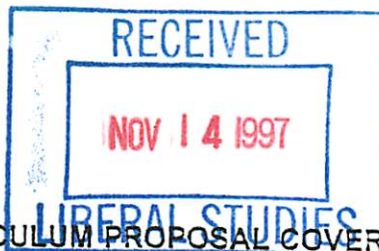


LSC Use Only
Number: _____
Submission Date: _____
Action-Date: _____



Withdrawn 12/10/97
UWUCC USE Only
Number: 97-41
Submission Date: _____
Action-Date: _____

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

I. CONTACT

Contact Person Roberta M. Eddy Phone 357-4482

Department Chemistry

II. PROPOSAL TYPE (Check All Appropriate Lines)

 COURSE

Suggested 20 character title

 New Course *

Course Number and Full Title

 Course Revision

Course Number and Full Title

 Liberal Studies Approval +
for new or existing course

Course Number and Full Title

 Course Deletion

Course Number and Full Title

 Number and/or Title Change

Old Number and/or Full Old Title

New Number and/or Full New Title

 Course or Catalog Description Change

Course Number and Full Title

 x PROGRAM: x Major Minor Track

 New Program *

Program Name

 x Program Revision* Bachelor of Science in Education - Chemistry

Program Name

 Program Deletion*

Program Name

 Title Change

Old Program Name

New Program Name

III. Approvals (signatures and date)

Roberta M. Eddy Chair 10-24-97
Department Curriculum Committee

Patricia Vannoy 10/24/97
Department Chair

[Signature] 10/14/97
College Curriculum Committee

[Signature] 11/14/97
College Dean

Darlene Richardson 11/13/97
+ Director of Liberal Studies (where applicable)

[Signature] 11/15/97
+ Provost (where applicable)

Part II. Description of Curriculum Change

1. Catalog Description For The Revised Chemistry Education Program.

Bachelor of Science in Education—Chemistry (*)

Liberal Studies: As outlined in Liberal Studies section 56-57

with the following specifications:

Mathematics: MA121

Natural Science: PY111/121-112/122

Social Science: PC101

Liberal Studies electives: MA122, GS111 or GS113, no course with CH prefix

College: 30

Professional education sequence: (1)

CM301	Technology for Learning and Instruction	3sh
ED242	Pre-student Teaching Clinical Experience I	1sh
ED342	Pre-student Teaching Clinical Experience II	1sh
ED421	Student Teaching	12sh
ED442	School Law	1sh
ED451	Teaching Science in the Secondary School	3sh
EP202	Educational Psychology	3sh
EP377	Educational Tests and Measures	3sh
FE202	American Education in Theory and Practice	3sh

Major: 33-35

Required courses:

CH113	Concepts in Chemistry	4sh
CH114	Basic Inorganic Chemistry	4sh
CH231	Organic Chemistry I	4sh
CH232	Organic Chemistry II	4sh
CH321	Quantitative Analysis	4sh
CH322	Instrumental Analysis	4sh
CH341	Physical Chemistry I	4sh
CH343	Physical Chemistry Laboratory I	1sh
CH498	Problems in Chemistry	1-2sh

Controlled electives:

One additional chemistry course from list: 3-4sh

CH342, CH351, CH411

Other Requirements: 5

BI111 Principles of Biology I 4sh

GS112 or GS114 1sh

Free Electives: 0

(#)Total Degree Requirements 124-127

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

(1) Special Education Competency Requirement: Revision pending will eliminate exam option and will require EX301 (2sh).

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

2. Summary of changes

a. Table Comparing Old And New Chemistry Education Programs

OLD CHEMISTRY EDUCATION PROGRAM	NEW CHEMISTRY EDUCATION PROGRAM
Liberal Studies: (56-57sh) Mathematics: MA121 Natural Science: PY111/121-112/122 Social Science: PC101 Liberal Studies Electives: MA122, no courses with CH prefix.	Liberal Studies: (56-57sh) Mathematics: MA121 Natural Science: PY111/121-112/122 Social Science: PC101 Liberal Studies electives: MA122, <i>GS111 or GS113</i> , no courses with CH prefix
College: (30sh) Professional education sequence: CM301 Technology for Learning and Instruction (3sh) ED242 Pre-student Teaching Clinical Experience I (1sh) ED342 Pre-student Teaching Clinical Experience II(1sh) ED421 Student Teaching (12sh) ED442 School Law (1sh) ED451 Teaching Science in the Secondary School (3sh) EP202 Educational Psychology (3sh) EP377 Educational Tests and Measures (3sh) FE202 American Education in Theory and Practice(3sh)	College: (30sh) Professional education sequence: CM301 Technology for Learning and Instruction (3sh) ED242 Pre-student Teaching Clinical Experience I (1sh) ED342 Pre-student Teaching Clinical Experience II(1sh) ED421 Student Teaching (12sh) ED442 School Law (1sh) ED451 Teaching Science in the Secondary School (3sh) EP202 Educational Psychology (3sh) EP377 Educational Tests and Measures (3sh) FE202 American Education in Theory and Practice(3sh)
Major: (33-35sh) Required courses: CH113 Concepts in Chemistry (4sh) CH114 Basic Inorganic Chemistry (4sh) CH231 Organic Chemistry I (4sh) CH232 Organic Chemistry II (4sh) CH321 Quantitative Analysis (4sh) CH322 Instrumental Analysis (4sh) CH341 Physical Chemistry I (4sh) CH343 Physical Chemistry Laboratory I (1sh) CH498 Problems in Chemistry (1-2sh)	Major: (33-35sh) Required courses: CH113 Concepts in Chemistry (4sh) CH114 Basic Inorganic Chemistry (4sh) CH231 Organic Chemistry I (4sh) CH232 Organic Chemistry II (4sh) CH321 Quantitative Analysis (4sh) CH322 Instrumental Analysis (4sh) CH341 Physical Chemistry I (4sh) CH343 Physical Chemistry Laboratory I (1sh) CH498 Problems in Chemistry (1-2sh)
Controlled electives: One additional chemistry course from list: (3-4sh) CH342, CH351, CH411	Controlled electives: One additional chemistry course from list: (3-4sh) CH342, CH351, CH411
Other Requirements: (4sh) BI111 Principles of Biology I (4sh)	Other Requirements: (5sh) BI111 Principles of Biology I (4sh) <i>GS112 or GS114 (1sh)</i>
Free Electives: (0-1sh)	Free Electives: (0)
Total Degree Requirements: (124-126sh)	Total Degree Requirements: (124-127sh)

b. There are no associated course changes.

3. Rationale for Change.

The Chemistry Education Program needs 4 semester hours of an earth science course to comply with NSTA standards for NCATE accreditation. GS111/112 (oceanography, geology) and GS113/114 (meteorology, astronomy) are designed specifically for secondary science education majors, have a laboratory component, and allow the students to choose an earth science course according to their interest.

Part III. Implementation

1. How the Revision will Affect Students Already in the Existing Chemistry Education Program.

This revision will not affect students who are already in the existing Chemistry Education Program. Most of these students have been advised to take either GS111/112 or GS113/114 so that at least in practice, while revisions are being made on paper, the Chemistry Education Program is in compliance with the NSTA standards for NCATE accreditation.

2. How the Proposed Revision will Affect Faculty Teaching Loads.

The addition of a 4 semester hour earth science course to the Chemistry Education Program is not expected to affect faculty teaching loads or to require additional classroom space. There are approximately 5 to 10 new chemistry education majors per year and not all of these students will be taking the same earth science course in the same semester.

3. Adequacy of Other Resources.

Other resources (space, equipment, supplies, travel funds) are expected to be adequate.

4. Expectation of an Increase or Decrease in the Number of Students as a Result of These Revisions.

The addition of a required earth science course to the Chemistry Education Program is not expected to change the number of students. For the past two years, students entering the program have been advised to take either GS111/112 or GS113/114 and no significant increase or decrease in the number of students has resulted.

Part V. Letters of Support

1. Geology Department (Dr. Frank Hall, Chair)
2. The Liberal Studies Committee (Dr. Darlene Richardson, Director)
Letter of support pending following next meeting of the Liberal Studies Committee

Geoscience Department
Indiana University of Pennsylvania
114 Walsh Hall
Indiana, Pennsylvania 15705-1087

(412) 357-2379



October 21, 1997

TO: Roberta M. Eddy
Chair, Curriculum Committee of the Chemistry Department

FROM: Frank W. Hall *FW Hall*
Chair, Geoscience Department

RE: Incorporation of GS 111/112 and GS 113/114 in the Chemistry Education Program

The Geoscience Department unanimously supports the Chemistry Department Chemistry Education Program incorporation of GS 111/112 and GS 113/114.

Appendix A

NSTA Guidelines for the Preparation of Chemistry Teachers

**Additional Guidelines and Matrix
FOR THE PREPARATION OF CHEMISTRY TEACHERS**

In addition to the general high school program standards, preparation should enable chemistry teachers to:

Guidelines	Courses and/or experiences that fulfill the guidelines
6.1 Understand and develop the major concepts and principles of chemistry, including concepts in inorganic, organic, analytical, physical and biochemistry.	
6.2 Develop student understanding of the interconnectedness of the sciences, and relate the major concepts of biology, the earth/space sciences, and physics to the teaching of chemistry.	
6.3 Apply mathematics, including calculus, to investigations in chemistry and the analysis of data.	
6.4 Relate the concepts of chemistry to contemporary, historical, technological and societal issues.	
6.5 Locate resources, design and conduct inquiry-based, open-ended investigations in chemistry, interpret findings, communicate results and make judgements based on evidence.	

Appendix B

NSTA Guidelines for the Preparation of Earth/Space Science Teachers

**Additional Guidelines and Matrix
FOR THE PREPARATION OF EARTH/SPACE SCIENCE TEACHERS**

In addition to the general high school program standards, preparation should enable earth/space science teachers to:

Guidelines	Courses and/or experiences that fulfill the guidelines
7.1 Understand and develop the major concepts and principles of the earth/space sciences, including astronomy, geology, meteorology, oceanography and natural resources.	
7.2 Develop student understanding of the interconnectedness of the sciences, and relate the major concepts of biology, chemistry and physics to the teaching of the earth/space sciences.	
7.3 Apply mathematics, including statistics and precalculus, to investigations in the earth/space sciences and the analysis of data.	
7.4 Relate the concepts of the earth/space sciences to contemporary, historical, technological and societal issues.	
7.5 Locate resources, design and conduct inquiry-based, open-ended investigations in the earth/space sciences, interpret findings, communicate results and make judgements based on evidence.	

Liberal Studies Office
352 Sutton Hall

Email DRCHRDSN
Phone x 5715

November 12, 1997

To: Roberta Eddy, Chemistry Department
From: Darlene Richardson, Director
Subject: Revision in the Liberal Studies portion of BS in Chemistry Education

On November 6, 1997, the Liberal Studies Committee approved the revision in the Liberal Studies portion of the BS in Chemistry Education. GS 111 or GS 113 will be added to the list of specified Liberal Studies Electives (GS 111 and GS 113 are approved LS electives.) I reported this approval to the University-wide Undergraduate Curriculum Committee on November 11, 1997.

Copy: John Eck, Dean, College of Natural Sciences and Mathematics
Pothen Varughese, Chair, Chemistry Department