

LSC Use Only
Number: _____
Action: _____
Date: _____

UWUCC Use Only
Number: 92-25
Action: App
Date: 2/16/93
Senate App 3/2/93

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

I. Title/Author of Change

Course/Program Title: B.S. in Natural Science
Suggested 20 Character Course Title: _____
Department: Natural Science (College of Natural Sciences and Mathematics)
Contact Person: John N. Fox

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

☒ Course 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

John N. Fox Department Curriculum Committee John N. Fox Department Chairperson
Hammond College Curriculum Committee W.S. Cole 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

Date Submitted
to LSC: _____
to UWUCC: _____

Semester to be
implemented: _____

Date to be
published
in Catalog: _____

*Rationale for Proposed Change
in
Bachelor of Science in Natural Science
November, 1992*

This program was designed to meet the needs of students who plan to enter professional schools. They attend IUP for either three or four years and obtain a B.S. degree in Natural Science.

However, some students who have an interest in the sciences realize at some point that they do not have the interest and/or QPA to enter a degree program in the medical or engineering fields. These students continue in this program and graduate with a great breadth in the sciences but a shallow understanding of any one discipline. We hope to achieve two goals through the proposed change:

1. Present a course of studies that will meet the needs for transfer to professional schools while giving some opportunity for others to gain more depth in a particular field of interest.

and

2. Offer a degree program for students who have an interest in entering corporate positions dealing with emerging technology, corporations that will need managers and other professionals with a background in the natural sciences. Environmental corporations dealing with toxic waste disposal, small computer firms concerned with copyright issues, medical supply firms, etc., are all potential employers of graduates with a diverse college background in the sciences and business.

There is one final point. The proposed change may in some cases alleviate the difficulty some of the Natural Science majors currently encounter in obtaining a writing intensive course in their major.

OLD VERSION**Natural Science****John Fox, Coordinator**

The program leading to the Bachelor of Science degree in Natural Science is designed to prepare students for various professional schools - optometry, podiatry, pharmacy, and dentistry. The Natural Science major is not recommended for medical school preparation. There are several tracks in the Natural Science program that prepare students for careers or further study in astronomy, meteorology, or oceanography. The degree is offered by the College of Natural Sciences and Mathematics: contact the college office for further information and direction to the appropriate faculty advisors for the Natural Science programs.

Bachelor of Science - Natural Science

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

43-44

Mathematics: included in major

Natural Science: included in major

Liberal Studies Electives: no courses with SC prefix

Synthesis: not required for three-year students

Writing intensive: one course required for three year students

Major:

45-46

Controlled electives:

BI courses

14sh

CH courses

16sh

PY courses

8sh

MA/CO courses

7-8

Other Requirements:

0-6

Foreign Language Intermediate Level (1)

Free Electives:

28-36

Total Degree Requirements: 124

(1) Intermediate-level Foreign Language may be included in Liberal Studies electives.

Natural Science

John Fox, Coordinator

The program leading to the B.S. degree in Natural Science is designed to prepare students for early admission to professional schools - optometry, podiatry, chiropractic, physical therapy, pharmacy, dentistry. Several tracks prepare students for further study in astronomy, engineering, meteorology, or oceanography. The B.S. degree in Natural Science is earned by students who transfer to professional schools that have an articulation agreement with IUP. Students interested in obtaining a four year baccalaureate degree before entering a medical or professional school should enroll in a program of studies leading to a B.A. or B.S. degree in the departments of biology, chemistry or physics. Students considering a professional career in a high technology business or industry may wish to obtain a foundation in the Natural Sciences while using their free electives to pursue additional work in areas such as Economics, Pre-Law or a minor in Business Administration. For further information about these programs contact the Dean's office. The B.S. in Natural Science may not be used for a second major or a second degree by majors in the College of Natural Sciences and Mathematics.

Bachelor of Science - Natural Science

Liberal Studies: As outlined in Liberal Studies section

43-44

with the following specifications:

Mathematics: included in major

Natural Science: included in major

Liberal Studies Electives: no courses with SC prefix

Synthesis: not required for three-year students

who transfer to a professional school with an articulation agreement

Writing intensive: one course required for three year students

who transfer to a professional school with an articulation agreement

Major:

44-46

Controlled electives*:

BI courses 8sh

CH courses 8sh

PY courses 8sh

MA courses 7 - 8sh

Computer science and/or advanced courses

in Biology, Chemistry, Mathematics or

Physics 13-14sh

Other Requirements:

3-9

Foreign Language Intermediate Level (1)

CO 101 Microbased Computer Literacy**

Free Electives:

25-34

Total Degree Requirements: 124

(1) Intermediate-level Foreign Language may be included in Liberal Studies electives.

* *Preprofessional Advisors will outline the courses required for admission to a professional school.*

** *Not required for tracks which include CO 110 or CO 250.*

*Rationale for Proposed Change
in
Pre-Optometry Track
December, 1992*

The course changes in this proposal reflect changes needed for our students to be competitive for admission to the Pennsylvania College of Optometry (PCO). Students in this program are on the IUP campus for three years then transfer to PCO located in Philadelphia. PCO has undergone recent revisions in its program to conform with new standards in the profession. The changes proposed here are a result of discussions between IUP faculty and an admissions officer from PCO.

New Courses Required:

CO101 - Microbased Computer Literacy
BI151 - Human Physiology
CH 351 - Biochemistry
EC 101 Basic Economics

Substitutions:

BI 103 General Biology I and BI 104 General Biology II
are replaced by
BI 105 Cell Biology and BI 120 Animal Biology

Other changes reflect the need for the College of Natural Sciences and Mathematics to exert more control over the individual students that are considered to be part of this program.

No new courses are proposed under this revision. The Chairs of Biology, Chemistry, Computer Science, Mathematics, and Physics have reviewed these materials and agreed to the changes.

OLD VERSION

Bachelor of Science - Natural Science/Pre-Optometry Track**Liberal Studies:** As outlined in Liberal Studies section

50-54

with the following specifications:

Mathematics: MA121

Natural Science: CH111-112

Social Sciences: PC101, non-Western course

Liberal Studies Electives: MA216 or 217, no courses with SC prefix

Synthesis: not required for three-year students

Writing intensive: one course required for three year students

Major:

27

Required courses:

BI 103	General Biology I	4sh(2)
BI 104	General Biology II	4sh(2)
BI 241	General Microbiology	3sh
CH 231	Organic Chemistry I	4sh
CH 232	Organic Chemistry II	4sh
PY 111	Physics I Lecture	3sh
PY 121	Physics I Lab	1sh
PY112	Physics II Lecture	3sh
PY122	Physics II Lab	1sh

Other Requirements:

0-6

Foreign Language Intermediate Level (1)

Free Electives:

34 - 47

MA 122	Calculus II for Nat and Soc Sci and Bus	4sh(3)
	Electives to meet minimum of 90 IUP credits	0 - 10sh(4)
	Credits from work at Pennsylvania College of Optometry	34sh(5)

Total Degree Requirements: 124

- (1) Intermediate-level Foreign Language may be included in Liberal Studies electives.
- (2) Cell Biology (BI105) may be substituted for General Biology I; Animal Biology (BI120) may be substituted for General Biology II.
- (3) Required for many schools of optometry; recommended for PCO
- (4) Additional electives if needed to meet the minimum 90 IUP credits may be selected from the following suggestions: BI150: Human Anatomy, BI151: Human Physiology, BI265: Genetics, CH351: Biochemistry, EC101: Basic Economics, CD121: Principles of Economics I, PC354: Developmental Psychology.
- (5) Students complete 90sh at IUP and upon completion of additional work at Pennsylvania College of Optometry credits are transferred to meet the minimum of 124sh for the IUP degree, Bachelor of Science in Natural Science.

New Version

Bachelor of Science - Natural Science/Pre-Optometry Track†

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

52-55

Mathematics: MA121

Natural Science: CH111-112

Social Sciences: PC101, *EC101*, non-Western course

Liberal Studies Electives: MA216 or 217, *CO101*, no courses with SC prefix

Synthesis: not required for three-year students

who transfer to a professional school with an articulation agreement

Writing intensive: one course required for three year students

who transfer to a professional school with an articulation agreement

Major:

35

Required courses:

BI 105	Cell Biology	4sh
BI 120	Animal Biology	5sh
BI 151	Human Physiology	3sh
BI 241	General Microbiology	3sh
CH 231	Organic Chemistry I	4sh
CH 232	Organic Chemistry II	4sh
CH351	Biochemistry	4sh
PY 111	Physics I Lecture	3sh
PY 121	Physics I Lab	1sh
PY112	Physics II Lecture	3sh
PY122	Physics II Lab	1sh

Other Requirements:

0-7

Foreign Language Intermediate Level (1)

MA 122 *Calculus II for Nat and Soc Sci and Bus* 4sh(2)

Free Electives:

27 - 37

Electives to meet minimum of 90 IUP credits 0 - 3sh(3)

Credits from work at Pennsylvania College of Optometry 34sh

Total Degree Requirements: 124

† *Accelerated three-year Pennsylvania College of Optometry (PCO) program: Students are admitted to the PCO accelerated program only as incoming freshmen. A maximum of thirty-four credits of work may be transferred after the first year at PCO. Upon the completion of the first year of studies at PCO, a transcript from PCO is to be sent by the student to the Dean of the College of Natural Sciences and Mathematics with a note requesting application materials for graduation.*

- (1) *Three or four credits of Intermediate-level Foreign Language may be included in Liberal Studies electives.*
- (2) *Required for many schools of optometry; recommended for PCO*
- (3) *Additional electives if needed to meet the minimum 90 IUP credits should be selected from the following suggestions: BI150: Human Anatomy and BI263: Genetics.*

Natural Science

John Fox, Coordinator

The program leading to the B.S. degree in Natural Science is designed to prepare students for early admission to professional schools - *optometry, podiatry, chiropractic, physical therapy, pharmacy, dentistry*. Several tracks prepare students for further study in astronomy, engineering, meteorology, or oceanography. The B.S. degree in Natural Science is earned by students who transfer to professional schools that have an articulation agreement with IUP. Students interested in obtaining a four year baccalaureate degree before entering a medical or professional school should enroll in a program of studies leading to a B.A. or B.S. degree in the departments of biology, chemistry or physics. Students considering a professional career in a high technology business or industry may wish to obtain a foundation in the Natural Sciences while using their free electives to pursue additional work in areas such as Economics, Pre-Law or a minor in Business Administration. For further information about these programs contact the Dean's office. The B.S. in Natural Science may not be used for a second major or a second degree by majors in the College of Natural Sciences and Mathematics.

Bachelor of Science - Natural Science

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

43-44

Mathematics: included in major

Natural Science: included in major

Liberal Studies Electives: no courses with SC prefix

Synthesis: not required for three-year students

who transfer to a professional school with an articulation agreement

Writing intensive: one course required for three year students

who transfer to a professional school with an articulation agreement

Major:

44-46

Controlled electives*:

BI courses 8sh

CH courses 8sh

PY courses 8sh

MA courses 7 - 8sh

Computer science and/or advanced courses
in Biology, Chemistry, Mathematics
or Physics 13-14sh

Other Requirements:

3-9

Foreign Language Intermediate Level (1)

CO 101 Microbased Computer Literacy**

Free Electives:

25-34

Total Degree Requirements: 124

(1) Intermediate-level Foreign Language may be included in Liberal Studies electives.

* Preprofessional Advisors will outline the courses required for admission to a professional school.

** Not required for tracks which include CO 110 or CO 250.

Bachelor of Science - Natural Science/Pre-Optometry Track†**Liberal Studies:** As outlined in Liberal Studies section

52-55

with the following specifications:

Mathematics: MA121

Natural Science: CH111-112

Social Sciences: PC101, EC101, non-Western course

Liberal Studies Electives: MA216 or 217, CO101, no courses with SC prefix

Synthesis: not required for three-year students

who transfer to a professional school with an articulation agreement

Writing intensive: one course required for three year students

who transfer to a professional school with an articulation agreement

Major:

35

Required courses:

BI 105	Cell Biology	4sh
BI 120	Animal Biology	5sh
BI 151	Human Physiology	3sh
BI 241	General Microbiology	3sh
CH 231	Organic Chemistry I	4sh
CH 232	Organic Chemistry II	4sh
CH351	Biochemistry	4sh
PY 111	Physics I Lecture	3sh
PY 121	Physics I Lab	1sh
PY112	Physics II Lecture	3sh
PY122	Physics II Lab	1sh

Other Requirements:

0-7

Foreign Language Intermediate Level (1)

MA 122 Calculus II for Nat and Soc Sci and Bus 4sh(2)

Free Electives:

27 - 37

Electives to meet minimum of 90 IUP credits 0 - 3sh(3)

Credits from work at Pennsylvania College of Optometry 34sh

Total Degree Requirements: 124

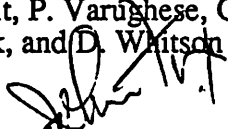
† Accelerated three-year Pennsylvania College of Optometry (PCO) program: Students are admitted to the PCO accelerated program only as incoming freshmen. A maximum of thirty-four credits of work may be transferred after the first year at PCO. Upon the completion of the first year of studies at PCO, a transcript from PCO is to be sent by the student to the Dean of the College of Natural Sciences and Mathematics with a note requesting application materials for graduation.

- (1) Three or four credits of Intermediate-level Foreign Language may be included in Liberal Studies electives.
- (2) Required for many schools of optometry; recommended for PCO
- (3) Additional electives if needed to meet the minimum 90 IUP credits should be selected from the following suggestions: BI150: Human Anatomy and BI263:Genetics.

MEMORANDUM

November 13, 1992

TO: R. Prezant, P. Varughese, G. Buterbaugh,
G. Buriok, and D. Whitson

FROM: John Fox 
Dean's Associate
College of Natural Sciences and Mathematics

RE: Change in Natural Science Major Requirements

I am circulating the proposed changes in the Natural Science program once again. In this latest version these additional changes have been incorporated:

1. The inclusion of Mathematics in the list of subject areas for additional study. Also, because of the possibility of 3 or 4 hour courses in mathematics, the MA requirement was changed from 8 to 7 - 8.

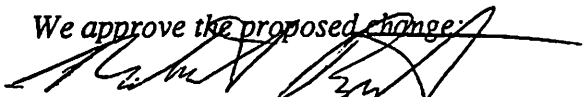
2. After discussion with faculty members from the Computer Science Department and some of the Natural Science advisors, we have included CO 101 under Other Requirements for those tracks that do not have a required course in computer science.

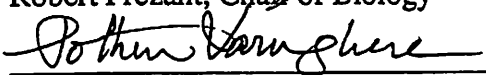
3. A few other minor changes (or corrections) have also been incorporated.

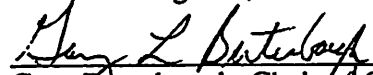
Finally, after discussions with Bill Cale, we have indicated that the B.S. in Natural Science may not be used as a second degree nor as a second major for majors of this college.

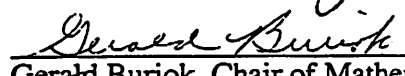
Please indicate your approval of the change by signing this form and having the material hand carried to the next chair on the list. I would like to have this material back to me by the end of the day on Friday, November 20. Thank you.

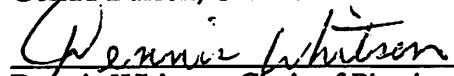
We approve the proposed change:


Robert Prezant, Chair of Biology


Pothen Varughese, Chair of Chemistry


Gary Buterbaugh, Chair of Computer Science


Gerald Buriok, Chair of Mathematics


Dennis Whitson, Chair of Physics



Date: January 12, 1993
To: Dr. Hilda Richards
Provost
From: Aleksandra B. Kaniasty 
Assistant to the Dean, NS&M
Subject: Curriculum Proposals

Attached please find four curriculum proposals from the College of Natural Sciences and Mathematics to be reviewed by the UWUCC. The course BI 466/566 Principles in Virology has been offered as a Special Topics course therefore will not require additional resources to implement. The other proposals are program revisions, B.S. in Natural Science and B.S. in Physics Education, and a revision of the number of credits that can be taken as a Geoscience internship. None of these revisions require any additional resources.