MAR 11 1994

LSC Use Only
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Number: ~~93-80~~ 94-25
Action: ~~App~~ 3/28/95
Date: _____
Senate App 5/2/95

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

I. Title/Author of Change

Course/Program Title: BS/BA degrees in Biology, Env. Health and Biology Education
Suggested 20 Character Course Title: _____
Department: Biology
Contact Person: Robert P. Gendron

II. If a course, is it being Proposed for:

X Program Revision/Approval Only
_____ Course Revision/Approval and Liberal Studies Approval
_____ Liberal Studies Approval Only (course previously has been approved by the University Senate)

III. Approvals

Robert P. Gendron
Department Curriculum Committee

Department Chairperson

College Curriculum Committee

W. S. Cale
College Dean*

Director of Liberal Studies (where applicable)

Provost (where applicable)

*College Dean must consult with Provost before approving curriculum changes. Approval by College Dean indicates that the proposed change is consistent with long range planning documents, that all requests for resources made as part of the proposal can be met, and that the proposal has the support of the university administration.

IV. Timetable

re-submitted

Date Submitted
to LSC: _____
to UWUCC: _____

Semester to be implemented: Fall ~~1995~~ 1996

Date to be published in Catalog: ~~1995~~ 1996

RECEIVED
MAR - 9 1995
LIBERAL STUDIES

DOCUMENTS INCLUDED WITH THIS PROPOSAL :

Description of Curriculum Changes

Catalog Description

Proposed Curriculum Changes in Biology

Overview

Summary of Curriculum Changes

Impact of the New Curriculum on Students

Impact of the New Curriculum on Faculty Load

Impact of the New Curriculum on Other Departments

Appendix I: Suggested Course Sequences

Appendix II: Timetable for Implementation of the New Curriculum

Course Proposals

BI 111 Principles of Biology I

BI 112 Principles of Biology II

BI 210 Botany

BI 220 General Zoology

BI 250 Principles of Microbiology

BI 105 Cell Biology (Revised course)

Letters of Support

Biology Department

Robert S. Prezant, Chairperson; Andrew, Alico, Ash-Johnson, Baker, Browe, Butler, Charnego, Ciskowski, Dietrich, Ferrence, Forbes, Gendron, Hulse, Humphreys, Kerans, Kesner, Linzey, Lord, Luciano, Nastase, Newell, Peard, Peterson, Pickering, Pistole, Schrock, Simmons, Winstead

Degrees offered by the biology department are the Bachelor of Science in Biology, the Bachelor of Arts in Biology, Bachelor of Science in Environmental Health, and the Bachelor of Science in Education with a Biology major. The first three degree programs are under the College of Natural Sciences and Mathematics, and the fourth is under the College of Education. The department also offers a Biology minor.

The program leading to a B.S. in Biology is designed to provide maximum depth in the sciences and mathematics with minimum elective opportunity. Students who plan to attend graduate school or professional schools such as those in human or veterinary medicine most often choose this program of studies. Further, the B.S. in Biology automatically qualifies a student for a minor in chemistry and thus represents more than adequate preparation for employment opportunities which require expertise in both biology and chemistry.

The program leading to the B.A. in Biology is designed to allow for greater elective choice. This freedom could be used to pursue interests in non-biological areas allowing for a more broadly based Liberal Arts education. Alternatively, the B.A. degree student would have the flexibility to pursue in depth (to minor in or perhaps even to double major in) a particular non-biological discipline. Biology combined with other sciences such as Computer Science, Chemistry, Physics, Geoscience, Mathematics or Psychology or non-sciences such as Art, English, Business, or a foreign language can make attractive packages for the student and for potential future employers.

The Environmental Health program is a preparation for employment in local, state, and federal agencies and industry as well as graduate school in a public health-related field. Between the junior and senior year each student should serve an internship with a government agency or an industrial concern.

The program leading to the B.S. in Education with a Biology major is designed to prepare for certification in public school teaching.

Foreign Language Requirement

The foreign language requirement for a Biology major is completion of the intermediate level or two semesters of foreign language starting at the highest level recommended by the freshman Pre-registration Placement Test in that language (may be included in Liberal Studies electives). This requirement can also be met by demonstrating proficiency in a foreign language equivalent to the intermediate level.

Note: The biology department cooperates in programs with Jefferson Medical College, Duke University School of Forestry and Environmental Studies, Marine Science Consortium, Inc., and Pymatuning Laboratory of Ecology.

[Information from Duke Forestry and Jefferson Medical programs remains unchanged from the current catalog and is not repeated here.]

Pymatuning Laboratory of Ecology
Biology majors may expand their selection of course offerings by participating in a cooperative program with the University of Pittsburgh's Field Station at the Pymatuning Laboratory of Ecology located in northwestern Pennsylvania. These elective courses center around ecological and environmental topics, i.e., Avian Ecology, Field Botany, Vertebrate Ecology, Aquatic Entomology, Behavioral Ecology, and Experimental Design. Application and registration for both summer sessions must be completed by April 1. Students register for credit and pay fees at IUP. Books, lab fee, room and board are paid to the Pymatuning Laboratory of Ecology. Dr. Anthony J. Nastase is the faculty advisor for this cooperative program and assists students in program planning, application and registration.

Marine Science Consortium
Biology majors interested in marine biology are encouraged to investigate summer courses offered through the Marine Sciences Consortium at Wallops Island, Virginia by contacting Dr. Ray L. Winstead in the Biology Department. These courses would count as biology electives.

In the programs of study that follow, no more than six semester hours in aggregate from internships, independent study, and special topics may be counted toward biology course requirements. Credits beyond six earned from these sources are counted as general electives.

Bachelor of Arts--Biology

Liberal Studies: As outlined in Liberal Studies section 55-56
with the following specifications:

Mathematics: MA121
Natural Science: CH111-112
Liberal Studies electives: no courses with BI prefix

Major: 32

Required courses:

BI111	Principles of Biology I	4sh
BI112	Principles of Biology II	4sh
BI210	Botany	3sh
BI220	General Zoology	3sh
BI250	Principles of Microbiology	3sh
BI263	Genetics	3sh

Controlled electives:
Biology electives (major courses only) 12sh(1)

Other Requirements: 8
Chemistry sequence
CH231 Organic Chemistry I 4sh
CH351 Biochemistry(2) 4sh
Foreign Language(3)

Free Electives: 29

Total Degree Requirements: 124

(1) No more than 6sh total from Independent Study, Special Topics, Internship applies to major; excess applied as free electives.
(2) The two-semester (6 credit) sequence of BC301-302 can be substituted for CH351 to meet the biochemistry requirement.
(3) See Foreign Language requirement. Intermediate-level Foreign Language may be included in Liberal Studies electives. Introductory-level Foreign Language courses count as free electives.

Bachelor of Science--Biology
Liberal Studies: As outlined in Liberal Studies section 56-57
with the following specifications:
Mathematics: MA121
Natural Science: CH111-112
Liberal Studies electives: PY111 and either MA122 or MA216, no courses with BI prefix

Major: 38
Required courses:
BI111 Principles of Biology I 4sh
BI112 Principles of Biology II 4sh
BI210 Botany 3sh
BI220 General Zoology 3sh
BI250 Principles of Microbiology 3sh
BI263 Genetics 3sh
Controlled electives:
Biology electives (major courses only) 18sh(1)

Other Requirements: 17
Chemistry sequence
CH231 Organic Chemistry I 4sh
CH232 Organic Chemistry II(2) 4sh
CH351 Biochemistry(3) 4sh

Physics sequence:

PY121	Physics I Lab	1sh
PY112	Physics II	3sh
PY122	Physics II Lab	1sh

Foreign Language(4)

Free Electives: 13

Total Degree Requirements: 124

(1) No more than 6sh total from Independent Study, Special Topics, Internship applies to major; excess applied as free electives.
(2) Students may substitute a third math course (MA122 or MA216) for CH232.
(3) The two-semester (6 credit) sequence of BC301-302 can be substituted for CH351 to meet the biochemistry requirement.
(4) See Foreign Language requirement. Intermediate-level Foreign Language may be included in Liberal Studies electives. Introductory-level Foreign Language courses count as free electives.

Bachelor of Science in Education --Biology (*)

Liberal Studies: As outlined in Liberal Studies section 54
with the following specifications:

Mathematics: MA110 or MA121
Natural Science: CH111-112
Social Science: PC101
Liberal Studies electives: PY111, no courses with BI prefix. One course must have a GS prefix from the Liberal Studies Natural Science Non-laboratory list.

College: 30

Professional Education Sequence:

CM301	Technology for Learning and Instruction	3sh
ED242	Pre-student Teaching I	1sh
ED342	Pre-student Teaching II	1sh
ED441	Student Teaching(1)	12sh
ED442	School Law	1sh
ED451	Teaching Science in the Secondary Schools	3sh
EP202	Educational Psychology	3sh
EP377	Educational Tests and Measurements	3sh
FE202	American Education in Theory and Practice	3sh

Major: 30

Required Courses:

BI111	Principles of Biology I	4sh

BI112	Principles of Biology II	4sh
BI210	Botany	3sh
BI220	General Zoology	3sh
BI250	Principles of Microbiology	3sh
BI263	Genetics	3sh
BI480	Biology Seminar	1sh

Controlled electives:

Biology electives: (major courses only) 9sh(2)

Other Requirements: 13

Chemistry sequence:

CH231	Organic Chemistry I	4sh
CH351	Biochemistry(3)	4sh

Physics sequence:

PY121	Physics I Lab	1sh
PY112	Physics II	3sh
PY122	Physics II Lab	1sh

Free Electives: 0

(#) **Total Degree Requirements:** 127

(*) See requirements leading to teacher certification in the catalog section on Academic Policies, "Admission to Teacher Education."

(1) Eligibility for student teaching and certification in secondary biology education requires a QPA of 2.75 and a grade of C or better in all Biology courses.

(2) No more than 6sh from Special Topics (BI481), Independent Study (BI482), Internship (BI493) applies to major; excess applied as free electives.

(3) The two-semester (6 credit) sequence of BC301-302 can be substituted for CH351 to meet the biochemistry requirement.

(#) See advisory paragraph "Timely Completion of Degree Requirements" in catalog section on Requirements for Graduation.

Bachelor of Science--Environmental Health

Liberal Studies: As outlined in Liberal Studies section 56
with the following specifications:

Mathematics: MA121
Natural Science: CH111-112
Social Science: EC101
Liberal Studies electives: PY111, CO101, MA216

Major: 30

Required courses:

BI111	Principles of Biology I	4sh
BI112	Principles of Biology II	4sh
BI210	Botany	3sh
BI220	General Zoology	3sh
BI241	General Microbiology	3sh
BI310	Applied Entomology and Zoonoses	3sh
BI321	Environmental Protection I	3sh
BI322	Environmental Protection II	3sh
BI480	Biology Seminar	1sh

Controlled electives:

Biology electives: (major courses only) 3sh(1)

Other Requirements: 31

Required courses:

CH231	Organic Chemistry I	4sh
CH323	Analytical Methods	4sh
PY121	Physics I Lab	1sh
PY112	Physics II	3sh
PY122	Physics II Lab	1sh
SA101	Introduction to Occupational Safety and Health Management	3sh
SA301	Nature and Effects of Occupational Health Hazards	3sh
PS250	Public Policy	3sh

Controlled electives:

BI498	Internship(1) <u>or</u>	9sh
_____	Controlled electives(2)	

Foreign Language(3)

Free Electives: 7

Total Degree Requirements: 124

(1) No more than 6sh total from Independent Study, Special Topics, or Internship applies to major, excess applied as free electives. At least one writing intensive within the major (e.g., BI362 or SA462) must be taken to fulfill Liberal Studies requirements.

(2) The following courses count as controlled electives: BI362 (Ecology), BI463 (Limn.), BI476 (Parasit.), CH232 (Organic Chem. II), GS121 (Physical Geology), GS122 (Physical Geology Lab), GS331 (Hydrogeology), SA402 (Health Hazard Evaluation), SA461 (Air Pollution), SA462 (Radiological Health).

(3) See Foreign Language requirement. Foreign Language courses are counted as free electives.

Minor--Biology

Minor: 17

Required courses

BI103-104 General Biology I and II **or**
BI111-112 Principles of Biology I and II 8sh
Additional BI courses 9sh(1)

Other Requirements:

Must have permission of biology department chairperson

(1) With approval of department chair

The prerequisites of many Biology courses must be changed to reflect the new core curriculum. The following changes are to be included with the new catalog description.

BI 251	Field Botany	BI210
BI 252	Field Zoology	BI220
BI 261	Ornithology	BI111-112 or BI103-104
BI 262	General Entomology	BI220
BI 263	Genetics	BI111
BI 271	Evolution	BI111-112 or BI103-104, BI263
BI 272	Conserv. Plant & Anim. Res.	BI111-112 or BI103-104
BI 310	Applied Ent. & Zoonoses	BI220 or by permission
BI 321	Environmental Protection I	BI111-112, CH112, and permission of instructor, Environmental Health majors only
BI 322	Environmental Protection II	BI111-112, CH112, and permission of instructor, Environmental Health majors only
BI 331	Animal Developmental Biol.	BI220 or by permission
BI 350	Cellular Physiology	BI111, CH231
BI 352	Comparative Animal Phys.	BI220, CH231
BI 360	Medical Mycology	BI111-112
BI 362	Ecology	BI111-112, BI210 or BI220
BI 364	Immunology	BI250, CH232, or by permission
BI 420	Biology of Higher Invert.	BI220
BI 425	Herpetology	BI220
BI 432	Comparative Vertebrate Anat.	BI220
BI 453	Plant Physiology	BI210, CH231
BI 463	Limnology	BI362
BI 475	Mammalogy	BI220
BI 476	Parasitology	BI220
BI 478	Mycology	BI210

PROPOSED CURRICULUM CHANGES IN BIOLOGY

I. OVERVIEW

The Biology Department has developed a new curriculum in order to better serve our students . The cornerstone of this revised curriculum is a two-semester course, Principles of Biology, which students will take in their freshman year. There is also an increase in the number of biology credits taken by some of our majors. (Our B.S. and B.A. students currently take relatively few credits in their major compared to other biology departments and to other science departments within the College. See page 15.) Other core courses have been replaced or modified so that they complement Principles I and II. For example, Animal Biology and Plant Biology will be replaced with 3 credit courses (General Zoology and Botany). Cell Biology will be taken out of the core and revised to meet the needs of non-majors. Microbiology will be replaced with a new course (Principles of Microbiology) that will be added to the core. Following a transition period some of our current courses will be phased out (BI 110 - Plant Biology, BI 120 - Animal Biology, BI 361-Microbiology)

In addition to affecting the B.A. and B.S. Degree programs, changes in the core courses will also require minor modification of the Biology Education and Environmental Health Programs. These changes are detailed below. A tentative timetable for phasing in the new curriculum is given in Appendix II.

These changes will accomplish the following goals.

1. The new Principles of Biology course will give students a better appreciation for the unifying themes that run through many areas of modern biological science. Currently, there is no single course specifically designed with this goal in mind. To a certain extent, students must make connections between the different areas of biology on their own.

2. An appreciation of biological diversity is complementary to, and just as important as, an understanding of unifying principles. The addition of Microbiology to the core will provide a more balanced view of the diversity of life.

3. The Principles course will provide students with a better overview of the breadth of biology at an early stage in their education. Among other things, this will make it easier for them to make informed decisions when choosing electives.

4. Taking a Principles course during the first year will also give each student an opportunity to identify an area of biology that most excites them. We believe that this will improve the retention of students.

5. An increase in the number of biology credits will strengthen the biology program, making it comparable to those offered at other universities (see pages. 15-16).

II. SUMMARY OF CURRICULUM CHANGES

Bachelor Degree in Biology

Current Biology Requirements		Proposed Biology Requirements	
BI 105 Cell Biology	4 sh	BI 111 Principles of Biology I	4 sh
BI 110 Plant Biology	5 sh	BI 112 Principles of Biology II	4 sh
BI 120 Animal Biology	5 sh	BI 210 Botany	3 sh
BI 263 Genetics	3 sh	BI 220 General Zoology	3 sh
BI 480 Biology Seminar	1 sh	BI 250 Principles of Microbiology	3 sh
Biology electives	9-15 sh	BI 263 Genetics	3 sh
		Biology electives	12-18 sh
Total	27-33 sh	Total	32-38 sh

	B.S. Degree		B.A. Degree	
Liberal Studies Requirements	Current	Proposed	Current	Proposed
Eng./Hum./F.A.	19	19	19	19
Social Sciences	9	9	9	9
Health/Wellness	3	3	3	3
Liberal Studies Electives*	6-7	3-4	9-10	9-10
Synthesis	3	3	3	3
Biology Major (some courses also count towards L.S. requirement)				
Biology	33	38	27	32
Chemistry**	20	16-20	16	16
Physics	8	8	0	0
Mathematics**	8	8-12	4	4
Free Electives	15	13	34	29
Total	124	124	124	124

* Intermediate foreign language counts as a Liberal Studies Elective. The variable number of credits in this category reflects the requirements of the different foreign language departments. Introductory foreign language courses count as free electives.

** In the new curriculum B.S. students may substitute a third math course (MA122 or MA216) for CH232.

Appendix I shows the recommended course sequences for the B.S. and B.A. degrees.

Minor in Biology

Current Requirements	Proposed Requirements
BI 105 Cell Biology **or**	BI 111-112 Principles of Biology I and II **or**
BI 103-104 General Biology I and II	BI 103-104 General Biology I and II
Additional BI courses (9-13sh)	Additional BI courses (9sh)

Bachelor of Science in Education - Biology

Current Biology Requirements		Proposed Biology Requirements	
BI 103 General Biology I	4 sh	BI 111 Principles of Biology I	4 sh
BI 104 General Biology II	4 sh	BI 112 Principles of Biology II	4 sh
BI 110 Plant Biology	5 sh	BI 210 Botany	3 sh
BI 120 Animal Biology	5 sh	BI 220 General Zoology	3 sh
BI 361 Microbiology	3 sh	BI 250 Principles of Microbiology	3 sh
BI 480 Biology Ed. Seminar	1 sh	BI 263 Genetics	3 sh
Biology electives	8 sh	BI 480 Biology Ed. Seminar	1 sh
		Biology electives	9 sh
Total	30	Total	30

Liberal Studies Requirements	Current*	Proposed
Eng./Hum./F.A.	19	19
Social Sciences	9	9
Health/Wellness	3	3
Liberal Studies Electives	3	3
Synthesis	3	3
Biology Major (some courses also count towards L.S. requirement)		
Biology	30	30
Chemistry	16	16
Physics (PY111 counts as LS elective)	8	8
Mathematics (LS: Learning Skills)	3-4	3-4
Geoscience (LS elective)	3	3
Professional Education	18	18
Student Teaching	12	12
Total	127	127

* "Current requirem ents" reflect changes in program made in Spring 1993. These changes may be approved by the Senate in time for inclusion in the Fall 1993 catalog.

Bachelor of Science - Environmental Health

Current Biology Requirements		Proposed Biology Requirements	
BI 105 Cell Biology	4 sh	BI 111 Principles of Biology I	4 sh
BI 110 Plant Biology	5 sh	BI 112 Principles of Biology II	4 sh
BI 120 Animal Biology	5 sh	BI 210 Botany	3 sh
BI 241 General Micro.	3 sh	BI 220 General Zoology	3 sh
BI 362 Ecology	3 sh	BI 241 General Microbiology	3 sh
BI 310 Applied Ent.	3 sh	BI 310 Applied Ent.	3 sh
BI 321 Env. Protection I	3 sh	BI 321 Env. Protection I	3 sh
BI 322 Env. Protection II	3 sh	BI 322 Env. Protection II	3 sh
BI 480 Seminar	1 sh	BI 480 Seminar	1 sh
		Biology Electives	3 sh
Total	30 sh	Total	30 sh

Liberal Studies Requirements	Current	Proposed
Eng./Hum./F.A.	19	19
Social Sciences	9	9
Health/Wellness	3	3
Liberal Studies Electives(1)	6-7	3
Synthesis	3	3
Environmental Health Major (some courses also count towards L.S. requirement)		
Biology	30	30
Controlled Electives or Internship(2)	6	9
Chemistry	12	16
Physics	8	8
Mathematics	8	8
Safety Science	9	6
Public Policy	0	3
Free Electives	11	7
Total	124	124

(1) In the current curriculum intermediate foreign language counts as a Liberal Studies Elective. The variable number of credits in this category reflects the requirements of the different foreign language departments. In the proposed curriculum MA216, CO101 and PY111 count as Liberal Studies Electives. Foreign Language courses will count as free electives.

(2) The following courses count as controlled electives: BI362 (Ecology), BI463 (Limnology), BI476 (Parasitology), CH232 (Organic Chemistry II), GS121 (Physical Geology), GS122 (Physical Geology Lab), GS331 (Hydrogeology), SA402 (Health Hazard Evaluation), SA461 (Air Pollution), SA462 (Radiological Health).

III. IMPACT OF THE NEW CURRICULUM ON STUDENTS

The major impact of the new curriculum on the students is that they will be better prepared for careers in biology. Biology is a rapidly changing field and it is essential to update our program to reflect this change. We have, however, tried to minimize the impact of the new curriculum on student work load. In part, this was accomplished by reducing the number of credits for two of the diversity courses. For a bachelor's degree in Biology or Environmental Health there will be no change in the total number of credits required for graduation. Because of a redistribution of Liberal Studies credits the B.S. in Biology Education can now be completed in 127 credits, down from the current 130 credits. For the B.S. in Biology there will be an increase in the number of biology credits from 33 to 38. The rationale for this change can be seen, in part, by looking at the following tables. Compared to other institutions and departments, the number of biology credits taken by our students has historically been very low. With the new curriculum this number will be comparable to that in the other departments within the College of Natural Sciences and Mathematics and to biology programs at similar schools.

To keep the increase in total number of credits to a minimum the required number of free elective credits was reduced from 15 to 13 in the B.S. program and from 11 to 7 in the Environmental Health program. To compensate for this reduction, a change in the foreign language requirement will increase student flexibility in choosing free or Liberal Studies electives. In the past, most of our students used 3-6 of their free elective credits taking introductory language courses before they were ready to take the required intermediate language course(s). With the new requirement of two semesters of foreign language (see catalog description) their options are increased.

Number of Credits Required in Major's Courses by Each Department

	B.S. Degree		B.A. Degree	
	Core	Total	Core	Total
Biology - Current	**18**	**33**	**18**	**27**
Biology - Proposed	**20**	**38**	**20**	**32**
Chemistry	38	44	29	29
Computer Science	26	38	20	35
Geoscience	27	39	-	-
Mathematics	18	36	-	-
Physics	39	45	36	36
Psychology	-	-	8-17	33-37

Number of Credits Required for a B.S. in Biology by Similar Schools

	Biology	Chemistry	Math	Physics
Central Conn.	37	12	3	8
U. Wisconsin	34	10	5	0
Idaho State	38	14	9	4
Indiana State	40	16	4	8
East. Kentucky	39	19	6	10
Cent. Florida	40	16	9	8
Marshall	40	16	7	8
E. Illinois	39	12	3	9
Sam Houston U.	43	18	6	8
U. Vermont	46	16	10	8
Louisiana Tech	41	24	6	8
Chico State	40	17	0	8
West. Illinois	35	12	8	9
U. Oakland	40	14	8	10
U. No. Iowa	36	12	4	4
U. Missouri	44	20	6	8
U. Lowell	42	16	11	6
U. Maine	44	16	4	8
Average	**40**	**16**	**6**	**7**
I.U.P. - Current	**33**	**20**	**8**	**8**
I.U.P. - Proposed	**38**	**16-20**	**8-12**	**8**

IV. IMPACT OF THE NEW CURRICULUM ON FACULTY LOAD

Given current fiscal conditions, a major program revision cannot be made without consideration of its impact on resources. With this in mind, the Biology Department has developed a strategy for implementing the new curriculum without increasing faculty load.

Taken by itself the changes in the new core would require an additional 39 hours of faculty load per year. However, we can reduce faculty load in two areas. Two sections of General Biology will be replaced with two sections of a non-lab course. We have several suitable courses on the books. This change will not only free up approximately 20 hours of faculty load but it will also provide non-majors with the opportunity of taking a 3 credit non-lab course in Biology. To date our offerings in this area have been sparse. The second strategy for reducing faculty load involves changing BI 105 Cell Biology to a non-lab course and revising it to meet the needs of non-majors.

The table below summarizes the expected changes in faculty load resulting from implementation of the new curriculum. These numbers are based on past enrollment figures and are thus subject to change. Nevertheless, this estimate clearly demonstrates that the new curriculum can be implemented without necessitating additional faculty positions.

SUMMARY OF LOAD CHANGES

Yearly Faculty Load Requirements

	Old Curriculum	New Curriculum	Change
Principles I	0	24 to 30	+24 to +30
Principles II	0	24	+24
Cell Biology	55	12 to 18	-37 to -43
Animal / Zoology	46	45	-1
Plant / Botany	22	20	-2
Microbiology	13 to 15	18	+3 to +5
Biology Seminar	4	2	-2
General Biology	226	206	-20
Total	366 to 368	351 to 363	-3 to -17

V. IMPACT OF THE NEW CURRICULUM ON OTHER DEPARTMENTS

A number of other departments require their majors to take biology courses. In many cases, the courses they require or recommend will not be affected by the proposed curriculum changes. However, for those departments that require courses from the Biology core some adjustments may have to be made. Although each department must decide for itself what courses are best for their majors we suggest that the following substitutions would be appropriate. We have provided each of these departments with the opportunity to respond to these proposals. Their written responses are included at the end of the proposal.

	CURRENT REQUIREMENT		SUGGESTED CHANGE	
Dietetics	BI 105 Cell Biology with lab	4	BI 105 - Cell Biology without lab	3
	BI 155 Human Phys. & Anat.	4	BI 155 Human Phys. & Anat.	4
	BI 232 Fundamentals of Micro.	3	BI 232 Fundamentals of Micro.	3
Food & Nutrition	**(Alternative Biology sequence for graduate study preparation)**			
	BI 105 Cell Biology with lab	4	BI 105 Cell Biology without lab	3
	BI 361 Microbiology	3	BI 250 Principles of Microbiology	3
Nursing	BI 105 Cell Biology with lab	4	BI 105 Cell Biology without lab	3
	BI 150 Human Anatomy	3	BI 150 Human Anatomy	3
	BI 151 Human Physiology	4	BI 151 Human Physiology	4
	BI 241 General Microbiology	3	BI 241 General Microbiology	3
Respiratory Care	BI 105 Cell Biology with lab	4	BI 105 Cell Biology without lab	3
	BI 150 Human Anatomy	3	BI 150 Human Anatomy	3
	BI 151 Human Physiology	4	BI 151 Human Physiology	4
	BI 241 General Microbiology	3	BI 241 General Microbiology	3
Medical Tech.	BI 105 Cell Biology with lab	4	BI 111 Principles of Biology I	4
	BI 120 Animal Biology	5	BI 250 Principles of Microbiology	3
	BI 361 Microbiology	3	BI 364 Immunology	3
	BI 364 Immunology	3		
Biochemistry	BI 105 Cell Biology with lab	4	BI 111 Principles of Biology I	4
	BI 263 Genetics	3	BI 263 Genetics	3
	BI 361 Microbiology	3	BI 250 Principles of Microbiology	3
	BI 401 Laboratory Methods	3	BI 401 Laboratory Methods	3
Chemistry: Pre-med Program				
	BI 105 Cell Biology with lab	4	BI 111 Principles of Biology I	4
	BI 120 Animal Biology	5	BI 112 Principles of Biology II	4
	BI 263 Genetics	3	BI 263 Genetics	3
	BI 331 Animal Develop. Biol.	3	BI 331 Animal Develop. Biol.	3
Chemistry: B.S. in Education				
	BI 105 Cell Biology with lab	4	BI 105 Cell Biology without lab	3

Geoscience: Environmental Geoscience

BI 105	Cell Biology with lab	4	BI 103	General Biology I	4
BI 110	Plant Biology **or**	5	BI 104	General Biology II	4
BI 120	Animal Biology		BI 210	Botany **or**	3
BI 321	Environmental Prot. I	3	BI 220	General Zoology	
BI 361	Microbiology	3	BI 321	Environmental Prot. I	3
			BI 250	Principles of Microbiology	3

Geoscience: B.S. in Education - General Science Education (Biology Track)

BI 103	General Biology I	4	BI 103	General Biology I	4
BI 104	General Biology II	4	BI 104	General Biology II	4
BI 110	Plant Biology **or**	5	BI 210	Botany **or**	3
BI 120	Animal Biology		BI 220	General Zoology	
BI 272	Con. Plant & Anim. Res.	3	BI 272	Con. Plant & Anim. Res.	3
BI 480	Biology Seminar	1	BI 480	Biology Seminar	1
BI ___	Biology Elective	3	BI ___	Biology Elective	3

Applied Physics

BI 105	Cell Biology with lab	4	BI 111	Principles of Biology I	4
BI 361	Microbiology	3	BI 250	Principles of Microbiology	3

Natural Science

BI 103	General Biology I	4	BI 103	General Biology I	4
BI 104	General Biology II	4	BI 104	General Biology II	4
or			**or**		
BI 105	Cell Biology with lab	4	BI 111	Principles of Biology I	4
BI 120	Animal Biology	5	BI 112	Principles of Biology II	4

APPENDIX 1
Suggested Course Sequence for Proposed B.S. in Biology

	First Semester				**Second Semester**		
BI	111	Principles of Biology I	4	BI	112	Principles of Biology II	4
CH	111	Gen. Chem. I	4	CH	112	Gen. Chem. II	4
HP	143/FN 143	- Hlth & Wellness	3				
	Two courses each semester from the following (depending on availability):						
EN	101	Coll. Writing or	4	Choice of only one from:			
__	___	Soc. Science Elective [2] or	3	AH	101	Intro. to Art or	
HI	195	The Modern Era	3	MU	101	Intro. to Music or	3
				TH	101	Intro. to Theater	
				TH	102	Intro. to Dance	

TOTAL CREDITS FRESHMAN YEAR - 32

	Third Semester				**Fourth Semester**		
BI	___	Botany or Zoo or Micro	3	BI	___	Botany or Zoo or Micro	3
CH	231	Organic Chem. I	4	CH	232	Organic Chem. II[5]	4
MA	121	Calc. I (Nat. & Soc. Sci.)[3]	4	MA	122	Calc. II (Nat. & Soc. Sci.) or	
__	___	FL or L.S. Elective[4]	3-4	MA	216	Prob.&St./Nat.Sci.	4
				__	___	Free Elective	3
				__	___	FL or Free Elective[4]	3
			14-15				17

	Fifth Semester				**Sixth Semester**		
CH	351	Biochemistry[6]	4	BI	___	Botany or Zoo or Micro	3
BI	263	Genetics (W)	3	PY	112	Physics II	3
BI	___	Biology Elective[7]	3	PY	122	Physics II Lab	1
PY	111	Physics I	3	__	___	Soc. Sci. Elective[2]	3
PY	121	Physics I Lab	1	__	___	Hum: Phil/Rel. St.	3
EN	202	Research Writing	3	BI	___	Biology Elective[7]	3
			17				16

	Seventh Semester				**Eighth Semester**		
BI	___	Biology Elective[7]	3	BI	___	Biology Elective[7]	3
BI	___	Biology Elective[7]	3	BI	___	Biology Elective[7]	3
__	___	Soc. Sci. Elective[2]	3	__	___	Free Elective	3
__	___	Free Elective	3	__	___	Free Elective	3
__	___	Hum: Literature	3	__	___	Synthesis	3
			15				15

[1]MS 101 and 102 (World and Amer. Mil. Hist.) may be substituted for the Health & Wellness course.
[2]One of these should be a non-western culture course.
[3]Your summer testing program will determine whether or not you should take MA 110 (El. Functions) prior to Calculus I. MA 110 will count as a free elective.
[4]See catalog for Foreign Language requirements. Intermediate-level Foreign Language may be included in Liberal Studies electives. Introductory-level Foreign Language courses are counted as free electives.
[5]Students may substitute a third math course (MA 122 or MA 216) for CH 232.
[6]Students may substitute BC 301-302 for CH 351
[7]The following courses do not count toward the Biology major: BI 150, 151, 155, 232, 241, 265, 311, 321, 322.

B.S. in Biology
CHECKLIST--LIBERAL STUDIES AT IUP

LEARNING SKILLS

___ English Composition (4 sh) EN 101 College Writing*
___ English Composition (3 sh) EN 202 Research Writing
___ Math course (3-4 sh) MA 121 Calculus I

KNOWLEDGE AREAS

___ Humanities: History (3 sh) HI 195 History: The Modern Era*
___ Humanities: Philos/Rel St (3 sh) _____
___ Humanities: Literature (3 sh) _____

___ Fine Arts (3 sh) AH 101 Intro to Art; MH 101 Intro to Music; TH 101 Intro to Th; TH 102 Dance*

Health & Wellness (3sh) **or** **or** ___ Mil Sci (2 sh) MS 101
___ Nutrition & Wellness _____ ___ Mil Sci (2 sh) MS 102

___ Social Science (3 sh) (Select a non-western culture course)
___ Social Science (3 sh) _____
___ Social Science (3 sh) _____
[Restriction: you may not use any course prefix more than once among your social sciences.]

___ Lab Sci sequence I (4 sh) CH 111
___ Lab Sci sequence II (4 sh) CH 112

___ LS Elective (4 sh) MA 122 or 216
___ LS Elective (3 sh) PY 111
___ LS Elective (3-4 sh) Foreign Language

Restrictions on use of LS Electives:
(a) at least one of your LS Electives must be numbered 200 or higher
(b) you may not count any course with your major prefix as a LS Elective
(c) you may not use any course prefix more than once among your LS Electives, except for FR, GM, SP, LA, and GK, which you may use twice.
(d) if students take only LA 201 or SP 201 as intermediate level FL, they will need to take an additional LS elective from approved catalog list.

SYNTHESIS

___ Synthesis course (3 sh) LS 499

LIBERAL STUDIES REQUIREMENTS which may be fulfilled by courses anywhere in your total credits for graduation (Liberal Studies, major, or free electives)

___ Non-Western culture course (3 sh) (may be one of Social Science courses above)

___ Two "writing intensive" courses, (may be a majors course)
___ at least one of which must be in your major BI 263 - Genetics

*All freshmen should complete these 3 courses during their first year.

Suggested Course Sequence for Proposed B.S. in Biology Education

		First Semester	
BI	111	Principles of Biology I	4
CH	111	Gen. Chem. I	4
HP	143/FN 143	Hlth & Wellness[1]	3
		Two courses each semester from the following (depending on availability):	
EN	101	Coll. Writing or	4
__	___	Soc. Science Elective [2] or	3
HI	195	The Modern Era	3

		Second Semester	
BI	112	Principles of Biology II	4
CH	112	Gen. Chem. II	4
		Choice of only one from:	
AH	101	Intro. to Art or	
MU	101	Intro. to Music or	3
TH	101	Intro. to Theater	
TH	102	Intro. to Dance	

TOTAL CREDITS FRESHMAN YEAR - 32

		Third Semester	
BI		Botany or Zoo or Micro	3
CH	231	Organic Chemistry I	4
__	___	Soc. Sci. Elective[2]	3
__	___	Hum: Literature	3
FE	202	Am. Ed. in Th. & Pract.	3
ED	242	Pr. St. Tch. Cl. Exp. I	1
			17

		Fourth Semester	
BI		Botany or Zoo or Micro	3
BI	263	Genetics (W)	3
CH	351	Biochemistry	4
__	___	Soc. Sci. Elective[2]	3
EP	202	Ed. Psychology	3
			16

		Fifth Semester	
BI		Botany or Zoo or Micro	3
PY	111	Physics I	3
PY	121	Physics Lab I	1
BI	___	Biology Elective[4]	3
MA	___	Math Elective[3]	3-4
EN	202	Research Writing	3
			16-17

		Sixth Semester	
BI	___	Biology Elective[4]	3
PY	112	Physics II	3
PY	122	Physics II Lab	1
__	___	Hum: Phil & Rel. St.	3
ED	451	Tch. Sci. in Sec. Sch.	3
__	___	L.S. Elective	3
ED	342	Pr. St. Tch. Cl. Exp. II	1
			17

		Seventh Semester	
BI	___	Biology Elective[4]	3
BI	480	Biology Ed. Seminar	1
LS	499	Synthesis	3
CM	301	Tech. for Learning & Inst.	3
EP	377	Educ. Test. & Meas.	3
__	___	L.S. Elective	3
ED	442	School Law	1
			17

		Eighth Semester[5]	
ED	441	- Student Teaching	12

NOTE: EX300 requirement must be met before student teaching.

[1]MS 101 and 102 (World and Amer. Mil. Hist.) may be substituted for the Health & Wellness course.
[2]PC 101 (General Psychology) required. One of these should be a non-western culture course.
[3]MA 110 (Elementary Functions) or MA 121 (Calculus I) is required.
[4]Because their content is slanted toward specific career goals and/or does not have appropriate scope, the following courses are not acceptable toward the biology major: BI 150,151,155,232,241,265,311,321,322
[5]Students may rearrange sequence to complete biology and education courses to permit student teaching in the seventh semester. Eligibility for student teaching and certification in secondary biology education requires a QPA of 2.75 and a grade of C or better in all Biology courses.

B.S. in Biology Education
CHECKLIST--LIBERAL STUDIES AT IUP

LEARNING SKILLS

___ English Composition (4 sh) EN 101 College Writing*
___ English Composition (3 sh) EN 202 Research Writing
___ Math course (3-4 sh) MA110 or MA 121

KNOWLEDGE AREAS

___ Humanities: History (3 sh) HI 195 History: The Modern Era*
___ Humanities: Philos/Rel St (3 sh) _____
___ Humanities: Literature (3 sh) _____

___ Fine Arts (3 sh) AH 101 Intro to Art; MH 101 Intro to Music; TH 101 Intro to Th; TH 102 Dance*

Health & Wellness (3sh) or or ___ Mil Sci (2 sh) MS 101
___ Nutrition & Wellness _____ ___ Mil Sci (2 sh) MS 102

___ Social Science (3 sh) PC 101
___ Social Science (3 sh) Select a non-western culture course
___ Social Science (3 sh) _____
[Restriction: you may not use any course prefix more than once among your social sciences.]

___ Lab Sci sequence I (4 sh) CH 111
___ Lab Sci sequence II (4 sh) CH 112

___ LS Elective (3 sh) PY 111
___ LS Elective (3 sh) GS (from Liberal Studies Nat. Sci. non-lab list)
___ LS Elective (3 sh) _____

Restrictions on use of LS Electives:
(a) at least one of your LS Electives must be numbered 200 or higher
(b) you may not count any course with your major prefix as a LS Elective
(c) you may not use any course prefix more than once among your LS Electives, except for FR, GM, SP, LA, and GK, which you may use twice.

SYNTHESIS

___ Synthesis course (3 sh) LS 499

LIBERAL STUDIES REQUIREMENTS which may be fulfilled by courses anywhere in your total credits for graduation (Liberal Studies, major, or free electives)

___ Non-Western culture course (3 sh) (may be one of Social Science courses above)

___ Two "writing intensive" courses, (may be a majors course)
___ at least one of which must be in your major BI 263 - Genetics

*All freshmen should complete these 3 courses during their first year.

Suggested Course Sequence for Proposed B.S. in Environmental Health

		First Semester				Second Semester	
BI	111	Principles of Biol. I	4	BI	112	Principles of Biol. II	4
CH	111	General Chem.	4	CH	112	General Chemistry II	4
HP	143/FN 143	Hlth & Wellness[1]	3				
		Two courses each semester from the following (depending on availability):					
EN	101	College Writing or	4	Choice of only one from:			
CO	101	Micro. Comp. Lit. or	3	AH	101	Intro. to Art or	
HI	195	The Modern Era	3	MU	101	Intro. to Music or	3
				TH	101	Intro. to Theater	
				TH	102	Intro. to Dance	

Total Credits Freshman Year - 32

		Third Semester				Fourth Semester	
BI	___	Botany or General Zoo.	3	BI	___	Botany or General Zoo.	3
CH	231	Organic Chemistry I	4	CH	323	Analytical Methods	4
EN	202	Research Writing	3	SA	101	Intro. Occ. Saf. & Health	3
PS	250	Public Policy	3	__	___	Social Sci. Elective[2]	3
__	___	Hum: Phil/Rel. St.	3	__	___	Hum: Literature	3
			16				16

		Fifth Semester				Sixth Semester	
BI	321	Environmental Prot. I	3	BI	322	Environmental Prot. II	3
BI	241	General Microbiology	3	BI	310	Appl. Entom. & Zoo.	3
PY	111	Physics I	3	PY	112	Physics II	3
PY	121	Physics Lab I	1	PY	122	Physics Lab II	1
MA	121	Calc. I (Nat. & Soc. Sci.)[3]	4	MA	216	Prob. & Stat./Nat. Sci.	4
			14				14

INTERNSHIP OPTION: BI 493 - Internship, 6 cr[4]
Taken during the summer between Junior and Senior years

		Seventh Semester				Eighth Semester	
BI	___	Biology Elective	3	BI	480	Env. Health Seminar	1
SA	301	Hlth. Haz. Ident.[5]	3	LS	499	Synthesis	3
__	___	Social Sci. Elective[2]	3	__	___	Social Sci. Elective[2]	3
__	___	FL or Free Elective[6]	3-4	__	___	FL or Free Elective[6]	3-4
__	___	Controlled Elective[4]	3	__	___	Controlled Elective[4]	3
			15-17	__	___	Controlled Elective[4]	3
							16-17

[1]MS 101 and 102 (World and Amer. Mil. Hist.) may be substituted for the Health & Wellness course.
[2]EC 101 (Basic Economics) required. One of these should be a non-western culture course.
[3]Your summer testing program will determine whether or not you should take MA 110 (El. Functions) prior to Calculus I. MA 110 will come from free elective hours.
[4]The following controlled electives can be taken in lieu of the Internship option: BI 362 (Ecology), BI 463 (Limn.), BI 476 (Parasit.), CH 232 (Organic Chem. II), GS 121 (Physical Geology), GS 122 (Physical Geology Lab), GS 331 (Hydrogeology), SA 402 (Health Hazard Evaluation), SA 461 (Air Pollution), SA 462 (Radiological Health). At least one writing intensive course with a BI prefix must be taken to fulfill Liberal Studies requirements.
[5]Environmental Health majors exempt from BI 151 prerequisite.
[6]See catalog for Foreign Language requirement.

B.S. in Environmental Health
CHECKLIST--LIBERAL STUDIES AT IUP

LEARNING SKILLS

___ English Composition (4 sh) EN 101 College Writing*
___ English Composition (3 sh) EN 202 Research Writing
___ Math course (3-4 sh) MA 121 Calculus I

KNOWLEDGE AREAS

___ Humanities: History (3 sh) HI 195 History: The Modern Era*
___ Humanities: Philos/Rel St (3 sh) _____
___ Humanities: Literature (3 sh) _____

___ Fine Arts (3 sh) AH 101 Intro to Art; MH 101 Intro to Music; TH 101 Intro to Th; TH 102 Dance*

Health & Wellness (3sh) **or** **or** ___ Mil Sci (2 sh) MS 101
___ Nutrition & Wellness _____ ___ Mil Sci (2 sh) MS 102

___ Social Science (3 sh) EC 101
___ Social Science (3 sh) (Select a non-western culture course)
___ Social Science (3 sh) _____
[Restriction: you may not use any course prefix more than once among your social sciences.]

___ Lab Sci sequence I (4 sh) CH 111
___ Lab Sci sequence II (4 sh) CH 112

___ LS Elective (4 sh) MA 216
___ LS Elective (3-4 sh) CO 101
___ LS Elective (3 sh) PY 111

Restrictions on use of LS Electives:
(a) at least one of your LS Electives must be numbered 200 or higher
(b) you may not count any course with your major prefix as a LS Elective
(c) you may not use any course prefix more than once among your LS Electives, except for FR, GM, SP, LA, and GK, which you may use twice.
(d) if students take LA 201 or SP 201 as intermediate level FL, they will need to take an additional LS elective from approved catalog list.

SYNTHESIS

___ Synthesis course (3 sh) LS 499

LIBERAL STUDIES REQUIREMENTS which may be fulfilled by courses anywhere in your total credits for graduation (Liberal Studies, major, or free electives)

___ Non-Western culture course (3 sh) (may be one of Social Science courses above)

___ Two "writing intensive" courses, _____
___ at least one of which must be in your major (included in 36 hours for degree)

*All freshmen should complete these 3 courses during their first year.

APPENDIX II
Tentative Timetable for Implementing the New Curriculum

During the gradual phase-out of the old curriculum a few students may have difficulty completing their core requirements. This could happen, for example, if a student comes back to school after a hiatus of several years. In such cases the Department Chair will be responsible for recommending and approving appropriate course substitutions.

AY 1996-1997

Principles I and II will be offered for all incoming freshmen.

BI 105 - Cell Biology (revised) will be open to non-majors only.

BI 110 - Plant Biology, BI 120 - Animal Biology and BI 480 - Biology Seminar will be offered for students under the old curriculum. The number of sections offered will be reduced somewhat compared to previous years.

AY 1997-1998

The new core courses, BI 210 - Botany, BI 220 - General Zoology and BI 250 - Principles of Microbiology, will be offered for the first time. BI 210 and BI 220 will be taken only by sophomores this year so fewer sections will be needed than eventually anticipated. The old BI 361, which is very similar to BI 250, will be deleted.

BI 120 Animal Biology will be offered for the last time. Students under the old curriculum will be advised that this is the last year this course will be offered. The number of sections can be reduced since relatively few students will need the course.

AY 1998-1999

The new curriculum will be fully implemented. BI 210 -Botany, BI 220 - General Zoology and BI 250 - Principles of Microbiology will be offered at full strength.

Perhaps one section of BI 110 - Plant Biology may be needed for senior pre-med and pre-vet students under the old curriculum.

AY 1999-2000

BI 110 - Plant Biology and BI 120 - Animal Biology will be deleted from the curriculum.

IUP

Indiana, Pennsylvania 15705

September 22, 1993

TO: Rob Gendron, Chair
Biology Department UCC

FROM: Allan Andrew, Coordinator
Natural Science

RE: New Biology Curriculum

The Natural Science Programs support the proposed changes in the Biology curriculum with the understanding that all Natural Science Majors who currently take Cell Biology will be permitted to enroll in Principles I. Depending on the new prerequisites for biology courses, there is a good possibility that many of these students will take Principles II.

la

IUP CHEMISTRY DEPARTMENT

To: Dr. Rob Gendron, Chair
Biology Department UCC

From: Dr. Richard A. Hartline, Coordinator
Biochemistry Program

Date: September 22, 1993

Subject: New Biology Curriculum

The Biochemistry Steering Committee reviewed the material sent to us on the new biology curriculum. It is their consensus that the use of BI 111 (Principles of Cell Biology) in place of BI 105 (Cell Biology) and BI 250 (Principles of Microbiology) in place of BI 361 (Microbiology) will have no impact on our Biochemistry Program and its majors. Therefore, we support those changes.

23 September 1993

TO: Rob Gendron, Chair
Biology Department UCC

FROM: Frank W. Hall, Chair
Geoscience Department

SUBJECT: New Biology Curriculum

The Geoscience Department agrees with the new Biology curriculum proposal (your memo of 1 September 1993) with the exception that the modifications to the Environmental Geoscience program should affect the curriculum revision of that program currently being reviewed by the UWUCC. This revision requires BI 105 Cell Biology (3 cr.) and BI 250 Principles of Microbiology (3 cr.); BI 321 Environmental Protection I (3 cr.) is in the list of controlled electives. Regarding the other programs in your memo, the changes are straight forward.

cc: Dr. Darlene Richardson, Chair Geoscience Department UCC

IUP

Indiana, Pennsylvania 15705

DATE: September 23, 1993

SUBJECT: Letter of Support for Curriculum Revision

TO: Dr. Robert Prezant, Chairperson
Biology Department

FROM: Jodell Kuzneski, Chairperson
Department of Nursing and Allied Health Professions

Thank you for providing an opportunity for the faculty in the Department of Nursing and Allied Health Professions to review the curriculum revision proposal for BI 105 Cell Biology.

The department curriculum committee reviewed the proposed change in BI 105 and presented their recommendation to the faculty during a meeting on September 22, 1993.

Based on the curriculum committee's recommendation, the faculty have voted to support the proposed change in BI 105 from a 4 credit lecture/lab course to a 3 credit lecture only course.

Please note that this vote pertains only to the proposed change in BI 105 as it affects the nursing majors within this department.

Good luck with your plans for curriculum revision.

dkm

Septembesr 27, 1993

SUBJECT: New Biology Curriculum

TO: Rob Gendron, Chairman
Biology Department UCC

Dennis Whitson

FROM: Dennis Whitson, Chair
Department of Physics

The Physics Department Undergraduate Curriculum Committee and I have reviewed your proposal and we support the proposed changes. We would like to be assured that any of our majors (physics, applied physics, physics ed) who are interested in a good biology course will be allowed to take this course.

#6 4-OCT-1993 14:20:36.01 MAIL
From: GROVE::JSTEINER
To: GROVE::RGENDRON
CC:
Subj: RE: New Biology Curriculum

The Department of Food and Nutrition supports the recommended changes in the Biology curriculum that impact on our department. The change in BI 105 Cell Biology to a non-laboratory course will continue to adequately meet the needs of our dietetic majors. We have also noted the change in course number for the Principles of Microbiology for the Food and Nutrition Science majors.

Thank You.
Joanne B. Steiner
Chair, Food and Nutrition

Department of Nursing and Allied Health Professions
Indiana University of Pennsylvania
244 Johnson Hall
Indiana, Pennsylvania 15705-1087

(412) 357-7647

IUP

October 6, 1993

Robert Gendron
Chairman
Biology Department Curriculum Committee

Dear Rob:

Following our conversation concerning the minor changes I felt were appropriate for Respiratory Care and Medical Technology majors, I am prepared to support the proposed revisions that directly impact on these majors; namely Cell Biology with the lab eliminated and a one credit reduction for Respiratory Care majors and elimination of Animal Biology five credits and the addition of Principles I, four credits for Medical Technology majors.

Best wishes as you proceed with the approval and implementation stages.

Sincerely,

Helen C. Cunningham, MNEd, RN
Associate Professor
Coordinator, Allied Health Professions
Department of Nursing and Allied Health Professions
College of Health and Human Services
Indiana University of Pennsylvania

ejp

cc: Dr. Harold Wingard
Dr. Carleen Zoni

MEMO

To: Robert Gendron

From: Pothen Varughese, Chairperson, Chemistry Dept. Pothen Varughese

Date: 10/7/93

Subject: Biology curriculum change

==========

The chemistry department overwhelmingly passed a motion to support the proposed biology curriculum change with the recommendation that B.S Chemistry Education majors be required to take BI 111, which has a laboratory, instead of BI 105, which does not.

My personal observation is that your revised curriculum is an excellent one and certainly takes into account the rapid changes in the field of molecular biology and biochemistry. Our biochemists feel that the proper background preparation for CH 351, biochemistry, is provided by CH 231 and CH 232 (two semesters of organic chemistry). According to them, requiring only one semester of organic chemistry course is a weakness in your program. However, it is strictly up to you to design your curriculum and the chemistry department is in full support of your proposal.

94-25

29 September 1994

TO: Peter Broad, Jacob Voelker and Robert Whitmer

FROM: Rob Gendron RG
Chair, Biology Department Curriculum Committee

SUBJECT: New Biology Curriculum

At the request of the University Wide Curriculum Committee I have enclosed a copy of the proposed Biology Curriculum. You will notice on page 3 that the foreign language requirement has been changed. In the new curriculum students will be able to fulfill their language requirement by taking two semesters of a foreign language. Currently they are required to complete an intermediate level course.

One of our primary goals in developing the new curriculum has been to strengthen the biology program so that it is comparable to those offered at other universities (see page 16). This necessitates increasing the number of biology credits and thus reducing the number of free electives. The proposed change in the language requirement is designed, in part, to compensate for the reduction in free electives. As you know, many of our students in the past needed to take two semesters of introductory language as free electives prior to taking the required intermediate language courses.

If you would like to make any comments on the proposed curriculum please send them to me as soon as possible. Dr. Richardson of the UWUCC has suggested that two weeks would be an appropriate time frame for replies.

cc: Dr. Darlene Richardson
Dr. Robert Prezant, Chair, Biology Department

Memorandum

To: Dr. Rob Gendron, Chair Biology Department Curriculum Committee
From: Dr. Peter Broad, Chairperson, Spanish and Classical Languages
Date: October 6, 1994
Subject: New Biology Curriculum

As you would obviously expect, I do indeed have some comments to make on the proposed changes in the biology curriculum. I applaud the spirit of the changes--we are all interested in making IUP's curriculum as strong as possible--, and I appreciate the difficulties you have encountered in trying to make your biology curriculum stronger while preserving the spirit of a liberal education.

However, all that said, I would like to address a number of specific issues raised by your proposal.

1. On page 3, under the heading "Foreign Language Requirement," your text reads: "The foreign language requirement for a Biology major is foreign language IV (or equivalent) or two semesters of foreign language starting at the highest level recommended by the freshman Preregistration Placement Test in that language (may be included in Liberal Studies electives). This requirement can also be met by demonstrating proficiency in a foreign language equivalent to foreign language IV."

   Given the differences in the various foreign language programs, a clearer version might be: "The foreign language requirement for a Biology major is completion of the Intermediate level or ...," and "...proficiency in a foreign language equivalent to the Intermediate level." Only German and the Critical Languages have a course numbered IV, and that number has no universally recognized meaning the way *Intermediate* does. In addition, it should be made clear that it is only at the Intermediate level (in German and French) and in the SP/LA 102-201 sequence that Liberal Studies elective credit is offered. Under your proposal, a student taking German and starting at the beginning would not receive any Liberal Studies elective credit, and a student taking French or Spanish, and starting at the beginning, would only be able to use one course as a Liberal Studies elective.

2. On page 12 you list, for Liberal Studies Electives, 6-7 semester hours (B.S.) or 9-10 s.h. (B.A.). For the sake of accuracy, that should read 6-8 (B.S.) or 9-11 (B.A.). The number would be 6 for those opting to take German or French and who take both courses in the sequence (GM 251-252 or FR 201-202); those choosing Spanish would have a maximum of 8 semester hours (SP 102-201).

3. On page 20 you show a suggested course sequence for the proposed B.S. program. (I find no such indication for the B.A.) In your sequence you propose that students should, in their first semester, take HI 195 and, in their second semester. AH, MU, or TH 101. You put the taking of a foreign language off to the 3d and 4th semesters.

Since foreign language learning is an incremental process, it would seem more reasonable to reverse the order. Students typically will have had a foreign language course in high school, and their placement scores will reflect this recent learning experience. However, students will, typically, regress during a year without foreign language study, thus invalidating their entering placement scores and requiring them to repeat previously learned material rather than continuing to progress. (The History and Fine Arts courses do not build on any particular preparation students bring in from high school.)

4. Your proposed program leaves 12-29 credits absolutely free. If those of your students who enter with inadequate high school foreign language preparation were to use some of those credits for the elementary foreign language courses they would still have--depending on which language they chose and at which elementary level they began--6-8 or 23-25 free elective credits, which is far more than many programs at IUP offer. (As Pennsylvania's new Outcomes Based Education requirements begin to show their effect, there will be fewer and fewer students entering IUP with inadequate foreign language preparation.)

   While I recognize the desire to allow a maximum of freedom of choice for students to grow intellectually, to provide this at the expense of encouraging them to attain a functional knowledge of another language seems very short-sighted. When the rest of the nation's universities are increasingly adding foreign languages either as an entrance requirement or as a graduation requirement*, it is highly inappropriate for IUP, in its aim to improve the quality of its programs, to go in the other direction.

Again, I want to thank you for the opportunity to comment on your proposal, and I sincerely hope you will reconsider that part of it that would water down your foreign language requirement.

cc: Dr. Darlene Richardson
Dr. Robert Prezant

* "Foreign language study is now an entrance requirement in 26 percent of U.S. colleges and universities (versus 14 percent in 1982-83) and a degree requirement in 58 percent (versus 47 percent in 1984)." *NEA Higher Education Advocate*. XII/2. October 1994. P. 1.

8 March 1995

TO: Screening Committee, UWUCC

FROM: Rob Gendron, Chair Biology UCC

SUBJECT: Revision of Biology Curriculum

This memo summarizes the changes made in our new curriculum proposal following my discussion with Dr. Richardson. I believe these revisions cover all the questions and concerns of the committee. Minor editing changes are not listed here. I apologize for the delay in returning these materials to you. What initially seemed like a few simple revisions turned into some major issues that had to be resolved within the Department.

BS/BA Program proposal

pg. 3 The wording of the foreign language requirement (pg. 3) was made clearer. Also, the letter from Dr. Broad of the Spanish Department is attached. The French and German Departments did not respond to my memo.

pg. 5 At the suggestion of Dr. Richardson some changes were made in the courses listed as Liberal Studies Electives. For example, in the B.S. program CH111-112 will now count towards the LS Natural Science Requirement and PY111 will count as a LS elective. Similar changes were made in the Environmental Health Program. This change has allowed us to reduce the requirements for the B.S. degree from 126 credits in the original proposal to 124 credits (pg. 6 and pg. 12).

pg. 14 The Committee asked for the rationale for adding certain courses (EC101, PS250 and CO101) to the Environmental Health Program. A memo from Dr. Simmons giving this rationale is attached.

pg. 17 A change in the maximum class size for Cell Biology (see below) necessitated a recalculation of faculty load. According to our estimates we still have sufficient number of faculty to cover the load requirements of the new curriculum.

BI 105 - Cell Biology

pg. 11 Course objectives have been re-written in the approved format.

pg. 20 The grading scale has been made explicit.

pg. 19 There was some concern over the use of scrapbooks because of the requirement that students include original articles. Drs. Dietrich and Pickering have decided to eliminate the scrapbooks and substitute the Learning Group Activities described on this page. This has necessitated a maximum class section of 48 students (pg. 21).

This should not significantly impact on the ability of the Department to teach the course (see comment above and pg. 17 of Program Proposal).

BI 111-112 - Principles of Biology I and II

There were comments regarding the Course Analysis Questionnaire. At the time these proposals were submitted we were still using the red UWUCC handbook. The sequence of questions and answers is correct for the red book.

BI210 - Botany

The Committee expressed some concern about the resource requirements for this course. In revising the proposal, Drs. Dietrich and Pickering were more explicit in the list of resources they were requesting. In a subsequent meeting with the Dean these issues were discussed and Drs. Dietrich and Pickering submitted, to the Dean, a breakdown of those resources they felt were essential and those which were desirable. Dean Fox has written a memo (attached) indicating that resources will be available to cover the necessary renovations to the Botany classroom.

BI220 - General Zoology

pg. 3 A statement was added indicating that the class periods (which incorporate both lab and lectures) will be 2.5 hours in length.

pg. 3 Readings from the text as well as the lab manual are now indicated in the course outline. Readings previously listed on pg. 7 are now redundant and were removed.

pg. 6 We added the grading scale which will be used in the course.

BI250 - Principles of Microbiology

pg. 3 A statement was added indicating that the lectures will be 1 hour in length.

pg. 7 We added the grading scale which will be used in the course.

29 September 1994

TO: Peter Broad, Jacob Voelker and Robert Whitmer

FROM: Rob Gendron
Chair, Biology Department Curriculum Committee

SUBJECT: New Biology Curriculum

At the request of the University Wide Curriculum Committee I have enclosed a copy of the proposed Biology Curriculum. You will notice on page 3 that the foreign language requirement has been changed. In the new curriculum students will be able to fulfill their language requirement by taking two semesters of a foreign language. Currently they are required to complete an intermediate level course.

One of our primary goals in developing the new curriculum has been to strengthen the biology program so that it is comparable to those offered at other universities (see page 16). This necessitates increasing the number of biology credits and thus reducing the number of free electives. The proposed change in the language requirement is designed, in part, to compensate for the reduction in free electives. As you know, many of our students in the past needed to take two semesters of introductory language as free electives prior to taking the required intermediate language courses.

If you would like to make any comments on the proposed curriculum please send them to me as soon as possible. Dr. Richardson of the UWUCC has suggested that two weeks would be an appropriate time frame for replies.

cc: Dr. Darlene Richardson
Dr. Robert Prezant, Chair, Biology Department

Memorandum

To: Dr. Bob Gendron, Chair Biology Department Curriculum Committee
From: Dr. Peter Broad, Chairperson, Spanish and Classical Languages
Date: October 6, 1994
Subject: New Biology Curriculum

As you would obviously expect, I do indeed have some comments to make on the proposed changes in the biology curriculum. I applaud the spirit of the changes--we are all interested in making IUP's curriculum as strong as possible--, and I appreciate the difficulties you have encountered in trying to make your biology curriculum stronger while preserving the spirit of a liberal education.

However, all that said, I would like to address a number of specific issues raised by your proposal.

1. On page 3, under the heading "Foreign Language Requirement," your text reads: "The foreign language requirement for a Biology major is foreign language IV (or equivalent) or two semesters of foreign language starting at the highest level recommended by the freshman Preregistration Placement Test in that language (may be included in Liberal Studies electives). This requirement can also be met by demonstrating proficiency in a foreign language equivalent to foreign language IV."

   Given the differences in the various foreign language programs, a clearer version might be: "The foreign language requirement for a Biology major is completion of the Intermediate level or ...," and "...proficiency in a foreign language equivalent to the Intermediate level." Only German and the Critical Languages have a course numbered IV, and that number has no universally recognized meaning the way *Intermediate* does. In addition, it should be made clear that it is only at the Intermediate level (in German and French) and in the SP/LA 102-201 sequence that Liberal Studies elective credit is offered. Under your proposal, a student taking German and starting at the beginning would not receive any Liberal Studies elective credit, and a student taking French or Spanish, and starting at the beginning, would only be able to use one course as a Liberal Studies elective.

2. On page 12 you list, for Liberal Studies Electives, 6-7 semester hours (B.S.) or 9-10 s.h. (B.A.). For the sake of accuracy, that should read 6-8 (B.S.) or 9-11 (B.A.). The number would be 6 for those opting to take German or French and who take both courses in the sequence (GM 251-252 or FR 201-202); those choosing Spanish would have a maximum of 8 semester hours (SP 102-201).

3. On page 20 you show a suggested course sequence for the proposed B.S. program. (I find no such indication for the B.A.) In your sequence you propose that students should, in their first semester, take HI 195 and, in their second semester, AH, MU, or TH 101. You put the taking of a foreign language off to the 3d and 4th semesters.

Since foreign language learning is an incremental process, it would seem more reasonable to reverse the order. Students typically will have had a foreign language course in high school, and their placement scores will reflect this recent learning experience. However, students will, typically, regress during a year without foreign language study, thus invalidating their entering placement scores and requiring them to repeat previously learned material rather than continuing to progress. (The History and Fine Arts courses do not build on any particular preparation students bring in from high school.)

4. Your proposed program leaves 12-29 credits absolutely free. If those of your students who enter with inadequate high school foreign language preparation were to use some of those credits for the elementary foreign language courses they would still have--depending on which language they chose and at which elementary level they began--6-8 or 23-25 free elective credits, which is far more than many programs at IUP offer. (As Pennsylvania's new Outcomes Based Education requirements begin to show their effect, there will be fewer and fewer students entering IUP with inadequate foreign language preparation.)

   While I recognize the desire to allow a maximum of freedom of choice for students to grow intellectually, to provide this at the expense of encouraging them to attain a functional knowledge of another language seems very short-sighted. When the rest of the nation's universities are increasingly adding foreign languages either as an entrance requirement or as a graduation requirement*, it is highly inappropriate for IUP, in its aim to improve the quality of its programs, to go in the other direction.

Again, I want to thank you for the opportunity to comment on your proposal, and I sincerely hope you will reconsider that part of it that would water down your foreign language requirement.

cc: Dr. Darlene Richardson
Dr. Robert Prezant

* "Foreign language study is now an entrance requirement in 26 percent of U.S. colleges and universities (versus 14 percent in 1982-83) and a degree requirement in 58 percent (versus 47 percent in 1984)." *NEA Higher Education Advocate*. XII/2. October 1994. P. 1.

Date: 31 October 1994
To: Rob Gendron
From: Tom Simmons
Re: Proposed Biology Curriculum

The rationale for removing PS111 (American Politics) from, and adding CO101 (Introduction to Microbased Computer Literacy), PS250 (Public Policy), and EC101 (Basic Economics) to the Environmental Health Curriculum is fourfold. First and foremost, the National Environmental Health and Protection Accreditation Council recommends courses in the areas of computer skills, economics and public policy. Second, the original intent of PS111 was to familiarize students with the workings of Washington in case they were interested in an environmental lobbying career. We feel that they would be better served by taking PS250. Third, EC101 will fulfill a liberal studies social science elective requirement in place of PS111. Fourth, one of the most commonly requested skills by potential employers and internship sites is personal computer literacy.

Memorandum

February 27, 1995

TO: University Wide Undergraduate Curriculum Committee

FROM: John Fox, Interim Dean
College of Natural Sciences and Mathematics

RE: New Botany Proposal

I understand that the screening committee of the UWUCC has a concern about the availability of resources necessary to teach the Botany course which is part of the new Biology Curriculum. I have discussed the situation with the Chairperson, Dr. Prezant, and the faculty members involved with this proposal. Several changes in the current renovation project were submitted to the Department of General Services, but were rejected. The University has now set aside additional resources to complete renovation work in the Biology area. The room renovation changes proposed recently by Drs. Dietrich, Pickering and Schrock have been included by Robert Marx as part of the additional renovation project. I believe the funds available will be adequate to cover the Botany classroom renovation. Any laboratory equipment or audiovisual equipment will need to come from Department resources.

xc: R. Prezant
J. Pickering
F. Schrock
W. Dietrich