



OUTCOMES-BASED EDUCATION (OBE) COURSE SYLLABUS

PhSc 107 Organic Chemistry

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 Arts and Sciences

- To produce quality manpower and graduates in biology, biotechnology, chemistry, English, liberal arts and behavioral sciences, mathematics, physics and statistics to serve the development needs of the region.
- To uplift the economic well-being of the region through relevant R and D and extension programs.
- Enhance regional development of the Visayas for regional competitiveness.

5. Quality Objectives of the Department of Pure and Applied Chemistry

- Produce highly qualified and skilled Chemists and Chemical technicians for the industry and the academia.
- Generate relevant knowledge and technologies through basic and applied multi- and inter-disciplinary researches.
- Achieve strong linkages and cooperation with domestic and international institutions and agencies involved in the pursuit of sustainable development.

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 107
2. Course Title	Organic Chemistry
3. Pre-requisite	PhSc 105 Inorganic Chemistry
4. Co-requisite	none
5. Credit	3 units
6. Semester Offered	1 st semester of 2 nd year
7. Number of hours	3 hrs / week
8. Course Description	This course provides a fundamental understanding of organic molecules and their reactivity. It explains the relationship between molecular structure and the type of reactions organic molecules undergo. The chemistry of organic compounds is discussed according to their functional groups, subsequently their practical applications in the modern world.

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 Apply the concepts of structural theory to predict the physical and chemical properties of organic compounds from the simplest to more diverse biomolecules.	D	D	D	D
CO2 State the unique properties of carbon such that it can form the most diverse organic molecules with itself and with other elements.	D	D	D	D
CO3 Illustrate the different functional groups, their reactive sites and the type of organic reactions that can occur on these sites.	D	D	D	E
CO4 Name systemically (IUPAC) the organic molecules according to its functional groups as well as their common names.	D	D	D	E
CO5 Apply knowledge of organic chemistry in consumer products and environmental labels.	D	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	Explain their role in the attainment of VSU's VMGO	Online Mode: Virtual Meeting/ Viewing of recorded	Face to face discussion Online Mode:	Part of the Bonus in Long Exam 1

	Requirements Grading System and Activities Submission of Requirements Learning Guide	Learn where they can optimize their learning process and get good grades	presentation: Face to Face Classes: 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 Offline Mode: Printed Learning Guide (independent study)	Discussion Google Classroom Offline Mode: Note-taking and Ebook Reading	
CO1 Apply the concepts of structural theory to predict the physical and chemical properties of organic compounds from the simplest to more diverse biomolecules. CO2 State the unique properties of carbon such that it can form the most diverse organic molecules with itself and with other elements.					
2-5	Part 1 Intro to Organic Chemistry Inorganic vs. Organic Compounds Electronic Structure and Bonding Intermolecular Forces of Attraction The Nature of Carbon Allotropic forms of Carbon Molecular Geometry Classification of Organic Compounds	Define organic chemistry. Discuss the very nature of carbon. Differentiate organic compounds from inorganic compounds. Differentiate ionic bonds from covalent bonds. Discuss the formation of covalent bonds in general. Explain the formation of double and triple bonds using Hybridization theory.	Face to Face Classes: Ppt presentations Board work Virtual Lessons Q & A for clarification Class interaction Online/Offline mode: Modules, Supplemental videos and Access Moodle classroom classwork	Face to Face Discussion /Online Mode: VSUEE/VC: Note-taking Downloading resource materials Offline Mode: Note-taking	Long Exam # 1: Assignments: #1-5 Quiz #s 1-5

		<p>Differentiate the allotropes of carbon from each other.</p> <p>Discuss the different types of intermolecular forces based on the polarity of molecules.</p> <p>Classify organic compounds by functional groups.</p> <p>Identify the geometry of molecules based on VSEPR Theory.</p>	<p>activities</p> <p>Post inquiries on google/ Moodle classrooms</p>		
<p>CO3 Illustrate the different functional groups, their reactive sites and the type of organic reactions that can occur on these sites.</p> <p>CO4 Name systemically (IUPAC) the organic molecules according to its functional groups as well as their common names.</p> <p>CO5 Apply knowledge of organic chemistry in consumer products and environmental labels.</p>					
5-6	<p>Part 2</p> <p>Types of Organic Chemical Reactions</p> <p>Introduction to Reaction Mechanism</p>	<p>Identify the type of reaction based on the products.</p> <p>Predict the reactants/products based on the given reaction.</p> <p>Identify an electrophile/nucleophile in the reaction.</p> <p>Illustrate the direction of the curved arrow(s) in a reaction mechanism.</p>	<p>Face to Face Classes/ Online Mode: Virtual Meeting #3:</p> <p>Powerpoint presentations</p> <p>Board work</p> <p>Virtual Lessons</p> <p>Q & A for clarification</p> <p>Class interaction</p> <p>Offline mode: Modules, Supplemental videos and Access Moodle classroom</p>	<p>Face to face discussion</p> <p>Online Mode: VSUEE/VC:</p> <p>Note-taking</p> <p>Downloading resource materials</p> <p>Offline Mode:</p> <p>Note-taking</p>	<p>Quiz #s 6-7</p> <p>Assignments #6-7</p>
6-8	<p>Part 3(a)</p> <p>Hydrocarbons: Alkanes, Alkenes, Alkynes, Aromatic Hydrocarbons (Aromaticity)</p>	<p>Draw some hydrocarbons based on the type of structure/model/representation</p>	<p>Face to Face Classes/ Online Mode: Virtual Meeting</p>	<p>Face to face discussion</p> <p>Online Mode:</p>	<p>Group Project/Assignment #8: Make 3D</p>

	Part 3(b) Types of Chemical formula and Structure and Model Part 3 (c) Isomers 3D structures	sending a formula of molecules. Differentiate the different types of hydrocarbons based on the geometry, angle strain, reactivity, and the type of reactions they undergo. Use the IUPAC System in naming hydrocarbons. Identify the type of isomerism in each set of molecules. Identify commercial and natural products that use/have hydrocarbons. Identify aromatic compounds using the four criteria of aromaticity.	#3: PowerPoint presentations Board work Virtual Lessons Q & A for clarification Class interaction Offline mode: Modules, Supplemental videos, and Access Moodle classroom	VSUEE/VC: Note-taking Downloading resource materials Offline Mode: Note-taking Group Work/Collaboration	representations of the assigned molecules per group. Quizzes #8-10
9	MIDTERM WEEK	Coverage: Part 2 and Part 3	Face to Face		MIDTERM EXAM
CO3 Illustrate the different functional groups, their reactive sites and the type of organic reactions that can occur on these sites. CO4 Name systemically (IUPAC) the organic molecules according to its functional groups as well as their common names. CO5 Apply knowledge of organic chemistry in consumer products and environmental labels.					
10-14	Part 4 Alkyl Halides Alcohols Ethers Thiols (Amines)	Classify alkyl halides and alcohols according to the type of carbon the halide/hydroxyl group is attached. Identify the type of reactions alkyl halides and alcohols undergo. Use the IUPAC System in naming alkyl halides,	Face to Face Classes/ Online Mode: Virtual Meeting #3: Powerpoint presentations Board work Virtual Lessons Q & A for clarification	Face to face discussion Online Mode: VSUEE/VC: Note-taking Downloading resource materials	Long Exam #2 Assignments #8-10 Quiz #s 11-12

		alcohols, ethers, amines, and thiols. Identify commercial and natural products that use/have alkyl halides, alcohols, ethers, amines, and thiols.	Class interaction Offline mode: Modules, Supplemental videos, and access Moodle classroom		
14-15	Part 5(a) Aromatic Compounds Phenols Substituted Benzene	Use the IUPAC System in naming substituted benzenes and aromatic compounds. Know the common names of popular aromatic compounds. Identify the type of reactions aromatic compounds undergo. Identify commercial and natural products that use/have aromatic compounds.	Face to Face Classes/ Online Mode: Virtual Meeting #3: PowerPoint presentations Board work Virtual Lessons Q & A for clarification Class interaction Offline mode: Modules, Supplemental videos, and access Moodle classroom	Face to face discussion Online Mode: VSUEE/VC: Note-taking Downloading resource materials	Long Exam #3 Assignments #11-12 Quiz #s 13-14
15-16	Part 6 Carbonyl Compounds Aldehydes Ketones	Use the IUPAC System in naming aldehydes and ketones Know the common names of popular aldehydes and ketones. Identify the type of reactions that aldehydes and ketones undergo.	Face to Face Classes/ Online Mode: Virtual Meeting #3: PowerPoint presentations Board work Virtual Lessons	Face to face discussion Online Mode: VSUEE/VC: Note-taking Downloading resource materials	Assignments #13-14 Quiz #s 15-16

		Identify commercial and natural products that use/have aldehydes and ketones.	Q & A for clarification Class interaction Offline mode: Modules, Supplemental videos, and access Moodle classroom		
16-17	Part 7 Carboxylic Acids and Derivatives Carboxylic acids Amides Acyl Halides Acetic Anhydride Esters	Use the IUPAC System in naming carboxylic acids and derivatives. Know the common names of popular carboxylic acids and derivatives. Identify the type of reactions that carboxylic acids and derivatives undergo. Identify commercial and natural products that use/have carboxylic acids and derivatives.	Face to Face Classes/ Online Mode: Virtual Meeting #3: PowerPoint presentations Board work Virtual Lessons Q & A for clarification Class interaction Offline mode: Modules, Supplemental videos, and access Moodle classroom	Face to face discussion Online Mode: VSUEE/VC: Note-taking Downloading resource materials	Assignments #15-16 Quiz #s 17-18
18	FINALS WEEK	Coverage: Carbonyl Compounds Carboxylic Acid and derivatives	Face to face		FINAL EXAM Portfolio of Activities

* VSUEE/VC – VSU E-Learning Environment/ Virtual Classroom

12. Life-long Learning Opportunities

The students will learn the basics and fundamental concept of the biomolecules governing life. In addition, the students will also have a deeper understanding on the changes that they experience in their body. Moreover, the students will be more conscious and selective with their lifestyle. Lastly, this course will help the students to appreciate life more.

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13. Contribution of Course to Meeting the Professional Component (%)

General Education: 0%

Basic Education (*Foundation*): 20%Professional Education (*Major Field*): 80%**14. References and Other Learning Resources****A. Textbook(s)/ E-Books**

1. KLEIN, D.R., 2012. Organic Chemistry. John Wiley & Sons, Inc., United State of America
2. McMURRY, J. 2016. Organic Chemistry 9th Ed. CEngage Learning
3. SOLOMONS, G, FRYHLE, C. and SNYDER, S. 2014. Organic Chemistry 11th Ed. John Wiley and Sons, Inc.
4. TIMBERLAKE, K.C., 2009. Chemistry: An Introduction to General Organic and Biological Chemistry, 10th edition

B. Other Learning Resources (to be updated)**15. Course Assessment and Evaluation**

The performance of students will be assessed and evaluated based on the following:

Quizzes (25%) + Assignments (20%) + Examinations (40%) + Project (10%) + Attendance (5%) = (Overall Total) 100%

Item No.	Assessment Tasks	Percentage Contribution (1)	No. of Times in the Semester (2)	Individual Task % Contribution (1/2)
1	Quizzes	25%	18	1.39%
2	Assignments	20%	16	1.25%
3	Long & Term Examinations	40%	5	8.00%
4	Individual/Group Project	10%	2	5.00 %
5	Attendance	5%	30	0.17%
		100%		

COs	Assessment Tasks	Weight in Percent	Minimum Average for Satisfactory Rating	Target and Standards
CO #s 1,2,	Quizzes (5)	6.95%	60 %	At least 60% of the students have at least 60% score
	Assignments (5)	6.25%		
	Project (1)	5%		
	Attendance (16)	2.67%		
	Long Examination (1)	8%		
CO #s 3, 4, 5	Quizzes (13)	18.05%		
	Assignments (11)	13.75%		
	Long & Term Examinations (4)	32%		

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	Project (1)	5%		
	Attendance (14)	2.33%		
	TOTAL	100%		

Grading System (% Passing: 60%)

Range	Grade	Range	Grade
97 - 100	1.00	65 - 69	2.75
93 - 96	1.25	60 - 64	3.00
89 - 92	1.50	below 60	5.00
85 - 88	1.75		
80 - 84	2.00		
75 - 79	2.25		
70-74	2.50		

16. Course Policies

- 1) The official virtual classroom is VSU E-Learning Environment (VSUEE) (<https://elearning.vsu.edu.ph>). A class orientation will be done in relation to the use and navigation of the platform.
- 2) Face to face classes will be implemented otherwise ZOOM or Google Meet will be used for web-conferencing and real-time class meetings. Username and password link will be posted in VSUEE/VC or an invitation link will be sent to your email address.
- 3) Attending face to face is encourage as it is one the criteria for your grade. Attendance to virtual meetings is highly - encouraged but not compulsory. If you cannot attend due to internet connection limitation, there is no problem. Just keep up with the lessons and do all the necessary exercises that is required of you.
- 4) Students shall follow the policy of the school regarding excused and unexcused absences to avoid Dropping. You are excused if you are sick and if you are attending an equally important event that needs your presence.
- 5) The virtual meeting is our avenue for synchronous learning. Class interaction and participation is encouraged, sharing of ideas, feedbacking of your outputs and other related concerns in the subject will be done during this time.
- 6) Original copies of all answers, solution, and projects will be kept by the student, put in a folder/envelope one after the other, and should be bound together to form a "portfolio" as part of the final requirements of the course.
- 7) All quizzes are announced and will be given face to face.
- 8) This PhSc 107 Organic Chemistry Learning Guide/ Moodle Platform will be our official instructional material in this subject. It will serve as your guide for the whole semester. Whether you have internet connection or not, use it.
- 9) In the submission of activities, there will be a deduction for late submissions and ON-TIME submission is highly appreciated.

10) If you have any inquiries/clarifications, you may contact the course instructor/professor during official class schedule; Monday to Friday ONLY.

11) All students are reminded to observe all policies, regulations, and rules of the university and other related laws of the land and are advised to read, understand, and practice the provisions of the VSU Student Manual.

12) Lastly, as we embark in this "new normal". Let us have an open mind and heart as we adjust in this new way of delivering the teaching-learning process and still continue to aim for quality in education.

This class policy serves as our written agreement for the whole semester. If there are any changes to enhance the class learning opportunity within the semester, it will be communicated accordingly.

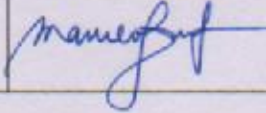
17. Course Materials and Facilities Available

Printed Learning Guide, Digital and Physical Reference Chemistry Books, Personal Laptop, Syllabus, Power Point Presentations, Video Lectures and Internet Resources.

18. Revision History

Revision number	Date of Revision	Date of implementation	Highlights of Revision
00	NA	September 15, 2022	OBE and ISO format compliant


19. Preparation

	Name	Signature	Date Signed
Prepared by	Maria Robelyn Aureo-Insik		Sept 9, 2022

III. INSTRUCTOR/PROFESSOR INFORMATION

1. Name of Instructor/Professor	Maria Robelyn A. Insik
2. Office and Department	Department of Pure and Applied Chemistry
3. Telephone/Mobile Numbers	+6317940037
4. Email Address	mariarobelyn.insik@vsu.edu.ph
5. Consultation Time	M-F only if applicable

20. Department Instructional Materials Review Committee:

Committee	Name	Signature	Date Signed
Member:	ATOZ A. VASQUEZ		Sept 13, 2022

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Member:	JACOB GLENN F. JANSALIN	<i>J. Jansalin</i>	<i>Sept 13, 2021</i>
Department Head:	ELIZABETH S. QUEVEDO	<i>E. Quevedo</i>	<i>Sept 13, 2021</i>

	Name	Signature	Date Signed
Verified by:	MA. THERESA P. LORETO College Dean		
Validated by:	NANCY D. ABUNDA Head, IMD		

Note:

- 1) The number of POs will depend on each degree program offered
- 2) COs and Relationship to POs
 - a. (I) - **Introductory** – an Introductory Course to an outcome
 - b. (E) - **Enabling** – an Enabling Course or a course that strengthens the outcome
 - c. (D) - **Demonstrated** – a Demonstrative Course or a course demonstrating an outcome.

Distribution of copies: OIMD, Department, Faculty



EVALUATION OF OUTCOMES-BASED EDUCATION (OBE) COURSE SYLLABUS

PhSc 107 Organic Chemistry

1st Semester A.Y. 2022-2023

Name of faculty : Maria Robelyn Aureo-Insik
Department/Institute : Department of Pure and Applied Chemistry
College : College of Arts and Sciences

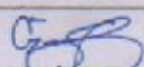
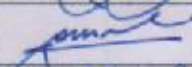
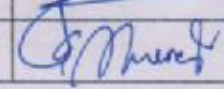
CRITERIA	Complied	Partially Complied	Not Complied	Remarks
FORMAT				
1) The OBE course syllabus follows the university-prescribed format	/			
2) The course syllabus covers the required number of weeks in one academic term	/			
3) Course policies and grading system are clearly defined	/			
4) The syllabus 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 (<i>Specific, Measurable, Attainable, Realistic, Time-bounded (SMART) and anchored on Bloom's Taxonomy of Objectives</i>)	/			
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 (<i>please see comments</i>)

Department Instructional Materials Review Committee:

Committee	Name	Signature	Date Signed
Member:	ATOZ A. VASQUEZ		Sept. 13, 2021
Member:	JACOB GLENN F. JANSALIN		Sept 13, 2021
Chairperson	ELIZABETH S. QUEVEDO		Sept 13, 2021

	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:

1. The author should not be part of the DIMRC.
2. *If the author is the Department Head, he/she will be replaced by another chairperson from among the senior faculty members.
3. **If the author is the College Dean, the Head of Instructional Materials Development will approve.
4. Follow the next higher supervisor, no same person
5. For the component campuses, if the author is the College Dean, the Director for Academic Affairs will approve.
6. If the author is the Department Head and at the same time the College Dean, the Director for Academic Affairs will be the Chairperson of the DIMRC, and the Chancellor will approve it.

(3) Distribution of copies: OHIMD, Department, Faculty.