

Academic Policies Committee

Short Form Proposal Template

Schools/departments should use this short form to submit proposals:

- Needing only APC approval (revision of course descriptions including title, number or prerequisites, alternate year listing in the Catalog and the cross listing of courses); or
 - Eliminating (or adding?) 1-3 courses which don't impact other programs*; or
 - Eliminating a minor, concentration, credential program or certificate which doesn't impact other programs.*
- *confirmed by direct administrative report (college dean or provost).

All submitted proposals need to adhere to the following template in order to facilitate the work of the Academic Policies Committee. **For ease of APC Committee reading, please submit your responses in BLUE text.**

- I. **WHO - Academic Unit Name:** Chemistry
- II. **WHAT – Proposal Summary:** Change course description of CHE325. Change CHE325 from a 5 unit course to 4 unit course.
- III. **WHY – Proposal Rationale** (might include):
- Market analysis (size, market share, revenue generation with analysis and rationale)
 - Impact on support services (library, technology, Student Financial Services, Records)
 - A discussion of department/school and institution mission fit
 - Impact on enrollments (course, department/school, university)
 - Impact on department/school staffing (increase/decrease, ability to staff the course, etc.)
 - Financial Analysis

Due to the imposed requirements of prioritization, we are proposing that CHE325 (Physical Chemistry I) be changed from a 5 unit course to a 4 unit course. This course is required for both the chemistry and biology-chemistry majors. With a loss of 20% of the lecture contact time, we will no longer be able to offer our biology-chemistry joint majors some of the important topics that are currently part of our physical chemistry course. In particular, the new course will only cover thermodynamics and no longer thermodynamics and chemical kinetics.

This change will weaken the chemistry portion of the biology-chemistry joint major since these students will no longer learn about chemical kinetics even though it is a significant branch of physical chemistry, explaining the factors that influence the rates of chemical and biological reactions.

- IV. **HOW – Curricular Changes:**
- A. Curriculum - Short Form proposals should include current and proposed course descriptions including title, number, units, and if needed prerequisites, alternate year listing in the catalog and cross-listed courses. Language must be exactly as the Department/ School wants it to appear in the Catalog. Proposing school/department should work with APC chair to generate proposed Catalog text and attach to this form at the time of submission.

CURRENT	PROPOSED
CHE 325 - Physical Chemistry I	CHE 325 - Physical Chemistry I

<p>(5)</p> <p>Study of classical thermodynamics as it is applied to physical and chemical systems. Includes discussion of the three laws and their application to thermochemistry, reaction energetics and chemical equilibrium. Reaction kinetics, transport phenomena and kinetic molecular theory are also investigated. Course includes one four-hour laboratory each week.</p> <p>Prerequisite(s): CHE 213, PHY 142 or PHY 242, and MTH 144 or MTH 164.</p>	<p>(4)</p> <p>Study of classical thermodynamics as it is applied to physical and chemical systems. Includes discussion of the three laws and their application to thermochemistry, reaction energetics and chemical equilibrium. Course includes one four-hour laboratory each week.</p> <p>Prerequisite(s): CHE 213, PHY 142 or PHY 242, and MTH 144 or MTH 164.</p>
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B. Summary Information:

Total course/unit additions: none	Net financial impact: none
Total course/unit deletions: -1 unit	Library resourcing impact: none
Staffing unit increase/decrease: -1 unit	

I have reviewed this proposal and the items above and believe the proposal meets all university requirements, don not impact other departments or programs, and is ready for APC review.

Department or School Direct Report:

Holly Irwin

Date 2.26.2016

College Dean or Provost as applicable

Note: Submit completed short form proposal to the APC chair not later than one month prior to the APC meeting at which you hope it can be placed on the agenda.

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- I. **WHO - Academic Unit Name:** **Chemistry**

- II. **WHAT – Proposal Summary:** **Change course description of CHE326. Change CHE326 from a 2 unit quad course to a 3 unit semester course.**

- III. **WHY – Proposal Rationale** (might include):
 - Market analysis (size, market share, revenue generation with analysis and rationale)
 - Impact on support services (library, technology, Student Financial Services, Records)
 - A discussion of department/school and institution mission fit
 - Impact on enrollments (course, department/school, university)
 - Impact on department/school staffing (increase/decrease, ability to staff the course, etc.)
 - Financial Analysis

Due to the imposed requirements of prioritization, we are proposing that CHE325 (Physical Chemistry I) be changed from a 5 unit course to a 4 unit course. With a loss of 20% of the lecture contact time, the new CHE325 will only cover thermodynamics and no longer thermodynamics and chemical kinetics.

The expansion of CHE326 (Physical Chemistry II) from a 2 unit quad course to a 3 unit semester course will allow some of the topics in chemical kinetics to be taught in CHE326 instead of CHE325. As a consequence, this combined change will not have an effect on the straight chemistry majors. It will however weaken the chemistry portion of the biology-chemistry joint major, as mentioned in the CHE325 proposal, since these students are not required to take CHE326.

A detailed analysis of the curricular offerings of 20 comparator schools shows that most schools require 8 units of physical chemistry. Reducing CHE325 to 4 units and expanding CHE326 to 3 units, along with CHE327 (Physical Chemistry II Laboratory) at 1 unit will keep us at 8 units of physical chemistry.

- IV. **HOW – Curricular Changes:**
 - A. Curriculum - Short Form proposals should include current and proposed course descriptions including title, number, units, and if needed prerequisites, alternate year listing in the catalog and cross-listed courses. Language must be exactly as the Department/ School wants it to appear in the

Catalog. Proposing school/department should work with APC chair to generate proposed Catalog text and attach to this form at the time of submission.

CURRENT	PROPOSED
<p>CHE 326 - Physical Chemistry II</p> <p>(2)</p> <p>Investigation of matter from a quantum chemistry perspective with particular emphasis on the theoretical concepts and their implications for chemical bonding theory and molecular spectroscopy. Offered on a Quad basis. Alternate years.</p> <p>Prerequisite(s): CHE 213, PHY 142 or PHY 242, and MTH 144 or MTH 164.</p>	<p>CHE 326 - Physical Chemistry II</p> <p>(3)</p> <p>Study of reaction dynamics and complex reaction mechanisms and an investigation of matter from a quantum chemistry perspective with particular emphasis on the theoretical concepts and their implications for molecular spectroscopy. Alternate years.</p> <p>Prerequisite(s): CHE 213, PHY 142 or PHY 242, and MTH 144 or MTH 164.</p>

B. Summary Information:

Total course/unit additions: +1 unit	Net financial impact: none
Total course/unit deletions: none	Library resourcing impact: none
Staffing unit increase/decrease: +1 unit alternate years	

I have reviewed this proposal and the items above and believe the proposal meets all university requirements, don not impact other departments or programs, and is ready for APC review.

Department or School Direct Report:

Holly Irwin

Date 2.26.2016

College Dean or Provost as applicable

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- I. **WHO - Academic Unit Name:** Chemistry
- II. **WHAT – Proposal Summary:** Change course description of CHE327. Change CHE327 from a 1 unit quad lab to a 1 unit semester lab.
- III. **WHY – Proposal Rationale** (might include):
 - Market analysis (size, market share, revenue generation with analysis and rationale)
 - Impact on support services (library, technology, Student Financial Services, Records)
 - A discussion of department/school and institution mission fit
 - Impact on enrollments (course, department/school, university)
 - Impact on department/school staffing (increase/decrease, ability to staff the course, etc.)
 - Financial Analysis

We are proposing that CHE326 (Physical Chemistry II) be changed from a 2 unit quad course to a 3 unit semester course, so CHE327 (Physical Chemistry II Laboratory), the lab associated with CHE326, should also be changed from a 1 unit quad lab to a 1 unit semester lab. Expanding the lab to a full semester will allow for some laboratory activities removed from CHE325 (Physical Chemistry I) to be covered in CHE327. Offering a physical chemistry lab in a quad format has put undue stress on students since the lab activities all must be performed in a short period of time. In this course the instrumentation need is expensive and therefore limited so only one pair of students can work at a time. This has posed scheduling challenges for both students and the instructor which should be alleviated by the proposed change.

- IV. **HOW – Curricular Changes:**
 - A. Curriculum - Short Form proposals should include current and proposed course descriptions including title, number, units, and if needed prerequisites, alternate year listing in the catalog and cross-listed courses. Language must be exactly as the Department/ School wants it to appear in the Catalog. Proposing school/department should work with APC chair to generate proposed Catalog text and attach to this form at the time of submission.

CURRENT	PROPOSED
CHE 327 - Physical Chemistry II Laboratory	CHE 327 - Physical Chemistry II Laboratory
(1)	(1)
Designed to accompany CHE 326. Molecular	Designed to accompany CHE 326. Reaction

<p>structure and interactions are investigated using spectroscopic methods including ultraviolet-visible and FT-infrared. One four-hour laboratory each week. Offered on a Quad basis. Alternate years.</p> <p>Corequisite(s): CHE 326.</p>	<p>dynamics and molecular structures are investigated using spectroscopic methods including ultraviolet-visible, fluorometry and FT-infrared instrumentation. One four-hour laboratory each week. Alternate years.</p> <p>Corequisite(s): CHE 326.</p>
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B. Summary Information:

Total course/unit additions: none	Net financial impact: none
Total course/unit deletions: none	Library resourcing impact: none
Staffing unit increase/decrease: +1 unit alternate years	

I have reviewed this proposal and the items above and believe the proposal meets all university requirements, don not impact other departments or programs, and is ready for APC review.

Department or School Direct Report;

Holly Irwin

Date 2.26.2016

College Dean or Provost as applicable

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I. **WHO - Academic Unit Name:** Chemistry

II. **WHAT – Proposal Summary:** Change course title and description of CHE466.

III. **WHY – Proposal Rationale** (might include):

- Market analysis (size, market share, revenue generation with analysis and rationale)
- Impact on support services (library, technology, Student Financial Services, Records)
- A discussion of department/school and institution mission fit
- Impact on enrollments (course, department/school, university)
- Impact on department/school staffing (increase/decrease, ability to staff the course, etc.)
- Financial Analysis

These proposed changes will align the course title and description with what is actually being taught in the course. Dr. Matthieu Rouffet joined the department four and a half years ago and brings considerable expertise in the area of Bioinorganic Chemistry after working extensively on the development of metalloenzyme inhibitors both in France and at UCSD. After teaching this course for the fifth time this semester, we would like to align the course title and description with the course content that has been developed to better serve our chemistry and biology-chemistry majors.

IV. **HOW – Curricular Changes:**

- A. Curriculum - Short Form proposals should include current and proposed course descriptions including title, number, units, and if needed prerequisites, alternate year listing in the catalog and cross-listed courses. Language must be exactly as the Department/ School wants it to appear in the Catalog. Proposing school/department should work with APC chair to generate proposed Catalog text and attach to this form at the time of submission.

CURRENT	PROPOSED
CHE 466 - Advanced Inorganic Chemistry I	CHE 466 – Bioinorganic Chemistry
(2)	(2)
Development of significant topics in inorganic chemistry particularly those at the interface of chemistry and biology; these include	Development of significant topics in bioinorganic chemistry particularly those at the interface of chemistry and biology. Emphasis is

<p>supramolecular systems, bioinorganic concepts, and principles relevant to environmental chemistry. Emphasis is placed on modern approaches to these interdisciplinary topics. Offered on a Quad basis.</p> <p>Prerequisite(s): CHE 304 or consent of instructor.</p>	<p>placed on understanding the role of metals in biological systems such as enzymes and DNA. Offered on a Quad basis.</p> <p>Prerequisite(s): CHE 304 or consent of instructor.</p>
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B. Summary Information:

Total course/unit additions: none	Net financial impact: none
Total course/unit deletions: none	Library resourcing impact: none
Staffing unit increase/decrease: none	

I have reviewed this proposal and the items above and believe the proposal meets all university requirements, don not impact other departments or programs, and is ready for APC review.

Department or School Direct Report:

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- I. **WHO - Academic Unit Name:** **Chemistry**

- II. **WHAT – Proposal Summary:** **Change course description and Pre or Corequisite of CHE467. Change CHE467 from a 1 unit quad lab to a 1 unit semester lab.**

- III. **WHY – Proposal Rationale** (might include):
 - Market analysis (size, market share, revenue generation with analysis and rationale)
 - Impact on support services (library, technology, Student Financial Services, Records)
 - A discussion of department/school and institution mission fit
 - Impact on enrollments (course, department/school, university)
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 - Financial Analysis

CHE467 (Advanced Inorganic Chemistry Laboratory) has been taught in conjunction with CHE468 (Advanced Inorganic Chemistry II) instead of CHE466 (Advanced Inorganic Chemistry I) since CHE468 was first offered in spring 2012. The catalog description and pre or corequisite needs to be updated to reflect this change. In addition, we are proposing that CHE468 be changed from a 2 unit quad course to a 3 unit semester course, so the lab would also be changed from a 1 unit quad lab to a 1 unit semester lab. Expanding the lab to a full semester will allow for covering all of the necessary material and align our content with the requirements of the American Chemical Society (ACS) so that we can apply for ACS approval.

- IV. **HOW – Curricular Changes:**
 - A. Curriculum - Short Form proposals should include current and proposed course descriptions including title, number, units, and if needed prerequisites, alternate year listing in the catalog and cross-listed courses. Language must be exactly as the Department/ School wants it to appear in the Catalog. Proposing school/department should work with APC chair to generate proposed Catalog text and attach to this form at the time of submission.

CURRENT	PROPOSED
CHE 467 - Advanced Inorganic Chemistry Laboratory	CHE 467 - Advanced Inorganic Chemistry Laboratory
(1)	(1)

<p>Designed to accompany CHE 466. Emphasis on the synthesis and characterization of metallic and non-metallic compounds. One four-hour laboratory each week. Offered on a Quad basis. Alternate years.</p> <p>Pre or Corequisite: CHE 466.</p>	<p>Designed to accompany CHE 468. Emphasis on the preparation, purification and characterization of main group and transition metal inorganic and organometallic compounds. One four-hour laboratory each week. Alternate years.</p> <p>Pre or Corequisite: CHE 468.</p>
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B. Summary Information:

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Total course/unit deletions: none	Library resourcing impact: none
Staffing unit increase/decrease: +1 unit alternate years	

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Holly Irwin Date 2.26.2016

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- I. **WHO - Academic Unit Name:** **Chemistry**
- II. **WHAT – Proposal Summary:** **Change course title, description, and Pre or Corequisite of CHE468. Change CHE468 from a 2 unit quad course to a 3 unit semester course.**
- III. **WHY – Proposal Rationale** (might include):
 - Market analysis (size, market share, revenue generation with analysis and rationale)
 - Impact on support services (library, technology, Student Financial Services, Records)
 - A discussion of department/school and institution mission fit
 - Impact on enrollments (course, department/school, university)
 - Impact on department/school staffing (increase/decrease, ability to staff the course, etc.)
 - Financial Analysis

The proposed course title and description will align better with the course material and curriculum.

We are proposing to change the prerequisite to CHE326 (Physical Chemistry II) because students need the material covered in that course in order to be successful in this course. In certain circumstances, and at the discretion of the instructor, this requirement could be waived after discussions with the student.

The course content will be expanded to include material we have not been able to cover in a 2 unit quad course but is normally a part of an inorganic chemistry course, such as molecular orbital theory, acid-base chemistry, and coordination chemistry. A detailed analysis of the curricular offerings of 20 comparator schools shows that we require less inorganic chemistry. Inorganic chemistry at all of these schools is either a 3 or 4 unit requirement. In addition, upon review of the American Chemical Society (ACS) Inorganic Chemistry standardized exam, we found that our course is especially lacking in the areas of molecular orbital theory and coordination chemistry.

Several program reviews have stressed that our lack of inorganic chemistry content is one of the largest weaknesses in the department and we have received feedback from alumni that this was their weakest area. Several recent publications in the chemistry education community have identified the most important topics for a foundational inorganic course, and these recommendations will be implemented in this course. Finally, the change from 2 to 3 units addresses one of the hurdles that would prevent us from offering an ACS approved degree. Our

ability to offer an ACS approved degree will enhance the value of our degree and help recruit more chemistry students.

IV. HOW – Curricular Changes:

- A. Curriculum - Short Form proposals should include current and proposed course descriptions including title, number, units, and if needed prerequisites, alternate year listing in the catalog and cross-listed courses. Language must be exactly as the Department/ School wants it to appear in the Catalog. Proposing school/department should work with APC chair to generate proposed Catalog text and attach to this form at the time of submission.

CURRENT	PROPOSED
<p>CHE 468 - Advanced Inorganic Chemistry II</p> <p>(2)</p> <p>Development of the broad principles and theories of inorganic chemistry with emphasis on atomic structure, chemical bonding, acid-base theory, and the structural and dynamic features of inorganic compounds. Metal and non-metal substances are considered. Offered on a Quad basis. Alternate years.</p> <p>Prerequisite(s): CHE 304 or consent of instructor.</p>	<p>CHE 468 - Advanced Inorganic Chemistry</p> <p>(3)</p> <p>The principles of inorganic chemistry, including symmetry, atomic and molecular structure, bonding theories, energetics, kinetics, and spectroscopy, are developed and applied to a range of inorganic compounds. Alternate years.</p> <p>Prerequisite(s): CHE 326 or consent of instructor.</p>

B. Summary Information:

Total course/unit additions: +1 unit	Net financial impact: none
Total course/unit deletions: none	Library resourcing impact: none
Staffing unit increase/decrease: +1 unit alternate years	

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Department or School Direct Report:

Holly Irwin Date 2.26.2016

College Dean or Provost as applicable

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