

LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:
		Senate Action Date: 04-49	
		Apr 2/15/05	Senate Apr 3/1/05

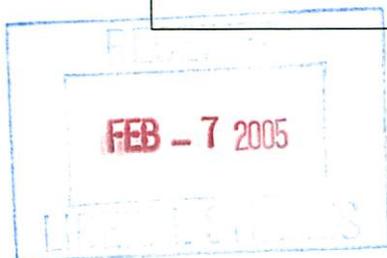
**Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee**

Contact Person: <b>Ronald F. See</b>	Email Address: rfsee@iup.edu
Proposing Department/Unit: <b>Chemistry</b>	Phone: 7-4489

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

<b>1. Course Proposals (check all that apply)</b> <input type="checkbox"/> New Course <input type="checkbox"/> Course Prefix Change <input type="checkbox"/> Course Deletion <input type="checkbox"/> Course Revision <input type="checkbox"/> Course Number and/or Title Change <input type="checkbox"/> Catalog Description Change	
<u>Current</u> Course prefix, number and full title	<u>Proposed</u> course prefix, number and full title, if changing
<b>2. Additional Course Designations: check if appropriate</b> <input type="checkbox"/> This course is also proposed as a Liberal Studies Course. <input type="checkbox"/> Other: (e.g., Women's Studies, Pan-African) <input type="checkbox"/> This course is also proposed as an Honors College Course.	
<b>3. Program Proposals</b> <input type="checkbox"/> New Degree Program <input type="checkbox"/> Catalog Description Change <input type="checkbox"/> Program Revision <input type="checkbox"/> New Minor Program <input type="checkbox"/> Program Title Change <input checked="" type="checkbox"/> Other – Track Revision <input type="checkbox"/> New Track	
<u>Current</u> program name	<u>Proposed</u> program name, if changing
<b>4. Approvals</b>	
Dept Curriculum Committee Chair	Ronald F. See      2/11/03
Department Chair	Russell Van Lagen Ramsey      2/11/03
Coll. Curriculum Committee Chair	[Signature]      02/11/03
College Dean	[Signature]      02/11/03
Director of Liberal Studies *	
Director of Honors College *	
Provost *	
Additional signatures as appropriate:	
(include title)	
UWUCC Co-Chairs:	Gail Schust      2-15-05

\* where applicable



## Bachelor of Science--Chemistry/Pre-Medical Track

**Liberal Studies:** As outlined in Liberal Studies section with the following specifications: 50  
**Mathematics:** MATH 123  
**Natural Sciences:** PHYS 131-141 and 132-142  
**Liberal Studies Electives:** 4cr, MATH 124, no courses with CHEM prefix

**Required Courses:** 45

CHEM 113	Concepts in Chemistry I (1)	4cr
CHEM 114	Concepts in Chemistry II (1)	4cr
CHEM 214	Intermediate Inorganic Chemistry	2cr
CHEM 231	Organic Chemistry I	4cr
CHEM 232	Organic Chemistry II	4cr
CHEM 301	Introduction to Chemical Research	1cr
CHEM 321	Quantitative Analysis	4cr
CHEM 322	Instrumental Analysis	4cr
CHEM 341	Physical Chemistry I	4cr
CHEM 342	Physical Chemistry II	3cr
CHEM 343	Physical Chemistry Laboratory I	1cr
CHEM 344	Physical Chemistry Laboratory II	1cr
CHEM 410	Advanced Inorganic Chemistry Laboratory	1cr
CHEM 411	Advanced Inorganic Chemistry	3cr
CHEM 498	Problems in Chemistry	2cr
<b>Controlled Electives: (2)</b>		3cr
Additional Chemistry electives from the list:		
CHEM 331, 421, 435, 441, 481		

**Other Requirements:**

BIOC 301	Biochemistry I (3)	3cr	20-25
BIOL 111	Principles of Biology I	4cr	
BIOL 151	Human Physiology	4cr	
BIOL 263	Genetics	3cr	
BIOL 331	Animal Developmental Biology	3cr	

One additional mathematics elective from the following: MATH 171, 241, 342 3-4cr  
 Foreign Language Intermediate Level 0-4cr

**Free Electives:** 0-5

**Total Degree Requirements:** 120

- (1) CHEM 111 and 112 can be substituted for CHEM 113 and 114.
- (2) Qualifying students can also use 500- or 600-level CHEM courses to meet this requirement.
- (3) CHEM 351 may be substituted for BIOC 301.

Side-by-side comparison of present Chemistry B.S. and proposed Chemistry B.S./Pre-Medical Track (courses that represent change in *italics*).

Current Program:		Proposed Program:	
Bachelor of Science--Chemistry		Bachelor of Science--Chemistry/Pre-Medical Track	
<b>Liberal Studies:</b> As outlined in Liberal Studies section with the following specifications: <b>Mathematics:</b> MATH 123 <b>Natural Sciences:</b> PHYS 131-141 and 132-142 <b>Liberal Studies Electives:</b> 3cr, no courses with CHEM prefix	49	<b>Liberal Studies:</b> As outlined in Liberal Studies section with the following specifications: <b>Mathematics:</b> MATH 123 <b>Natural Sciences:</b> PHYS 131-141 and 132-142 <b>Liberal Studies Electives:</b> 4cr, <i>MATH 124</i> , no courses with CHEM prefix	50
<b>Major:</b> <b>Required Courses:</b>	45	<b>Required Courses:</b>	45
CHEM 113 Concepts in Chemistry I	4cr	CHEM 113 Concepts in Chemistry I	4cr
CHEM 114 Concepts in Chemistry II	4cr (1)	CHEM 114 Concepts in Chemistry II	4cr
CHEM 214 Intermediate Inorganic Chemistry	2cr	CHEM 214 Intermediate Inorganic Chemistry	2cr
CHEM 231 Organic Chemistry I	4cr	CHEM 231 Organic Chemistry I	4cr
CHEM 232 Organic Chemistry II	4cr	CHEM 232 Organic Chemistry II	4cr
CHEM 301 Introduction to Chemical Research	1cr	CHEM 301 Introduction to Chemical Research	1cr
CHEM 321 Quantitative Analysis	4cr	CHEM 321 Quantitative Analysis	4cr
CHEM 322 Instrumental Analysis	4cr	CHEM 322 Instrumental Analysis	4cr
CHEM 341 Physical Chemistry I	4cr	CHEM 341 Physical Chemistry I	4cr
CHEM 342 Physical Chemistry II	3cr	CHEM 342 Physical Chemistry II	3cr
CHEM 343 Physical Chemistry Laboratory I	1cr	CHEM 343 Physical Chemistry Laboratory I	1cr
CHEM 344 Physical Chemistry Laboratory II	1cr	CHEM 344 Physical Chemistry Laboratory II	1cr
CHEM 410 Advanced Inorganic Chemistry Laboratory	1cr	CHEM 410 Advanced Inorganic Chemistry Laboratory	1cr
CHEM 411 Advanced Inorganic Chemistry	3cr	CHEM 411 Advanced Inorganic Chemistry	3cr
CHEM 498 Problems in Chemistry	2cr	CHEM 498 Problems in Chemistry	2cr
<b>Controlled Electives:</b> (2) Additional Chemistry electives from the following: CHEM 331, 421, 435, 441, 481	3cr	<b>Controlled Electives:</b> (2) Additional Chemistry electives from the list: CHEM 331, 421, 435, 441, 481	3cr
<b>Other Requirements:</b>	14-18	<b>Other Requirements:</b>	20-24
BIOC 301 Biochemistry I	3cr	BIOC 301 Biochemistry I	3cr
BIOL 111 Principles of Biology I	4cr	BIOL 111 Principles of Biology I	4cr
MATH 124 Calculus II for Physics, Chemistry and Mathematics	4cr	<i>BIOL 151 Human Physiology</i>	<i>4cr</i>
		<i>BIOL 263 Genetics</i>	<i>3cr</i>
		<i>BIOL 331 Animal Developmental Biology</i>	<i>3cr</i>
One additional mathematics elective from the following: MATH 171, 241, 342	3-4cr	One additional mathematics elective from the following: MATH 171, 241, 342	3-4cr
Foreign Language Intermediate Level	0-3cr	Foreign Language Intermediate Level	0-3cr
<b>Free Electives:</b>	8-12	<b>Free Electives:</b>	1-5
<b>Total Degree Requirements:</b>	120	<b>Total Degree Requirements:</b>	120

## **Current Catalog Description Change:**

Degrees offered by the Department of Chemistry are the Bachelor of Science degree in Chemistry, the Bachelor of Arts degree in Chemistry, and the Bachelor of Science in Education with a Chemistry major. The first two degrees are under the College of Natural Science and Mathematics, and the third is under the College of Education and Educational Technology. The department offers a formal pre-medical concentration in the B.A. curriculum and a Chemistry minor.

The B.S. degree in Chemistry is a professional degree and is certified by the American Chemical Society. The student completing this major should be qualified to assume a position in industry or government as a chemist or to pursue graduate studies leading to the M.S. or Ph.D. degree in chemistry, biochemistry, materials science, forensic science or an associated field.

The curriculum leading to the B.A. degree in Chemistry is designed to allow for the workable union of other disciplines with chemistry in such a way as to retain the fundamental science and mathematics requirements needed for a career in chemistry. A careful selection of electives will qualify the student for entrance into many fields in which there is an acute need for persons with scientific training, and, at the same time, satisfy the entrance requirements of various professional and graduate schools. This degree may also be of interest to students who have completed a significant number of credits in another degree program and decide they want to earn a degree in chemistry.

The B.A. degree in Chemistry can incorporate a complementary program in almost any other field in the university; some disciplines which make useful combinations include biology, business administration, computer science, criminology (forensic science), English (technical writing), geoscience, government, physics, and safety science. In particular, a student seeking a career in forensic science should major in chemistry.

The B.A. program offers a concentration in Pre-Medicine. This concentration includes all courses required for entrance into medical school and is sequenced to prepare students to take the MCAT in the spring of their junior year. A degree in chemistry, with Pre-Medical concentration, gives students the flexibility of choosing medical school, graduate school, or employment in the chemical industry after graduation.

Both degrees in chemistry also provide excellent preparation for entrance into a variety of other professional schools, including dental, veterinary, pharmacy, chiropractic, and law. Students considering going to one of these professional schools after completion of a chemistry degree should work closely with their advisor and select additional courses as required by the professional school.

The curriculum leading to the B.S. in Education with a Chemistry major is designed to prepare the student to teach chemistry at the secondary school level. Upon completion of the specified coursework and the requirements of the teacher certification process, the student is eligible for Pennsylvania certification by the Pennsylvania Department of Education. Additionally, the curriculum in this degree program is designed so that

students have the opportunity to obtain a B.S.Ed.--Chemistry degree certified by the American Chemical Society.

### **Proposed Catalog Description Change:**

Degrees offered by the Department of Chemistry are the Bachelor of Science in Chemistry, the Bachelor of Science in Chemistry/Pre-Medical Track, the Bachelor of Arts in Chemistry, and the Bachelor of Science in Education with a Chemistry major. A Pre-Medical concentration is available in the B.A. curricula. Preparatory programs for other professional schools can be developed for either degree. A minor in chemistry is also offered.

The B.S. in Chemistry is a professional degree and is certified by the American Chemical Society. The student completing this major should be qualified to assume a position in industry or government as a chemist, or to pursue graduate studies leading to the M.S. or Ph.D. degree in chemistry, biochemistry, materials science, forensic science or an associated field. The Pre-Medical Track, includes all courses required for entrance into medical school, and gives the student the flexibility of choosing medical school or graduate school after graduation.

The curriculum leading to the B.A. in Chemistry is designed to allow for the workable union of other disciplines with chemistry in such a way as to retain the fundamental science and mathematics requirements needed for a career in chemistry. A careful selection of electives will qualify the student for entrance into many fields in which there is an acute need for persons with scientific training, and, at the same time, satisfy the entrance requirements of various professional and graduate schools. This degree may also be of interest to students who have completed a significant number of semester hours in another degree program, and decide they want to earn a degree in chemistry. The Pre-Medical concentration includes all courses required for entrance into medical school.

The B.A. in Chemistry can incorporate a complementary program in almost any other field in the university; some disciplines which make useful combinations include biology, business administration, computer science, criminology (forensic science), English (technical writing), geoscience, government, physics, and safety science. In particular, a student seeking a career in forensic science should major in chemistry.

Either degree in chemistry provides excellent preparation for entrance into a variety of professional schools, including dental, veterinary, pharmacy, chiropractic and law. The student considering going to one of these professional schools after completion of a chemistry degree should work closely with their advisor and select additional courses as required by the professional school.

The curriculum leading to the B.S. in Education with a Chemistry major is designed to prepare the student to teach chemistry at the secondary school level. Upon completion of the specified coursework and the requirements of the teacher certification process, the student is eligible for Pennsylvania certification by the Pennsylvania Department of Education. The B.S. in Education with a Chemistry major degree program is also certified by the American Chemical Society.