions. If you have any questions or concerns I would be happy to discuss them with you. My office extension is 72279

*Rs response received
as of March 14, 2003*