VISAYAS STATE UNIVERSITY

DEPARTMENT OF PURE AND APPLIED CHEMISTRY
Visca, Baybay City, Leyte, PHILIPPINES
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EVALUATION OF OUTCOMES-BASED EDUCATION (OBE) COURSE SYLLABUS

PhSc 105.1 Inorganic Chemistry (Laboratory)
2nd Semester and A.Y. 2022 - 2023

Name of faculty : Jailenn Jannaraine S. Puray
Department/Institute : Department of Pure and Applied Chemistry
College : College of Arts and Sciences

CRITERIA	Complied	Partially Complied	Not Complied	Remarks
FORMAT				
1) The OBE course syllabus follows the university-prescribed format				
2) The course syllabus covers the required number of weeks in one academic term				
3) Course policies and grading system are clearly defined				
4) The syllabus is designed to align with the CMO-prescribed curriculum in relation to:				
a. Program Educational Objectives to VSU Vision, Mission, and Quality Policy Statement				
b. Program Outcomes to Program Educational Objectives				
c. Course Outcomes to Program Outcomes				
CONTENT				
1) Learning outcomes are clearly articulated *(Specific, Measurable, Attainable, Realistic, Time-bounded (SMART) and anchored on Bloom's Taxonomy of Objectives)*				
2) Course coverage completely follows the course description				
3) Topics/lessons are arranged in a logical – sequence				
4) Gender-sensitivity and values education are integrated in the syllabus whenever applicable				
5) References are relevant, varied and updated. Contains at least five book titles copyrighted within the last 5 years as prescribed by CHED				
TEACHING-LEARNING				
1) Teaching-learning activities are:				

a. varied and relevant				
b. outcomes-based				
c. encourage active learning				
d. develop the students' critical – thinking skills and reflective judgment				
LEARNING ASSESSMENT				
1) Learning outcomes and methods of assessment are aligned				
2) Assessment methods used are varied and relevant				
3) Schedule and frequency of assessment, and expected outputs are clearly defined				

General Recommendation (Pls. check):

	APPROVED for use
	Needs to be REVISED *(please see comments)*

Department Instructional Materials Review Committee:

Committee	Name	Signature	Date Signed
Member:	MARIA ROBELYN A. INSIK		
Member:	VIVIAN P. LINA		
Chairperson	ELIZABETH S. QUEVEDO		

	Name	Signature	Date Signed
Verified by 1/:	**MA. THERESA P. LORETO** Dean, CAS		
Validated by 2/:	**NANCY D. ABUNDA** *Head, IMD*		

1/ Means of Verification: Ratings on Individual evaluation sheets of the DIMRC members
2/ Means of Validation: Final action of the College Dean
REMINDER:

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OUTCOMES-BASED EDUCATION (OBE) COURSE SYLLABUS

PhSc 105.1 Inorganic Chemistry (Laboratory)
2nd Semester, A.Y. 2022 - 2023

I. UNIVERSITY INFORMATION

1. Vision of the University

A globally competitive university for science, technology, and environmental conservation

2. Mission of the University

Development of a highly competitive human resource, cutting-edge scientific knowledge and innovative technologies for sustainable communities and environment.

3. VSU Quality Policy Statement

The Visayas State University (VSU), a globally competitive university of science and technology and environmental conservation, is created by law to develop highly competitive human resource, cutting- edge scientific knowledge and innovative technologies for sustainable communities and environment.

Towards this end, we, at the Visayas State University, commit to:

- Produce highly competent, quality and world-class manpower in science and technology, especially for agriculture, environmental management and industry who are proficient in communication skills, critical thinking and analytical abilities;
- Generate and disseminate relevant knowledge and technologies that lead to improved productivity, profitability and sustainability in agriculture, environment and industry; and
- Satisfy the needs and applicable requirements of the industry, the community and government sectors who are in need of quality graduates and technology ready for commercialization through the establishment, operation, maintenance and continual improvement of a Quality Management System (QMS) which is aligned with the requirements of ISO 9001:2015.

It shall be the policy of the university that the quality policies and procedures are communicated to and understood by all faculty, staff, students and other stakeholders and that the system be continually improved for its relevance and effectiveness.

EDGARDO E. TULIN
President
v0 07-16-2019

4. Quality Goals of the College of Education
    a. Provide essential professional preparation for teachers in the basic and higher education.
    b. Undertake relevant research that can be utilized to improve the teaching and learning process.
    c. Extend relevant community services to uplift people's lives.
5. Quality Objectives of the Department of Teacher Education
    a. Produce graduates equipped with pedagogical and 21st century skills.
    b. Develop among prospective teacher's strong commitment for teaching and a real concern for the welfare and development of the learners.
    c. Provide students the opportunity to conduct research on relevant areas in basic and higher education.
    d. Provide students the opportunity to conduct extension and community involvement activities.

II. PROGRAM INFORMATION

1. Name of the Program	Bachelor of Secondary Education Major in Science
2. CHED CMO Reference	CMO no. 75 s. 2017
3. BOR Approval	BOR Resolution No. 724 s. 2017

4. Program Educational Objectives and Relationship to Institution Mission

Program Educational Objectives	Mission*		
	a	b	c
1. Develop among prospective teacher's strong commitment for teaching and a real concern for the welfare and development of the learners.	√	√	√
2. Produce graduates equipped with professional, pedagogical and critical thinking skills.	√	√	√
3. Provide students the opportunity to formulate and conduct research on relevant areas and undertake community outreach projects.	√	√	√

**a - development of a highly competitive human resource, b - cutting-edge scientific knowledge, c - innovative technologies for sustainable communities and environment*

III. COURSE INFORMATION

1. Course Code	PhSc 105.1
2. Course Title	Inorganic Chemistry (Laboratory)
3. Pre-requisite	None
4. Co-requisite	PhSc 105 - Inorganic Chemistry (Lecture)
5. Credit	2 units
6. Semester Offered	2nd semester of 1st year
7. Number of hours	6 hrs / week
8. Course Description	Basic chemistry principles: Atomic theories, periodic table and properties of elements, chemical equations and stoichiometry, chemical bonding and molecular structures, states of matter, properties and reactions of solutions.

9. Program Outcomes (POs) **in relation to the Program Educational Objectives** (POEs)				
Program Outcomes (POs)		**Program Educational Objectives**		
		1	2	3
a	Demonstrate deep understanding of scientific concepts and principles.	√	√	√

b	Apply scientific inquiry in teaching and learning.	√	√	√
c	Utilize effective science teaching and assessment methods.	√	√	√
d	Manifest meaningful and comprehensive pedagogical content knowledge (PCK) of the sciences.	√	√	√

10. Course Outcomes (COs) and Relationship to Program Outcomes (POs)				
After completing this course, the student must be able to perform the following COs:	*Program Outcomes Code*			
	a	*b*	*c*	*d*
CO1 Explain the rationale behind Inorganic experimental procedure: choice of glass wares, solvents, reaction conditions, and equipment for a particular inorganic or organic reaction	*I*	*I*	*I*	*I*
CO2 Apply safety precautions in the laboratory.	*I*	*I*	*I*	*I*
CO3 Demonstrate good logbook keeping-detailed record of what is done.	*I*	*I*	*I*	*I*
CO4 Analyze and present experimental data.	*I*	*I*	*I*	*I*
CO5 Plan and conduct a variety of inorganic reactions, including safety considerations.	*I*	*I*	*I*	*I*

Legend: I – Introductory, E – Enabling, D – Demonstrative
Each letter indicates the expected level of competency that each CO should provide for each PO.

11. Course Content and Plan

Week	Topics	Learning Outcomes	Teaching and Learning Activities		Assessment Tasks
			Teaching Activities	Learning Activities	
Class Orientation					
1	VSU Vision Mission, and Quality Policy Statement Class Policies Grading System and Activities Learning Guide / Instructional Workbook / Laboratory Manual Submission of Requirements Learning Guide	Explain their role in the attainment of VSU's VMGO Learn where they can optimize their learning process and get good grades	Q & A for clarification, setting of expectations, and getting-to-know-each other Class interaction Sharing of Ideas Feedbacks VSUEE/VC: Familiarization of the virtual classroom	Discussion Class Interaction Sharing of Ideas Feedbacks Familiarization with the virtual classroom Note-taking	Part of the Bonus in Long Exam 1 Oral recitation

CO1: Explain the rationale behind Inorganic experimental procedure: choice of glass wares, solvents, reaction conditions, and equipment for a particular inorganic or organic reaction
CO2: Apply safety precautions in the laboratory.
CO3: Demonstrate good logbook keeping-detailed record of what is done.
CO4: Analyze and present experimental data.

2	PhSc 105.1 General Inorganic Chemistry Laboratory Manual Exercise 1. Introduction: Safety Precautions in the Chemical Laboratory	1. To become aware with some of the safety precautions inside the laboratory. 2. To become familiar with some of the common laboratory operations.	Pre-lab Discussion Laboratory Experimentation Q & A for clarification Class Interaction Perform experiments Post additional learning videos and presentations.	Taking notes Class Interaction Submission of Lab journal Submission of laboratory reports Assessment Independent study	Quiz # 1 Answer during class schedule Laboratory report # 1 Answer guide questions from laboratory manual. Due Date: 1 week after discussion Compile laboratory report and quiz in an envelope
3	PhSc 105.1 General Inorganic Chemistry Laboratory Manual Exercise 2. Precision and Accuracy of Measurements	1. To use the correct number of significant figures in reporting measurements and results of calculations 2. To state the difference between the precision and accuracy of measurements 3. To determine the precision and accuracy of measurements 4. To choose the appropriate measuring device for measurements 5. To do some common laboratory procedures, like the proper use of the pipet and other measuring instruments	Pre-lab Discussion Laboratory Experimentation Q & A for clarification Class Interaction Perform experiments Post additional learning videos and presentations.	Taking notes Class Interaction Submission of Lab journal Submission of laboratory reports Assessments Independent study	Quiz # 2 Answer during class schedule Laboratory report # 2 Answer guide questions from laboratory manual. Due Date: 1 week after discussion Compile laboratory report and quiz in an envelope
4	PhSc 105.1 General Inorganic Chemistry		Pre-lab Discussion	Taking notes	Quiz # 3 Answer

	Laboratory Manual Exercise 3. Graphing	1. To make a suitable graph for a given set of data 2. To be able to interpret data shown in a graph	Laboratory Experimentation Q & A for clarification Class Interaction Perform experiments Post additional learning videos and presentations.	Class Interaction Submission of Lab journal Submission of laboratory reports Assessment Independent study	during class schedule Laboratory report # 3 Answer guide questions from laboratory manual. Due Date: 1 week after discussion Compile laboratory report and quiz in an envelope
CO5: Plan and conduct a variety of inorganic reactions, including safety considerations.					
5	PhSc 105.1 General Inorganic Chemistry Laboratory Manual Exercise 4. The Laboratory Burner	1. To identify the parts of a laboratory heating device 2. To become familiar with the operation of the laboratory heating device. 3. To perform basic laboratory operations using a laboratory heating device.	Pre-lab Discussion Laboratory Experimentation Q & A for clarification Class Interaction Perform experiments Post additional learning videos and presentations.	Taking notes Class Interaction Submission of Lab journal Submission of laboratory reports Assessment Independent study	Quiz # 4 Answer during class schedule Laboratory report # 4 Answer guide questions from laboratory manual. Due Date: 1 week after discussion Compile laboratory report and quiz in an envelope
6	PhSc 105.1 General Inorganic Chemistry Laboratory Manual Exercise 5. Atomicity of	1. To perform a simple laboratory experiment highlighting the	Pre-lab Discussion Laboratory Experimentation	Taking notes Class Interaction	Quiz # 5 Answer during class schedule

	Matter and Law of Definite Composition	concept of atomicity and the law of definite composition. 2. To showcase, in practice, some concepts of the chemical laboratory.	Q & A for clarification Class Interaction Perform experimnts Post additional learning videos and presentations.	Submission of Lab journal Submission of laboratory reports Assessment Independent study	Laboratory report # 5 Answer guide questions from laboratory manual. Due Date: 1 week after discussion Compile laboratory report and quiz in an envelope
7	PhSc 105.1 General Inorganic Chemistry Laboratory Manual Exercise 6. Elements and Compounds	1.To illustrate the differences between elements and compounds.	Pre-lab Discussion Laboratory Experimentation Q & A for clarification Class Interaction Perform experiments Post additional learning videos and presentations.	Taking notes Class Interaction Submission of Lab journal Submission of laboratory reports Assessment Independent study	Quiz # 6 Answer during class schedule Laboratory report # 6 Answer guide questions from laboratory manual. Due Date: 1 week after discussion Compile laboratory report and quiz in an envelope
7	PhSc 105.1 General Inorganic Chemistry Laboratory Manual Exercise 7. Mixtures	1. To be able to distinguish the differences between homogeneous and heterogeneous mixtures. 2. To conduct an experimental procedure that	Pre-lab Discussion Laboratory Experimentation Q & A for clarification	Taking notes Class Interaction Submission of Lab journal Submission of laboratory reports	Quiz # 7 Answer during class schedule Laboratory report # 7 Answer guide

		highlights the properties of mixtures.	Class Interaction Perform experiments Post additional learning videos and presentations.	Assessment Independent study	questions from laboratory manual. Due Date: 1 week after discussion Compile laboratory report and quiz in an envelope
8	PhSc 105.1 General Inorganic Chemistry Laboratory Manual Exercise 8. Formula Writing	1. To be able to write the chemical formulas of common laboratory chemicals and solutions. 2. To be able to write the symbols/formulas of different atoms, ions, and compounds.	Pre-lab Discussion Laboratory Experimentation Q & A for clarification Class Interaction Perform experiments Post additional learning videos and presentations.	Taking notes Class Interaction Submission of Lab journal Submission of laboratory reports Assessment Independent study	Quiz # 8 Answer during class schedule Laboratory report # 8 Answer guide questions from laboratory manual. Due Date: 1 week after discussion Compile laboratory report and quiz in an envelope
9	PhSc 105.1 General Inorganic Chemistry Laboratory Manual Exercise 9. Naming Compounds	1. To become familiar with the different nomenclature systems for compounds. 2. To be able to write the correct names of compounds	Pre-lab Discussion Laboratory Experimentation Q & A for clarification Class Interaction Perform experiments Post additional	Taking notes Class Interaction Submission of Lab journal Submission of laboratory reports Assessment	Quiz # 9 Answer during class schedule Laboratory report # 9 Answer guide questions from laboratory manual. Due Date:

			learning videos and presentations.	Independent study	1 week after discussion Compile laboratory report and quiz in an envelope
10	Midterm Examination				
11	PhSc 105.1 General Inorganic Chemistry Laboratory Manual Exercise 10a. Writing and Balancing Chemical Equations	1. To become familiar with the rules that are used and followed in writing chemical equations. 2. To be able to apply the rules in balancing chemical reaction equations	Pre-lab Discussion Laboratory Experimentation Q & A for clarification Class Interaction Perform experiments Post additional learning videos and presentations.	Taking notes Class Interaction Submission of Lab journal Submission of laboratory reports Assessment Independent study	Quiz # 10 Answer during class schedule Laboratory report # 10 Answer guide questions from laboratory manual. Due Date: 1 week after discussion Compile laboratory report and quiz in an envelope
12	PhSc 105.1 General Inorganic Chemistry Laboratory Manual Exercise 10b. Balancing Oxidation-Reduction Reactions by the Change in Oxidation Number Method	1. To become familiar with the rules that are used and followed balancing Redox Reactions. 2. To be able to apply the rules in balancing redox reactions using the change in oxidation number method.	Pre-lab Discussion Laboratory Experimentation Q & A for clarification Class Interaction Perform experiments Post additional learning videos and presentations.	Taking notes Class Interaction Submission of Lab journal Submission of laboratory reports Assessment Independent study	Quiz # 11 Answer during class schedule Laboratory report # 11 Answer guide questions from laboratory manual. Due Date: 1 week after discussion Compile

					laboratory report and quiz in an envelope
13	PhSc 105.1 General Inorganic Chemistry Laboratory Manual Exercise 11. Types of Chemical Reactions	1. To perform different laboratory reactions. 2. To determine the type of reaction taking place for each reaction.	Pre-lab Discussion Laboratory Experimentation Q & A for clarification Class Interaction Perform experiments Post additional learning videos and presentations.	Taking notes Class Interaction Submission of Lab journal Submission of laboratory reports Assessment Independent study	Quiz # 12 Answer during class schedule Laboratory report # 12 Answer guide questions from laboratory manual. Due Date: 1 week after discussion Compile laboratory report and quiz in an envelope
14	PhSc 105.1 General Inorganic Chemistry Laboratory Manual Exercise 12. Precipitation Reactions and Solubility Rules	1. To observe precipitation reactions 2. To be able to write the balanced net ionic equations involved in precipitation reactions	Pre-lab Discussion Laboratory Experimentation Q & A for clarification Class Interaction Perform experiments Post additional learning videos and presentations.	Taking notes Class Interaction Submission of Lab journal Submission of laboratory reports Assessment Independent study	Quiz # 13 Answer during class schedule Laboratory report # 13 Answer guide questions from laboratory manual. Due Date: 1 week after discussion Compile laboratory report and quiz in an envelope
15	PhSc 105.1 General Inorganic Chemistry Laboratory Manual	1. To calculate the weight of a desired	Pre-lab Discussion	Taking notes Class	Quiz # 14 Answer during