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OFFICE OF THE
SENATE COUNCIL

ARTS AND SCIENCES
EDUCATIONAL POLICY COMMITTEE
INVESTIGATOR REPORT

INVESTIGATING AREA: Natural & Math. Sci. COURSE, MAJOR, DEGREE or PROGRAM: Chemistry BS .

DATE FOR EPC REVIEW: 2/20/07 CATEGORY: NEW, **CHANGE**, DROP

INSTRUCTIONS: This completed form will accompany the course application to the Graduate/Undergraduate Council(s) in order to avoid needless repetition of investigation. The following questions are included as an outline only. Be as specific and as brief as possible. If the investigation was routine, please indicate this. The term "course" is used to indicate one course, a series of courses or a program, whichever is in order. Return the form to **Leonidas Bachas Associate Dean, 275 Patterson Office Tower** for forwarding to the Council(s). ATTACH SUPPLEMENT IF NEEDED.

1. List any modifications made in the course proposal as submitted originally and why. **None were made.**

2. If no modifications were made, review considerations that arose during the investigation and the resolutions. **The inclusion of CHE 410G and 412G in the CHE BS is necessary because of the recent conversion of CHE 450G (Inorganic Chem lecture and lab) to two stand-alone courses, CHE 410G (lecture) and CHE 412G) lab. These changes require change in the Chemistry BS.**

3. List contacts with program units on the proposal and the considerations discussed therein. **None**

4. Additional information as needed. **None**

5. A&S **Area Coordinator** Recommendation:

   APPROVE, APPROVE WITH RESERVATION, OR DISAPPROVE

6. A&S **Education Policy Committee** Recommendation:

   APPROVE, APPROVE WITH RESERVATION, OR DISAPPROVE

7. _____ Date: 3/07/07
   A&S Educational Policy Committee, **Phil Bonner**

File: \InvestigatorRpt

February 8, 2007

Dear Colleagues:

CHE 450G (Practical Inorganic Chemistry, 4 credit hours) fulfills the inorganic chemistry requirement set for chemistry majors by the Committee on Professional Training of the American Chemical Society for our Bachelor of Science majors. CHE 450G is a combined laboratory/lecture course that is not serving our students well. Because most students have had no inorganic chemistry coursework beyond General Chemistry (CHE 105–107), they are unprepared to undertake laboratory work at the beginning of the semester. Thus, it is difficult for instructors to provide enough theoretical foundation for laboratory work at the beginning of the semester. Students don't find the course satisfying, and very few BA students choose it as a Major Field Option.

The inorganic chemistry division is requesting that the course be broken up into separate lecture (CHE 410G, 2 credit hours, Inorganic Chemistry – changed from "Intermediate Inorganic Chemistry" as in the previous draft, since there is no "Basic Inorganic Chemistry" course) and laboratory (CHE 412G, 2 credit hours, Inorganic Chemistry Laboratory) courses to solve this problem. CHE 410G will normally be taken during the spring semester of a chemistry major's Junior year, and will be a prerequisite for CHE 412G that will normally be taken during the fall semester of the Senior year. The CHE 410G–412G sequence will continue to fulfill the ACS inorganic chemistry requirement. In addition, CHE 410G will serve as a stand-alone course in intermediate-level inorganic chemistry that can be used as a Major Field Option for BA chemistry majors, additional 300+ physical science hours for chemistry minors and other science majors, and as an introduction to inorganic chemistry for graduate students from other departments. The pair of courses fits cleanly into our BS curriculum; in fact, replacing a four-hour course with a two-hour course in the fall semester of a student's senior year may make scheduling easier. We anticipate that CHE 410G may become a popular Major Field Option for BA chemistry majors and elective for student from other departments.

A question arose about whether the change to CHE 410G and 412G will affect the content of CHE 510 (Advanced Inorganic Chemistry) and CHE 514 (Descriptive Inorganic Chemistry). The situation in Inorganic Chemistry is simply becoming more like those in Organic, Analytical and Physical, with both undergraduate and graduate course offerings. A brief overview in CHE 410G would not prevent an undergraduate from choosing CHE 510 or 514 as a major field option. In fact, it would serve as a good bridge between CHE 107 and the graduate courses. No changes in CHE 510 or 514 content are anticipated.

Documents to request these changes are attached (with revised file names):

1. An application to establish CHE 410G as a new course (CHE410new.doc).
2. An application to convert CHE 450G to CHE 412G (CHE450412.doc).
3. A request for a change in the program for the degree of Bachelor of Science in Chemistry, Chemistry Option, with CHE 115 as the (old) General Chemistry lab course (BSChem410115.doc).

CHE BS-chy

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REQUEST FOR CHANGE IN UNDERGRADUATE PROGRAM

Program: Bachelor of Science

Formal Option : Biochemistry option (if applicable) or Specialty Field (if applicable)

Department (if applicable): Chemistry

College (if applicable): Arts and Sciences

Degree title: Bachelor of Science in Chemistry Bulletin pp.: 2006–2007, pp. 107–108 (Chemistry option only)

CIP Code: UK ID No.: HEGIS CODE:

Accrediting Agency (if applicable): American Chemical Society

I. PROPOSED CHANGE(S) IN PROGRAM REQUIREMENTS

1. Particular University Studies Requirements or Recommendations for this program

	Current	Proposed
I. Mathematics		
II. Foreign Language		
III. Inference-Logic		
IV. Written Communication		
V. Oral Communication		
VI. Natural Sciences		
VII. Social Sciences		
IX. Cross-Cultural		
X. USP Electives (3 must be outside the student's major		

2. University Graduation Writing Requirement

3. College Depth and Breadth of Study Requirements (if applicable) (including particular courses required or recommended for this program) NOTE: To the extent that proposed changes in 2. through 6. involve additional courses offered in another program, please submit correspondence with the program(s) pertaining to the availability of such courses to your students.

Current Proposed

4. Premajor or Preprofessional Course Requirements (if applicable)

Current Proposed

REQUEST FOR CHANGE IN UNDERGRADUATE PROGRAM

5. Credit Hours Required — Current — Proposed

a. Total Required for Graduation:

b. Required by level:

100	200	300	400-500

c. Premajor or Preprofessional (if applicable)
d. Field of Concentration (if applicable)
e. Division of Hours Between Major Subject and Related Field (if applicable)
f. Hours Needed for a Particular Option or Specialization (if applicable)
g. Technical or Professional Support Electives (if applicable)
h. Minimum Hours of Free or Supportive Electives (Required)

6. Major or Professional Course Requirements

Current	Proposed
CHE 450G (4 credit hours)	**CHE 410G (2 credit hours) and CHE 412G (2 credit hours)**

7. Minor Requirements (if applicable)

Current	Proposed
	Total Hours:

8. Rationale for Change(s): (If rationale involves accreditation requirements, please include specific references to those requirements.)

CHE 410G and CHE 412G fulfill the inorganic chemistry requirement set for chemistry majors by the Committee on Professional Training of the American Chemical Society. Presently, the Department offers a combined lecture/laboratory course, CHE 450G (Practical Inorganic Chemistry, 4 credit hours), for full fulfillment of the requirement for BS majors. Because most students have had no inorganic chemistry coursework beyond General Chemistry (CHE 105–107), they are unprepared to undertake laboratory work at the beginning of the semester. Thus, it is difficult for instructors to provide enough theoretical foundation for laboratory work at the beginning of the semester. Converting CHE 450G into separate lecture (CHE 410G, 2 credit hours) and laboratory (CHE 412G, 2 credit hours) solves this problem. CHE 410G will be normally be taken during the spring semester of a chemistry major's Junior year, and will be a prerequisite for CHE 412G that is normally taken during the fall semester of the Senior year.

REQUEST FOR CHANGE IN UNDERGRADUATE PROGRAM

9. List below the typical semester-by-semester program for a major.

Changes are underlined.

BACHELOR OF SCIENCE WITH A MAJOR IN CHEMISTRY
Biochemistry option

Current **Proposed**

FRESHMAN YEAR

Fall Semester	Credit	Fall Semester	Credit
CHE 105, General (VI; A&S)	3	CHE 105, General (VI; A&S)	3
CHE 111 General Chemistry Lab I	1	CHE 111 General Chemistry Lab I	1
ENG 104, Composition (IV)	4	ENG 104, Composition (IV)	4
MA 113, Calculus I (I; III)	4	MA 113, Calculus I (I; III)	4
University Studies (VIII)	3	University Studies (VIII)	3
Total	15	Total	15

Spring Semester	Credit	Spring Semester	Credit
CHE 107, General (VI; A&S)	3	CHE 107, General (VI; A&S)	3
CHE 113, Gen. Lab. II (VI; A&S)	2	CHE 113, Gen. Lab. II (VI; A&S)	2
MA 114, Calculus II (Major)	4	MA 114, Calculus II (Major)	4
BIO 150 Biology I	3	BIO 150 Biology I	3
BIO 151 Biology Lab I	2	BIO 151 Biology Lab I	2
Total	14	Total	14

SOPHOMORE YEAR

Fall Semester	Credit	Fall Semester	Credit
CHE 230, Organic (Major)	3	CHE 230, Organic (Major)	3
BIO 152 Biology II	3	BIO 152 Biology II	3
BIO 153 Biology II Lab	2	BIO 153 Biology II Lab	2
MA 213, Calculus III (Major)	4	MA 213, Calculus III (Major)	4
PHY 231, General University (Major)	4	PHY 231, General University (Major)	4
PHY 241, General University Lab. (Major)	1	PHY 241, General University Lab. (Major)	1
Total	17	Total	17

Spring Semester	Credit	Spring Semester	Credit
CHE 231, Organic Lab. I (Major)	2	CHE 231, Organic Lab. I (Major)	2
CHE 232, Organic (Major)	3	CHE 232, Organic (Major)	3
CHE 226, Analytical Lect./Lab. (Major)	3	CHE 226, Analytical Lect./Lab. (Major)	3
MA 322, Matrix Algebra (Major)	3	MA 322, Matrix Algebra (Major)	3
PHY 232, General University (Major)	4	PHY 232, General University (Major)	4
PHY 242, General University Lab. (Major)	1	PHY 242, General University Lab. (Major)	1
ENG 2xx (Writing Requirement; A&S)	3	ENG 2xx (Writing Requirement; A&S)	3
Total	16	Total	16

JUNIOR YEAR

Fall Semester	Credit	Fall Semester	Credit
CHE 440G Intro. Physical Chem.	4	CHE 440G Intro. Physical Chem.	4
CHE 522 Instrumental Analysis or CHE 532 Spec ID Organic	4 or 2	CHE 522 Instrumental Analysis or CHE 532 Spec ID Organic	4 or 2
BIO 315 Cell Biology or 308 Microbiology	3	BIO 315 Cell Biology or 308 Microbiology	3
University Studies (VII)	3	University Studies (VII)	3
Total	17 or 15	Total	17 or 15

Spring Semester	Credit	Spring Semester	Credit
CHE 533, Qual. Org. (Major)	2	CHE 533, Qual. Org. (Major)	2
CHE 552 Biological Chemistry II	3	CHE 552 Biological Chemistry II	3
CHE 554 Biological Chem. Lab	2	CHE 554 Biological Chem. Lab	2
University Studies	3	CHE 410G, Inorg. Chem. (Major)	2
University Studies	3	University Studies	3
Foreign Language II (A&S)	4	Foreign Language II (A&S)	4
Total	17	Total	16

SENIOR YEAR

Fall Semester	Credit	Fall Semester	Credit
CHE 450G, Practical Inorg. Chem.(Major)	4	CHE 412G, Inorg. Chem. Lab (Major)	2
CHE 572, Seminar (Major)	1	CHE 572, Seminar (Major)	1
Major Field Option (Major)	2	Major Field Option (Major)	2
University Studies	3	University Studies	3
Foreign Language	4	Foreign Language	4
		Major Field Option (Major; X)	3
Total	14	Total	15

Spring Semester	Credit	Spring Semester	Credit
CHE 441G, Physical Chem. Lab. (Major)	2	CHE 441G, Physical Chem. Lab. (Major)	2
Major Field Option (Major)	2	Major Field Option (Major)	2
CHE 572, Seminar (Major)	1	CHE 572, Seminar (Major)	1
Foreign Language	3	Foreign Language	3
Free Elective (A&S)	3	Free Elective (A&S)	3
Free Elective (A&S)	3	Free Elective (A&S)	3
Total	16	Total	16

Notes

CHE 442G (Thermodynamics and Kinetics; 3 hrs) may be substituted for CHE 440G (Introductory Physical Chemistry; 4 hrs).
BIO 304 (Genetics; 4 hrs) may replace BIO 308 (Microbiology; 3 hrs) or BIO 315 (Cell Biology; 3 hrs).
Major Field Options must be chosen from the following: CHE 395; any 500-level chemistry course except those required. CHE 395 is strongly recommended for students having a minimum 3.0 GPA in chemistry courses.

Signatures of Approval:

2/6/07
Date of Approval by Department Faculty

3/12/07
Reported by Department Chair

2/12/07
Date of Approval by College Faculty

Reported by College Dean

10-2-07
*Date of Approval by Undergraduate Council

Reported by Undergraduate Council Chair

*Date of Approval by Graduate Council

Reported by Graduate Council Chair

*Date of Approval by Health Care Colleges Council (HCCC)

Reported by HCCC Chair

*Date of Approval by Senate Council

Reported by Senate Council Office

*Date of Approval by University Senate

Reported by Senate Council Office

*If applicable, as provided by the Rules of the University Senate
Rev 7/06