

Proposal Status: Workflow Started

FULL PROPOSAL: Substantive Change(s) to a Course

Title of proposal (must begin with department abbreviation): CHEM – Convert to separate lab
CHEM 3710L course
Department of Chemistry for Catalog 2015-16

Place an X next to the ones that apply:

<input type="checkbox"/>	Significant modification of course content by the addition or removal of topics embodied in the original course proposal.
<input type="checkbox"/>	Changing the course number by multiples of 1000 (e.g., 1230 to 2230 or 4320 to 3320)
<input type="checkbox"/>	Changing the credit hours awarded for the course
<input type="checkbox"/>	Changing course prerequisites or corequisites
<input checked="" type="checkbox"/>	Creating a new course

Effective date: Fall 2015

Contact information:

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Building:Grote	Office Number:302
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Faculty of the originating department approved this proposal on 09/17/2014 (date)
by a vote of 15 aye votes; 0 nay votes; 0 abstentions; 0 eligible voting members absent

1. Description of proposed changes

Overall the two proposals are to convert the current CHEM 3710 (4) with one combined lecture and lab grade into a CHEM 3710 (3) lecture and a CHEM 3710L (1) lab where they would be two separate classes and each course would receive a separate grade. Two proposals are submitted together to accomplish this change. The first is to convert CHEM 3710 (4) with lecture and lab to a CHEM 3710 (3) with lecture only. The second proposal is to create a separate course CHEM 3710L (1).

2. Rationale for requested change

Include any information and/or data which is being used to justify the change(s)
Note that lab would have as a prerequisite CHEM 3210 (Quantitative Analysis) with a C. A student taking this lab would have to take the lecture CHEM 3710 (3) with this lab. All chemistry students would be required to do both. Our Chemistry BS degree would require the lecture and lab: CHEM 3710 (3) and CHEM 3710L(1). However other students (such as the Engineering students) could take the lecture without lab. In other words, students could either take lecture and lab or just take lecture if that was all their program required.

Our Physical Chemistry I class for fall semester CHEM 3710 (4) has 3 labs (CHEM 3710L) each designed for a maximum of 20 students which already is over the ideal amount for an upper level chemistry lab with 10 different experiments. Each lab has 10 experiments and

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the students work in pairs. Last year and this year we had to go above 20 in the labs to try to accommodate the demand. We are having chemistry students who cannot get into this class in a timely manner. It has been difficult to meet the needs of our own majors and the lab becomes much less than optimal with these larger numbers squeezed into lab. A better number for an upper level lab with so many different experiments would be about 16. Due to the lab, we are having great difficulty accommodating the Chemical Engineering majors who have grown in numbers as indicated by "UTC Department Profiles" in which Chemical Engineering majors are 9 in 2010, 49 in 2011, 65 in 2012, and 103 in 2013. We can handle this growth in lecture but not in lab. Consider the numbers of students in the Chemical Process Operations class taught in the fall semester and note that in 2010 there were 7 students, in 2011 8, 2012 14, 2013 19, and in 2014 there are 27 students enrolled. However, the Chemical Engineering needs can be met with just the 3 hour lecture portion of our Physical Chemistry I course.

We have for many years required our chemistry students to take among the other prerequisites a course all our chemistry majors take called Quantitative Analysis with Laboratory (CHEM 3210 which includes a lab). This course provides important lab skills and experiences and technical knowledge that is important to have prior to the CHEM 3710L lab activities. We have allowed the Chemical Engineering and Environmental Engineering students to do the Physical Chemistry class without this prerequisite class. We have substituted an engineering class ENGR 2220 just to have something on record for them to have completed. The Engineering class actually has no connection to the required Chemistry Quantitative Analysis pre-requisite course. So students are coming into this upper level lab with different experiences and levels of preparation.

Beginning in the fall of 2015, we need to make a change to enforce the real prerequisite for all students going into Physical Chemistry Lab so all the students will have the needed background to be prepared for the lab work. However, the Physical Chemistry lecture would not need this same restriction. So a 3 credit hour lecture CHEM 3710 (3) that is identical to the lecture portion of the current CHEM 3710 (4) would continue to be offered.

CHEM 3710 (3) would become the primary option for Engineering students. Chemical or Environmental Engineering students who chose to take CHEM 3210 could take the lab portion CHEM 3710L (1) and they might choose to do so to complete a chemistry minor. However, most engineering students would take the new 3 hour lecture CHEM 3710 (3) portion without lab. According to our conversation with Chemical Engineering coordinator (Dr. Frank Jones) this new option (lecture only) would meet their needs.

CHEM 3710 (4) Physical Chemistry I is the only chemistry class that does not have the same prerequisites for everyone in the class. This creates problems in laboratory background and work. This change would give Chemical Engineering students two options where now they have only one.

This change would allow us to continue to meet the needs of our majors where we are falling behind. Our majors must all take this class and need to do the lab as part of our American Chemical Society (ACS) certification requirements and as a prerequisite for Physical Chemistry II (CHEM 3720) lecture and lab. The Chemical Engineering students do not have this Physical Chemistry lab certification issue and do not take Physical Chemistry II (CHEM 3720).

3. Current course as listed in the Catalog

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Prefix: CHEM	Number: 3710L
Title: Physical Chemistry I Laboratory	Credit Hours: 0
Prerequisites:	Co-Requisites: Corequisite: CHEM 3710 or department head approval.
Cross-listed courses: 3710	

4. Current course description as listed in the Catalog
Laboratory experience to support and enhance topics covered in CHEM 3710.

5. Proposed new course as it will be listed in the Catalog

Prefix: CHEM	Number: 3710L
Title: Physical Chemistry I Laboratory	Credit Hours: 1
Prerequisites: CHEM 3210 with a minimum grade of C; CHEM 3020 and CHEM 3020L with minimum grades of C; and MATH 1920 and 1921 with minimum grades of C or MATH 1960 with a minimum grade of C; or department head approval.	Co-Requisites: PHYS 1040 and PHYS 1040L or PHYS 2310 and PHYS 2310L or department head approval; or Prerequisites: PHYS 1040 and PHYS 1040L with minimum grades of C or PHYS 2310 and PHYS 2310L with minimum grades of C or department head approval. Corequisite: CHEM 3710; or Prerequisite: CHEM 3710 with a minimum grade of C; or department head approval.
Cross-listed courses:	

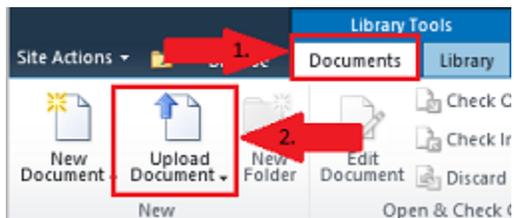
6. Proposed new description and program requirements to be listed in the Catalog (catalog copy)
Laboratory experience to support and enhance topics covered in CHEM 3710.
7. What is the instructional method for the course (Please select one)?
Lab
8. How will this course be graded (Please select one)?
Standard letter grade
9. What are the pedagogical objectives of the course?
10. Outline the student learning outcomes—a statement of the minimum expectations of students as they complete the course. You must list at least three outcomes.

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11. How will students be assessed on the learning outcomes?
12. If this course changes the program curriculum map, please attach a copy of the updated curriculum map here.
Please see the direction at the end of this proposal for how to upload your curriculum map document.
13. Provide additional information about the course including (a) how often the course is to be offered, (b) who will be the routing instructor or course coordinator, and (c) what steps will be taken by the department to ensure its continued coverage (current expertise and interest within the department).
14. Will the proposed changes require a change to the Clear Path Showcase (4-year plan)? If yes, please attach both current and revised clear path documents.
Please see the directions at the end of this proposal for how to upload your clear path document.
15. How will the proposed changes impact the ability of students to complete the degree requirements in a timely manner, and how will the proposed changes impact requirements in other departments or programs?
16. Will a laboratory/studio fee or other course fee be assessed? If yes, include a rationale for the fee assessment.
17. Does this change require new resources from the originating department or other departments (including the library)? If yes, please explain.

Direction for uploading supporting documents:

1. To upload your model syllabus to the folder for your proposal go to <https://spaces.utc.edu/sites/UndergraduateProposal>.
2. Next, click on the name of your proposal under "My Proposals".
3. Click the "Documents" tab and then click the "Upload Document" tab.

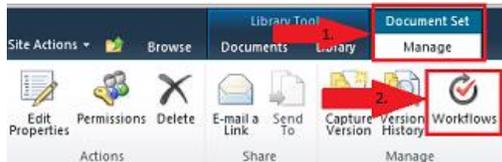


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Important: After completing your proposal you must start the *Curriculum Proposal Workflow*.

To begin workflow:

1. Click on the name of your proposal below.
2. Next, click the "Document Set Manage" tab in the ribbon at the top of the page and select the "Workflows" button.



3. Under "Start a New Workflow" click "Curriculum Proposal Workflow" and then click the "Start" button.

Workflow Sequence for Full Proposal – Course Changes

1. Department Head
2. College Curriculum Committee
3. College Dean
4. Other Areas Affected (If any)
5. Records Office
6. Associate Provost
7. Provost (if a fee will be assessed)
8. Faculty Senate Curriculum Committee
9. Faculty Senate