CHEM 461 Modern Diffraction-DEAdd-2019-03-18

- The workflow icon is no longer available. Please click on the Page Status after the orange circle icon near the page title. *

Form Information

The page you originally access is the global template version. To access the template document that progresses through the workflow, please complete the following steps:

First Step: **ONLY** change the text in the [brackets] so it looks like this: **CRIM 101 Intro to Criminology-CrsRvs-2015-08-10**

- ***If DUAL LISTED list BOTH courses in the page title***

Second Step: Click **"SAVE"** on bottom right

- ***DO NOT TYPE ANYTHING INTO THE FIRST PAGE OTHER THAN THE TEXT IN BRACKETS***
- ***Please be sure to remove the Brackets while renaming the page***

Third Step: Make sure the word ***DRAFT*** is in yellow at the top of the proposal

Fourth Step: Click on "**EDIT CONTENTS**" (*not EDIT*) and start completing the template. When exiting or when done, click **"SAVE"** (*not Save Draft*) on bottom right

When ready to submit click on the workflow icon and hit approve. It will then move to the chair as the next step in the workflow.

**Indicates a required field*

Proposer*	Justin Fair	**Proposer Email***	jfair@iup.edu
Contact Person*	Justin Fair	**Contact Email***	jfair@iup.edu
Proposing Department/Unit*	Chemistry	**Contact Phone***	724 357-4477

Course Level*	undergraduate-level

Distance Education Section

*- Complete this section only if adding Distance Education to a New or Existing Course - If adding to an Existing Course - please check to see if it has already been approved HERE (On Documents Page) - **before** completing the form*

NOTE - if already approved - a new proposal DOES NOT NEED TO BE COMPLETED

Course Prefix /Number*	CHEM 461
Course Title*	Modern Diffraction
Type of Proposal*	*See CBA, Art. 42.D.1 for Definition* online

Brief Course Outline*	*Give an outline of sufficient detail to communicate the course content to faculty across campus. It is not necessary to include specific readings, calendar or assignments* *As outlined by the federal definition of a "credit hour", the following should be a consideration regarding student work - For every one hour of classroom or* *direct faculty instruction, there should be a minimum of two hours of out of class student work.* (a) Introduction, Radiation Safety, Point Symmetry (b) Lattices, Space Groups, Interpreting International Table for Crystallography (c) Formalization of Symmetry (d) Radiation Production, Fundamentals of Diffraction (e) Scattering Factors, Structure Factors and Systematic Absences (f) Structure Elucidation (g) Single Crystal Crystallography, Introduction to SHELX Program Package (h) Powder Diffractometry, Introduction to GSAS Program Package (i) Powder Diffraction Indexing and Phase Analysis (j) Introduction to Jade Software, Crystallographic Data Bases, Rietveld Analysis (k) Structure Solution from Powders, Introduction to EXPO2009 Software (l) Crystal Structure Interpretation and Result (m) Solving scientific problems with crystallographic results
Rationale for Proposal (Required Questions from CBA)	
How is/are the instructor (s) qualified **in the Distance Education delivery** **method as well as the discipline?***	I have taught undergraduate (CHEM 105: The Forensic Chemistry of CSI) and graduate (CHEM 630: Essentials of Structure and Reactivity for Industrial Organic Applications) via distance education for multiple years. I hold a PhD in Chemistry from the University of Connecticut and have been a professor in the Chemistry Department at IUP since 2009. I have used many self-made multimedia elements to enhance my course offerings including adaptive quizzes in the LMS, YouTube videos, Camtasia, SCORM lecture content, screen capture, enhanced mechanistic drawings, online exams, online essays, forums, and video explanations.