

LSC USE ONLY

Number: _____

Action: _____

Date: _____

UWUCC USE ONLY

Number: 93-1

Action: APP

Date: 10/19/93
Senate App 11/2/93

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

I. Title/Author of Change

Course/Program Title: Bachelor of Science in Education - Biology

Suggested 20 Character Course Title: _____

Department: Biology

Contact Person: Terry L. Peard, Coordinator; Allan Andrew, Chair

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

Robert P. Henderson
Department Curriculum Committee

Allan T. Andrews
Department Chairperson

[Signature]
College Curriculum Committee

[Signature]
College Dean*/Col. of Educ. 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: _____

Semester to be
implemented:
Fall 1993

Date to be
published
in Catalog:
1993-1994

to UWUCC: _____

LSC USE ONLY

Number: _____

Action: _____

Date: _____

UWUCC USE ONLY

Number: 92-50

Action: _____

Date: _____

CURRICULUM PROPOSAL COVER SHEET
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Suggested 20 Character Course Title: _____

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Department Curriculum Committee

Julien B...
College Curriculum Committee

Director of Liberal Studies
(where applicable)

Allan T. Andrews
Department Chairperson

Julien B... / W. J. Cole
College Dean*/Col. of Educ. Dean

Provost (where applicable)

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IV. Timetable

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Semester to be
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Fall 1993

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1993-1994

Date: May 7, 1993
To: Dr. Hilda Richards
Provost
From: William G. Cale W.G.C. AK
Dean, NS&M
Subject: Curriculum Proposals

Attached please find several curriculum proposals submitted by departments in the College of Natural Sciences and Mathematics. Program changes for the BS in Education/Biology, BS in Geology, BS in Environmental Geoscience, BA in Psychology, and BA in Psychology/Applied Track, will not require an increase in the number of credits required or faculty workload hours.

Similarly, the proposed new courses do not necessitate additional resources. Those courses, BI 450/550 Pymatuning: Field Studies, MA 320 Mathematics for Early Childhood, PC 315 Experimental Developmental Psychology, PC 335 Experimental Social Psychology, PC 345 Human Cognition, PC 355 Animal Behavior, PC 356 Biopsychology, PC 390 Industrial- Organizational Psychology, PC 425 Experimental Organizational Psychology, are proposed in place of courses earlier deleted, courses previously offered as Special Topics, or as an alternative choice between laboratory or lecture versions of existing offerings. There will be no increase in the number of credits required and present faculty are well qualified to teach the proposed courses.

NSTA/NCATE EVALUATION FOR SECONDARY BIOLOGY

>I. Requires broad study and experience with live organisms, inquiry and applications of biology.

Rating: + Comments:

*II. Requires 32 s.h. of biology including significant work in zoology, botany, physiology, genetics, ecology, evolution, cell biology/biochemistry, and microbiology (See Note 1).

Rating: - Comments: 30 semester hours required. Two additional hours are needed. No assurance that ecology, evolution, genetics or physiology are included.

*III. Requires 16 s.h. of supplemental science including chemistry, physics and earth science (See Note 2).

Rating: R Comments: Earth science is needed to meet the standard

*IV. Requires mathematics including precalculus (See Note 3).

Rating: - Comments: Course is not required.

>V. Requires study of science, technology and society issues and ethics related to biology.

Rating: - Comments: The courses cited are electives, not required.

>VI. Requires experiences in designing, developing and evaluating laboratory, field and instructional activities.

Rating: + Comments:

KEY TO RATING OF STANDARDS: (+) Meets standard; (R) Meets standard with reservations. Should fully comply by next review; (-) does not meet the standard (0) more information is needed to determine compliance;

(*) these standards must be passed for a positive compliance rating;

(>) two of these three standards must be passed for a positive compliance rating.

NOTE 1: Must include 26 s.h. and 6 areas for an "R" rating.

NOTE 2: Must include 13 s.h. and 2 fields for an "R" rating.

NOTE 3: Algebra and analytical geometry or trigonometry are equivalent.

NOTE 4: Semester hours may be calculated by multiplying quarter hours by 2/3.

OVERALL, THIS PROGRAM: Fully meets the standards
 Meets the standards with reservations
 X Does not comply with standards for this program
 Information is needed to complete the review

Science Education/First Review/Spring 1992

CURRENT PROGRAM: 1993-1994 CATALOG

PROPOSED PROGRAM: 1994-1995 CATALOG

Bachelor of Science in Education - Biology (*)

Liberal Studies: As outlined in Liberal Studies section with the following specification: **54-55**
 Mathematics: MA217
 Natural Science: CH111-112
 Social Science: PC101
 Liberal Studies electives: PY111, no courses with BI prefix

College: 30
 Professional Education Sequence:
 CM301 Technology for Learning and Instruction 3sh
 ED242 Pre-student Teaching Clinical Exp. I 1sh
 ED342 Pre-student Teaching Clinical Exp. II 1sh
 ED441 Student Teaching 12sh
 ED442 School Law 1sh
 ED451 Teaching Science in the Secondary Schools 3sh
 EP202 Educational Psychology 3sh
 EP377 Educational Tests and Measures 3sh
 FE202 American Education in Theory and Practice 3sh

Major: (I) 30
 Required courses:
 BI103 General Biology I 4sh
 BI104 General Biology II 4sh
 BI110 Plant Biology 5sh
 BI120 Animal Biology 5sh
 BI361 Microbiology 3sh
 BI480 Biology Seminar 1sh
 Controlled electives:
 Biology electives: (major courses only) BI105 8sh(2)
 BI263, and BI362 recommended

Other Requirements: 13
 Chemistry sequence:
 CH231 Organic Chemistry I 4sh
 CH351 Biochemistry 4sh
 Physics sequence:
 PY121 Physics Lab I 1sh
 PY112 Physics II 3sh
 PY122 Physics Lab II 1sh

Free Electives: 0

(#) Total Degree Requirements: 127-128

- (*) 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 requires a cumulative GPA of 2.75 and a grade of C or better in biology courses.
- (2) No more than 6sh from Independent Study, Special Topics, Internship applies to major: excess applied as free electives.
- (#) See advisory paragraph "Timely Completion of Degree Requirements" in catalog section on Requirements for Graduation.

Bachelor of Science in Education - Biology (*)

Liberal Studies: As outlined in Liberal Studies section with the following specifications: **54-56**
 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, Option II, Nonlaboratory List

College: 30
 Professional Education Sequence:
 CH301 Technology for Learning and Instruction 3sh
 ED242 Pre-student Teaching Clinical Exp. I 1sh
 ED342 Pre-student Teaching Clinical Exp. II 1sh
 ED441 Student Teaching 12sh
 ED442 School Law 1sh
 ED451 Teaching Science in the Secondary Schools 3sh
 EP202 Educational Psychology 3sh
 EP377 Educational Tests and Measures 3sh
 FE202 American Education in Theory & Practice 3sh

Major (I) 30
 Required courses:
 BI103 General Biology I 4sh
 BI104 General Biology II 4sh
 BI110 Plant Biology 5sh
 BI120 Animal Biology 5sh
 BI361 Microbiology 3sh
 BI480 Biology Seminar 1sh
 Controlled electives:
 Biology electives:(major courses only) BI105 8sh(2)
 BI 263, and BI 362 recommended

Other Requirements: 13
 Chemistry sequence:
 CH231 Organic Chemistry I 4sh
 CH351 Biochemistry 4sh
 Physics sequence:
 PY121 Physics Lab I 1sh
 PY112 Physics II 3sh
 PY122 Physics Lab II 1sh

Free Electives: 0

(#) Total Degree Requirements: 127-129

- (*) 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 requires a cumulative GPA of 2.75 and a grade of C or better in biology courses.
- (2) No more than 6sh from Independent Study, Special Topics, Internship applies to major: excess applied as free electives.
- (#) See advisory paragraph "Timely Completion of Degree Requirements" in catalog section on Requirements for Graduation.

PROPOSAL

In order to meet NSTA/NCATE certification standards for secondary biology education, the biology department is forwarding the following proposal to the College Wide Curriculum Committee (and ultimately the University Wide Curriculum Committee) for approval and inclusion in the undergraduate catalog in a timely manner.

The following programmatic changes are proposed:

1. The Liberal Studies Learning Skills Mathematics requirement be fulfilled by either:

MA 110	Elementary Functions	3cr
MA 121	Calculus I for Business, Natural and Social Sciences	4cr

2. The Liberal Studies Electives requirement be met, in part, by selecting one course with a GS prefix from the Liberal Studies Natural Science Non-laboratory Course list. Specifically, the selection must include one of the following (based on the 1992-1993 catalog):

GS 101	Earth Science I
GS 103	Earth Science II
GS 110	General Astronomy
GS 121	Physical Geology
GS 131	Historical Geology (req. GS 121 or instructor permission)
GS 141	Introduction to Ocean Science
GS 151	Age of Dinosaurs
GS 221	Physical Resources of the Earth

JUSTIFICATION

These changes are being sought in order to be in compliance with NSTA/NCATE standards for secondary biology certification programs. During the Spring 1992 evaluation/first review by NSTA/NCATE, the IUP biology education program did not comply with standards because, in part, we did not require any earth science nor a mathematics course at the precalculus level.

Standard III. Requires 16 s.h. of supplemental science including chemistry, physics and earth science.

Standard IV. Requires mathematics including precalculus.

The NSTA/NCATE Evaluation for Secondary Biology showing a more detailed critique for each standard is included with this proposal.

The proposed changes have received approval by NSTA/NCATE as meeting the standards (personal communication from Dean John Butzow, February 16, 1993).

These changes will not necessitate any change in total program hours.

Letters of support have been requested from Mathematics, Geoscience, and the Liberal Studies Committee.

March 4, 1993

TO: Department Chairs: Mathematics and Geoscience

FROM: Terry L. Peard, Biology Education Coordinator
Allan Andrew, Chair, Biology Department

RE: Proposed programmatic changes in Bachelor of Science
in Education - Biology

The recent review by NSTA (National Science Teachers Association) and NCATE (National Council for the Accreditation of Teacher Education) has led us to restructure our B.S. degree in Biology Education in order to comply with certification standards. We are requesting your departments to assist in achieving the necessary changes through appropriate actions in your respective departments.

1. Mathematics: Standard IV requires mathematics including precalculus. We do not meet this standard. We are proposing to drop the requirement of MA 217 and replace it with the following: The Liberal Studies Learning Skills Mathematics requirement be fulfilled by either:
MA 110 Elementary Functions - 3 cr
MA 121 Calculus I for Business, Natural and Social Sciences - 4 cr
We would appreciate your endorsement of this change as meeting the precalculus requirements. This change should not adversely impact your course enrollments since our majors will be spread over two courses and many already take MA 121.
2. Geoscience: Standard III requires 16 s.h. of supplemental science including chemistry, physics and earth science. We do not meet the standard with regard to earth science. We are proposing the following: The Liberal Studies Electives requirement be met, in part, by selecting one course with a GS prefix from the Liberal Studies Natural Science Non-laboratory Course list. Since many of our majors also seek general science certification, they are already taking GS 101/102 and GS 103/104. As a result, we would be spreading our majors over six courses, realizing that GS 131 in most cases would not be elected because of the prerequisite. Even though we have about 70 majors, the dilution over four years into five or six courses should not create an overburden in your courses. We would appreciate a letter of endorsement approving this programmatic change.

March 4, 1993

TO: Liberal Studies Committee

FROM: Terry L. Peard, Biology Education Coordinator
Allan Andrew, Chair, Biology Department

RE: Approval to control one Liberal Studies Elective

Teacher certification programs at IUP currently are under review by NCATE (National Council for the Accreditation of Teacher Education). The first review in Spring 1992 by NCATE and NSTA (National Science Teachers Association), who sets the standards in science education, revealed that we are not in compliance with some standards. This has led us to restructure our program.

Standard III requires 16 s.h. of supplemental science including chemistry, physics and earth science. We do not meet this standard with regard to earth science and cannot do so without increasing the total program hours. Therefore, we are proposing the following:

The Liberal Studies Electives requirement be met, in part, by selecting one course with a GS prefix from the Liberal Studies Natural Science Non-laboratory Course list.

This proposal has been approved by NCATE/NSTA for placing us in full compliance with Standard III. We are requesting a letter in support for this proposal from the Liberal Studies Committee.

*Approved by LSC
March 11, 1993
CD Cashell*

March 12, 1993

To: Terry L. Peard, Biology Education Coordinator
Allan Andrew, Chair, Biology Department

From: Frank W. Hall, Chair, Geoscience Department *FWH*

Re: Proposed programmatic changes in Bachelor of Science in
Education and Biology (memo of March 4, 1993)

The Geoscience Department endorses the Biology Department proposal that Biology Education majors select one course with a GS prefix from the Liberal Studies Natural Science Nonlaboratory course list to comply with the certification standards regarding Earth Science.

cc: Connie Sutton, Geoscience Department

Department of Mathematics
Indiana University of Pennsylvania
233 Stright Hall
Indiana, Pennsylvania 15705-1072

(412) 357-2608



To: Terry L. Peard, Biology Education Coordinator
Allen Andrew, Chairman, Biology Department

From: Gerald Buriok, Chairman
Mathematics Department *GMB*

Date: March 16, 1993

Subject: Proposed programatic changes in Bachelor of Science
in Education - Biology

Your memo of March 4, 1993 describes your plans to restructure the B.S. in Biology Education as a result of the recent NCATE review. Although we believe MA 217 Probability and Statistics is a useful and appropriate course for the students in your program, the Mathematics Department endorses your decision to replace the requirement of MA 217 with the requirement of either MA 110 Elementary Functions or MA 121 Calculus I for Business, Natural and Social Sciences. Since we have had more severe problems meeting student demand for MA 217 than MA 110 and MA 121, I do not believe this change will adversely impact our course enrollments. Recognizing that some faculty in the Biology Department may view MA 217 as an important course for their advisees, I anticipate that some students may be advised to take MA 217 as an elective in addition to meeting the requirement of MA 110 or MA 121.

#12

28-JUN-1993 22:45:19.38

NEWMAIL

From: GROVE::MJSTAT "MARK J. STASZKIEWICZ"
To: JAN
CC:
Subj: Will you please file with Curriculum Committee. Thanks.

From: GROVE::WGCALE "WILLIAM CALE" 28-JUN-1993 15:50:00.56
To: MARK STASZKIEWICZ
CC: FWMORGAN
Subj: B.S. Ed. - Biology (resources)

I write at the request of Dr. Fred Morgan, to provide information necessary for the UWUCC.

The revisions in the Biology Education Program have been reviewed by me, and impacted departments have provided letters of endorsement. It is agreed by all involved that the College will not require additional resources to implement the changes mandated by our NCATE review.

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William G. Cale, Dean
College of Natural Sciences and Mathematics
Indiana University of Pennsylvania