B - Course Revision Form V. 7.2022 : Entry # 3437

DEAN Decision

Approved

Today's Date

02/07/2025

EPC Decision

Approved

Today's Date

03/07/2025

GEC Decision

Approved

Today's Date

03/28/2025

APIRC Decision

Approved

Today's Date

04/04/2025

Begin Form

Today's Date

02/07/2025

Your Name

Pamela Lundin

Your Email:

plundin@highpoint.edu

Are you a Department Chair?

No

Department Chair Name

M Todd Knippenberg

Email address of your Department Chair

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mknippen@highpoint.edu

By checking below, I certify that my department chair has seen and approved the course revisions that are in this proposal

Yes

Please select the appropriate school overseeing this proposal:

Natural Sciences

When should this proposal take effect?

Spring 2026

Are you submitting multiple courses for revision from the same department?

No, just one

Please list all of the courses that you are submitting revisions for:

Course Prefix	Course Number	Course Title
CHM	3111	Advanced Topics Laboratory: Materials and Nanosystems

What would you like to revise?

- Adding or removing an Academic Program

Gen Ed & Academic Program Information

Is this a revision to meet new Gen Ed requirements?

Yes

Which area(s) of Gen Ed does your proposal seek for approval?

- Integrative Course [ITG]

Please provide a rationale for how your course is integrative. Please explain how you weave in different disciplines or fields of study. If your course is housed within one discipline, please explain how the epistemologies you integrate within the course are different from one another.

This course introduces students to the field of nanoscience, which is defined by having an element of the science on the nanoscale (between 1-999 nm), and draws on the scientific fields of chemistry, physics, biology, and materials science. The course begins by surveying some foundational knowledge that spans disciplines: quantum mechanics, materials properties (content that is not taught in any other course at HPU), and instrumental techniques. The second half of the course is case studies, in which students read 3 scientific articles form the primary literature on a topic for each class and then discuss the articles in class. Topics for case studies include biosensors that can be integrated into the human body, molecular machines, DNA origami technologies, and quantum computing. Many of these topics draw on two or more of the scientific disciplines listed above (chemistry, physics, biology, materials science). Students also complete a research project, including writing an experiment proposal, on a nanoscience technology of their choice. By the end of the semester, students have leveraged their knowledge from across multiple scientific disciplines

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Will this course be team-taught?

Yes

Who will team-teach with you and which department / school do they work in?

Jacob Brooks, Physics, Natural Sciences

Is this course part of an academic program?

- This course does not currently fulfill academic program requirements

Does this course, as revised, include any community engagement?

No

Is this course part of GoGlobal?

No

Does this course count towards a major or a minor?

Yes

Please list the course(s) and whether they are required or electives for the major/minor.

Course Prefix/Number	Name of Major and/or Minor?	Required or Elective?
CHM 3111	BS Chemistry Major	Elective
CHM 3111	BS Biochemistry Major	Elective
CHM 3111	BA Chemistry Major	Elective
CHM 3111	Chemistry Minor	Elective
CHM 3111	Applied Physics Minor	Elective

Is this course cross listed?

No

Choose the department designator for your course from the list below.

Adding/Removing Academic Programs

Please describe the change you are seeking to make and provide a rationale

We want this course to satisfy the integrative learning requirement for the chemistry major. We have been teaching this class as an interdisciplinary course since Fall 2017 when it was co-taught by Brian Augustine (physical chemist) and me (organic chemist). Now it will be co-aught by Jake Brooks (physicist) and me (organic chemist), making it even more interdisciplinary, and we are adding the two integrative learning general education objectives to our course learning objectives.

Curriculum Review Information

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Please list the revised student learning outcomes for this course in the box below.

We are adding the following two learning objectives, which are required for integrative learning general education courses:

1. Integrative Learning: Synthesize concepts, theories, or frameworks of fields of study and apply them to situations or problems.
2. Creative Problem Solving: Analyze a problem and develop innovative solutions to address it effectively.

Please list all revised student learning outcomes, including Gen Ed outcomes, for this course in the box below.

Only the two outcomes previously described have been revised; they have been added to this course.

1. Integrative Learning: Synthesize concepts, theories, or frameworks of fields of study and apply them to situations or problems.
2. Creative Problem Solving: Analyze a problem and develop innovative solutions to address it effectively.

If you have Gen Ed learning outcomes, please address the kinds of assessments you may use for each area that you are proposing the course be designated (i.e., Arts, Humanities, Diversity, etc.)

1. Integrative Learning: Synthesize concepts, theories, or frameworks of fields of study and apply them to situations or problems.
Assessments: Research project (article summary, mini-review, experiment proposal, final poster presentation), case studies discussions

2. Creative Problem Solving: Analyze a problem and develop innovative solutions to address it effectively.
Assessments: Research project (experiment proposal and final poster presentation)

Sample Syllabus

- CHM-3111-Fall-2025-syllabus.docx