

Change of Course Proposal

NOTE: Changes to *Course Prefix and/or Course Number* require completion of a *New Course Proposal* rather than this Course Change Proposal.

SECTION I: KEY INFORMATION

Submission date	9/30/2020
Proposed by (faculty only)	Serhiy Pasishnyk
Presenter (faculty only)	Serhiy Pasishnyk
NOTE: Faculty presenter must be present at the Curriculum Committee meeting or the proposal will be returned to the School to be resubmitted for a later date.	
School	Pure and Applied Sciences
Course prefix, number, and title	CHM 2045 GENERAL CHEMISTRY I (3 CREDITS)
NOTE: Proposer MUST run an Impact Report to determine all programs, certificates, and courses that may be affected by the proposed change(s) and enter all below. Append the Impact Report in Section VI. For help with this step, please contact Jeffrey Peterman, Coordinator of Curriculum and Catalog Services: jpeterman@fsw.edu	
Programs, Certificates, and/or Courses affected by the proposed changes: No	
NOTE: Proposer MUST append a Catalog page with changes marked for <i>each</i> affected Degree Program or Certificate, including any changes to General Education. Additional instructions for marking and attaching Catalog pages are given in Section VI.	

SECTION II: TERM IN WHICH ACTION WILL BECOME EFFECTIVE

NOTE: Course Changes must be submitted by the dates listed on the published Curriculum Committee Calendar. Actions approved in the Fall semester take effect in the following academic year. Actions approved in the Spring semester take effect after one additional year. Syllabus changes may take effect sooner. Exceptions to published deadlines or effective dates must receive approval from the Academic Dean and Provost.	
Academic term in which approved action will take effect	Exception (Requires explanation and approval)
If requesting an exception to the effective date, provide an explanation below.	
Explanation for exception: As we have developed new courses (to match our teaching modalities), that better relate to the proposed topic outline and learning outcomes, we would like to have the changes approved earlier than next fall.	

SECTION III: PROPOSED COURSE CHANGES

Summary of Proposed Changes	
Please provide a summary list or brief description of proposed changes. <i>Insert details in following sections as needed.</i>	
Change of Topic Outline	
Change of Course Learning Outcomes	
Justification for Proposal	
Please provide justification for each proposed change.	
Change of Topic Outline: The proposed outline better correlates with the content of CHM2045 OER Book which was adopted recently. It includes Thermochemistry which is now taught in this course. Also, the topics got a broader description to cover the possible changes.	
Change of Course Learning Outcomes: The proposed outcomes better correlate with the content of the CHM2045 OER Book which was adopted recently. Outcomes include Thermochemistry which is now taught in this course. The new outcomes are easier to use when designing the online course as they are adapted to the requirements of the QM Rubric. Also, they are more detailed which makes the set of outcomes more student-centered and friendly.	
NOTE: Complete the next section by indicating proposed course changes. Skip fields that are not applicable to your curriculum action.	
Change of School or Department	From: To:
Change Course Title	From: To:
Does the Course Title change affect other sequenced courses? (Ex: If changing <i>Guitar I</i> to <i>Intro to Guitar</i> will <i>Guitar II</i> also be renamed?)	No IF YES, list all course changes in the sequence.
Change Course Description	
From: To:	
Change Topic Outline	

From: <ul style="list-style-type: none"> • Chemical reactions and stoichiometry • Atomic theory • Chemical bonding • Gases • Intermolecular forces and properties of solids,liquids,and gases 	
To: <ul style="list-style-type: none"> • Atomic theory. • Electronic structure and periodic properties of elements. • Chemical bonding • Composition of substances and solutions. • Chemical reactions and stoichiometry. • Properties of gases. • Thermochemistry. • Intermolecular forces and properties of liquids and solids 	
Change Course Prerequisite(s)	From: To:
Provide justification for the proposed changes to pre-requisite(s).	Enter pre-requisite justification
Change Course Corequisites	From: To:
Provide justification for the proposed changes to co-requisite(s).	Enter co-requisite justification
Should this course be listed as a corequisite on a paired course? (Ex. CHM 2032 and CHM 2032L are “paired corequisites.”)	Choose an item. CHM2045 and CHM2045L are “paired corequisites”
Change Minimum Grade <i>(Include minimum grade if higher than a D)</i>	From: To:
Change Course Credits or Clock Hours	From: To:
Change Contact Hours (faculty load) (Ex.: ESC 1000C is 3 credits with 4 contact hours for instructor/lab prep.)	From: To:
Change Grade Mode	Choose an item.
Change Credit Type	Choose an item.
Should any Degree or Major Restriction codes be listed on this course?	List applicable Major or Degree Restriction codes:

(i.e., "This course may only be taken by students who have been admitted to X Program")	
Change repeatability status of course? * <i>*Not the same as Multiple Attempts or Grade Forgiveness</i> A repeatable course may be taken more than once for additional credits. (Ex: MUT 2641, a 3- credit course, can be repeated 1 time for a maximum of 6 credits).	No change If repeatable, list maximum number of credits
Change General Education status of course?	No change
Change Writing Intensive designation?	No change
Change "International or Diversity Focus" designation?	No change

SECTION IV: Changes to Learning Objectives (Information Only)

Changes to Course Competencies, Learning Outcomes and Objectives:

Changes to Syllabus Section IV - A. General Education Competencies – 1. Integral and/or 2. Supplemental NOTE: All FSW courses must include <i>one or more</i> "Integral" and <i>zero or more</i> "Supplemental" General Education CREATIVE competencies. <i>Course objectives/outcomes</i> that support the selected General Education Competency should be listed directly under the competency.
Changes to 1. Integral General Education Competency or Competencies:
From: To:
Changes to Course Outcomes/Objectives supporting each Integral competency: From: <ul style="list-style-type: none"> • Classify and balance chemical reactions and perform calculations based on chemical compounds and their reactions. • Explain how the Bohr model of the atom relates to the modern description by quantum theory, and using terms of the quantum theory, relate atoms to the Periodic Table. • Predict molecular shapes and other molecular properties utilizing the VSEPR method. • Calculate changes in properties of gases, including reactions involving gases. • Describe intermolecular attractive forces, explain their effect on selected physical properties of solids, liquids, and gases, and interpret phase diagrams. To: <ul style="list-style-type: none"> • Classify and balance chemical reactions and perform calculations based on chemical compounds and their reactions.

<ul style="list-style-type: none"> • Explain how the Bohr model of the atom relates to the modern description by quantum theory, and using terms of the quantum theory, relate atoms to the Periodic Table. • Predict molecular shapes and other molecular properties utilizing the VSEPR method. • Calculate changes in properties of gases, including reactions involving gases. • Calculate and interpret heat and enthalpy changes for various chemical reactions, explain and use Hess's Law to compute reaction enthalpies • Describe intermolecular attractive forces, explain their effect on selected physical properties of solids, liquids, and gases, and interpret phase diagrams. 	
Changes to 2. Supplemental General Education Competency or Competencies:	
From:	
To:	
Changes to Course Outcomes/Objectives supporting each Supplemental competency:	
From:	
To:	
Changes to IV - B: Florida Statute requirement	
NOTE: Part B is ONLY included on syllabi for <i>General Education Core courses</i> . All other syllabi (including "other General Education" courses) OMIT this statement.	
Are you requesting a course status change under part B?	No
If YES, complete the sentence by selecting the appropriate option from the drop-down menu.	Choose an item.
<i>B. In accordance with Florida Statute 1007.25 concerning the state's general education core course requirements, this course meets the general education competencies for:</i>	
Changes to IV - C. Additional Course Learning Objectives or Outcomes	
NOTE: This section is for additional course-specific learning objectives that do not contribute to assessment of the General Education Competencies listed above. For all courses <i>other than the General Education Core courses</i> , this section will be labeled IV - B: on the course syllabus.	
Changes to Course Learning Objectives and/or Outcomes:	
From:	
<ul style="list-style-type: none"> • Students will classify matter as an element, compound, heterogeneous mixture, or homogeneous mixture. • Students will perform calculations using the Metric System. • Students will identify properties and changes in matter as physical or chemical. • Students will use descriptive terms to characterize energy. • Students will identify different models of the atom. • Students will use modern atomic theory to identify the number of protons, neutrons, and electrons in an atom. 	

- Students will name molecular and ionic compounds, and represent compounds using chemical formulas.
- Students will write and balance the chemical reactions
- Students will perform stoichiometric reaction calculations.
- Students will perform calculations by employing gas laws.
- Students will calculate internal energy change by determining heat and work changes in the system and the surroundings.
- Students will determine reaction enthalpies using standard enthalpy data.
- Students will determine wavelength and frequency of hydrogen spectral lines.
- Students will write electron configurations for atoms.
- Students will identify shapes of atomic orbitals.
- Students will identify trends in the Periodic Table utilizing Periodic Law.
- Students will predict molecular geometry and polarity using VSEPR and Valence Bond Theory.
- Students will determine the intermolecular forces involved in substances.

To:

- Describe the basic properties and classify matter regarding to its physical state and composition
- Set up and solve problems involving unit analysis and metric system, correctly applying significant digits and scientific notation.
- Use the basic principles of modern atomic theory to write and interpret symbols of subatomic particles and calculate the number of subatomic particles in an atom or ion and an average atomic mass.
- Apply the mole concept to perform calculations based on the relation between mass, moles, and numbers of atoms or molecules.
- Describe the wave-particle nature of electromagnetic radiation in relation to Bohr's model, and quantum mechanical theory including identification of quantum numbers and atomic orbital shapes.
- Derive the ground-state electron configurations of elements and ions and relate electron configurations to the classifications of elements and main trends in the Periodic Table.
- Distinguish formation and properties of ionic and molecular compounds based on electronic structure and electronegativity differences of elements and draw the correspondent Lewis dot structures.
- Interpret Lewis structures for molecular compounds and describe electron geometry and resonance along with the molecular shape and polarity, using VSEPR theory.
- Relate atomic hybrid orbitals to the corresponding molecular geometries and describe multiple covalent bonding in terms of atomic orbital overlap according to the Valence Bond theory.
- Correctly write molecular formulas from names of compounds and names from molecular formulas for both ionic and covalent compounds using IUPAC system.
- Apply the mole concept to solve problems including determining empirical and molecular formulas from percent composition and performing calculations with molarity and other units of solution concentrations.
- Identify, complete, and balance various types of chemical equations.
- Identify the mole ratio and correctly perform mole and mass calculations to determine the yield and limiting reactant in the different types of chemical reactions including titrations.
- Apply gas laws and kinetic molecular theory to solving problems related to the behavior of gases and the stoichiometry of chemical reactions involving gaseous reactants or products.

- Define the types of energy changes in chemical reactions and use the concepts of heat capacity and temperature to perform calculations related to thermochemical equations and calorimetry
- Apply the first law of thermodynamics to perform thermochemical calculations including Hess's law, standard enthalpies, and bond energies.
- Identify the intermolecular attractive forces, recognize their effect on the properties of the states of matter and phase transitions, and calculate the energy associated with these transitions.
- Identify the phase transitions on the cooling curves and phase diagrams and calculate the energy associated with these transitions.

SECTION V: IMPACTS OF PROPOSED CHANGES AND FACULTY ENDORSEMENTS

Will the proposed change(s) affect the <i>budgets</i> of any programs or departments?	No
List affected departments, programs, etc., and explain the <i>budgetary</i> impacts.	
Have you discussed the <i>academic and/or budgetary impact</i> of the proposed changes with affected parties, including Deans?	Yes
<p>Provide detailed information about your discussion:</p> <p>The changes were discussed with the Dean. As a result of the discussion, the following conclusion was made:</p> <p>The proposed changes will not affect the college budget. The changes will positively affect the student budget since they are targeting the adoption of the OER resources</p> <p>The changes will have a positive academic effect on the:</p> <p>Developing new online courses.</p> <p>Implementing OER educational resources.</p> <p>Helping students who cannot attend face-to-face classes to take our college chemistry courses as a result of the development of online courses.</p> <p>Helping students to better navigate the course.</p>	
Will the proposed change(s) impact Library services or budgets?	No
Have you discussed impacts with the Libraries' Collection Manager?	No
Faculty Endorsements for Change of Course	
NOTE: Proposals will be returned if faculty endorsements are not provided.	
List names of department/program faculty who support this proposal.	
Eric Commendatore; Kimberly Hilton; Qin Liu; Di Xue; Valentin Zalessov	

SECTION VI: ATTACHMENTS

Please save all documents in Word format (.doc, .docx) rather than pdf.

- **Impact Report:** Attach Impact Report results or a Summary of Programs, Certificates, and Courses impacted by the proposed course changes.
- **Catalog Changes:** Attach Word files [with Track Changes on] indicating changes to all Catalog pages that are affected by this Change of Course Proposal.
- **New Course Syllabus** [Master] reflecting proposed changes, as appropriate
 - **INSTRUCTION:** To make changes to Syllabus Section IV, you will need to obtain an “unlocked” version of the Master Syllabus from your School’s Administrative Assistant. Use Word’s *Track Changes* function to show all proposed changes on the Syllabus Master.
- Any relevant supporting documents justifying changes

UPLOAD THIS PROPOSAL AND ALL NECESSARY ATTACHMENTS TO CURRICULOG.