Republic of the Philippines
COMMISSION ON HIGHER EDUCATION
Samar Colleges, Inc.
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OUTCOMES-BASED EDUCATION (OBE) SYLLABUS

I.	**Course Code**	:	SCI 417
II.	**Course Descriptive Title**	:	Environmental Science
III.	**Credit Units**	:	Three (3) Units Lecture
IV.	**Course Pre-requisite**	:	None
V.	**Professor/Instructor**	:	Jasmin J. Fabillar, LPT
VI.	**Academic Term and School Year**	:	2nd Semester/ 2025-2026

VII. Samar College Vision, Mission, Core Values and Mantra

SC Vision

We are the leading center of learning in the Island of Samar. We take pride in being the school of first choice by students where they can fully attain academic and personal achievements through affordable education, excellent instruction, and state-of-the-art facilities in a values-driven education.

SC Mission

Samar College is a community-based, privately owned learning institution that provides quality basic, tertiary and graduate education to students of Samar Island and the neighboring communities. We commit to help our students improved their quality of life by delivering affordable, values-driven, industry-relevant curricular programs that produce globally-competitive, innovative, service-oriented and God-fearing citizens who contribute to the progress of the society.

Core Values

Samar College commits itself to the following values represented by the acronym **INSPIRE,** as follows: **I –** Integrity – **N –** Nation-Building, **S –** Spirituality, **P –** Professionalism, **I –** Inclusivity, **R –** Resourcefulness, **E –** Excellence.

1. We ensure that our educational system is at the forefront of innovation and technology providing our faculty and students all opportunities to develop to their fullest potential.

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2. We provide solid foundation in education and values that serve as the springboard to gainful employment and entrepreneurship for better quality of life for our people.
3. We value people as our greatest resource ensuring that their dignity and well-being are respected at all times.
4. We create leaders who are willing to put the greater good of others above their personal interest. We uphold our principles and values even when others choose not to do so.
5. We foster excellence in the arts to refine the expression of thoughts and feelings.
6. We strive to lead and not be led, to influence rather than be influenced. By our examples, we shall be judged.
7. We treat one another with respect and genuine concern. We go beyond the call of duty to make sure that no one is left behind.

SC MANTRA - FOCUS and RISE IN SAMAR COLLEGE

The mantra FOCUS and RISE in Samar Colleges Inc is designed to emphasize commitment, accountability, and the drive to excel. It underscores focus and rising to ensure that Samar Colleges will attain its preferred future: **"Samar College as Champion for Empowering Leaders and Changemakers"**

FOCUS and RISE framework represents the 10 working principles to be adopted and integrated in the operation of the College that will surely position it to a level that will be highly competitive as an educational institution not only in the region but in the country. By 2030, Samar Colleges Inc. shall start to earn recognitions for its cutting edge projects and innovations implemented to empower its human resources, students and alumni. Samar College shall focus on holistic development and social responsibility. Thus,

F – Follow through to completion
O – Organize tasks by breaking down big ideas into doable parts
C – Connect new ideas with old ones (Associate new ideas with the old)
U – Uphold doing things right from the start (Do the right things right the first time)
S – Substantial focus on the vital few, not the trivial many
and
R – Results-driven (Begin with the end in mind)
I – Integrity in doing the right things, not the easier wrong
S – Self-accountability (If it is to be, it is up to me)
E – Exceed expectations by facing challenges with determination (No challenge too great, no task too menial)

Principles Mapped to the Acronym:

1. **Begin with the end in mind** → Results-driven (**R**)
2. **Associate new ideas with the old** → Connect new ideas with old ones (**C**)
   Do not reinvent the wheel → Connect new ideas with old ones (**C**)
3. **Break down big ideas into doable parts** → Organize tasks (**O**)
4. **Follow through to completion** → Follow through (**F**)
5. **Do the right things right the first time** → Uphold doing things right (**U**)
6. **Focus on the substantial few and not the trivial many** → Substantial focus (**S**)
7. **Do the right things and not the easier wrong** → Integrity in decisions (**I**)
8. **No challenge too great, no task too menial** → Exceed expectations (**E**)
9. **If it is to be, it is up to me** → Self-accountability (**S**)
10. **Temper your decision in moderation** → Rise with Resilience (**R**), incorporating the essence of moderation and balance thriving within limits, where decisions are tempered to adapt effectively.

VIII. College of Education Goal

The College of Education of the Samar Colleges, Inc. strives to develop professional, competent, and values-driven 21st century educator who embody academic excellence with a deep sense of commitment to transformative and innovative education towards social transformation.

Key Features:

Professionally Competent
Demonstrates strong content knowledge aligned with CHED outcomes-based education; effective pedagogical strategies; excellent communication and classroom management skills; expertise in assessment and evaluation; proficiency in educational technology; reflective practice; adherence to high ethical and moral standards; a collaborative mindset; and a commitment to lifelong learning.

Nation-Building
Cultivates a deep sense of patriotism and civic responsibility; contributes to the formation of a just, humane, and progressive society; advances national development through education, service, innovation, and leadership; and empowers individuals to become active agents of positive change in their communities and the nation.

Values-Driven and Socially Responsible
Embodies a non-sectarian yet ethically grounded worldview rooted in faith in God; demonstrates integrity, compassion, and accountability in personal and professional conduct; actively contributes to the betterment of society.

21st-Century Skilled
Exhibits digital literacy, critical thinking, creativity, adaptability, and innovation; prepared to navigate the demands of an ever-evolving global landscape.

Academic Excellence
Achieves exemplary performance in coursework and assessments; demonstrates mastery of subject matter and skills; engages in critical thinking and problem-solving; embraces lifelong learning; upholds discipline and responsibility; fosters creativity and innovation; and communicates and collaborates effectively.

Inclusive and Transformative
Promotes equity and access in education for all learners; adapts teaching methods to diverse needs; provides support for learners with disabilities; practices culturally responsive teaching; challenges discrimination and exclusion; fosters critical thinking, reflection, and values-based learning; leads transformative change by confronting climate change, social inequality, and the impacts of globalization.

IX. Bachelor of Secondary Education (BSED)

The Bachelor of Secondary Education aims to:

1. Develop deep expertise in the major discipline aligned with the secondary curriculum, and strengthen skills in instruction, assessment, and lifelong professional growth to meet evolving educational challenges.
2. Foster research and innovation that enhance learner-centered teaching, support diverse student needs, and contribute to school and community improvement.
3. Uphold professionalism, integrity, and reflective practice based on PPST and global ethical standards, nurturing civic responsibility and a commitment to a just, humane, and sustainable society.

X. Program Outcomes

Program Outcomes		Dominant Attributes
Common to all programs in all types of schools:		
P1	Articulate and discuss the latest development in the specific field of practice.	**Effective Communication**
P2	Communicate effectively in writing, speaking, and presenting using culturally appropriate language.	**Effective Communication**
P3	Work effectively and independently in multidisciplinary and multi-cultural teams.	**Teamwork/Collaboration**
P4	Practice the profession in accordance with existing laws, social, moral, and or ethical responsibility	**Ethical/Moral Responsibility**
P5	Act as a responsible citizen and show pride in being Filipino by preserving and promoting Filipino historical and cultural heritage *(based on RA 7722)*	**Ethical/Civic Responsibility**
P6	Demonstrate the ability to contribute meaningfully to employment, development initiatives, and public discussions in service to their communities	**Ethical/Civic Responsibility/Leadership**
Common to the Teacher Education Discipline (CMO 74 and 75 series 2017):		
P7	Articulate the rootedness of education in philosophical, socio-cultural, historical, psychological, and political contexts.	**Committed to Civic Responsibility and Leadership**
P8	Demonstrate mastery of subject matter/discipline	**Grounded in Knowledge**
P9	Facilitate learning using a wide range of teaching methodologies and delivery modes appropriate to specific learners and their environments.	**Focused on Outcomes**
P10	Develop innovative curricula, instructional plans, teaching approaches, and resources for diverse learners.	**Focused on Outcomes**
P11	Apply skills in the development and utilization of ICT to promote quality, relevant, and sustainable educational practices.	**Innovative and Transformative**
P12	Demonstrate a variety of thinking skills in planning, monitoring, assessing, and reporting learning processes and outcomes.	**Focused on Outcomes**

P13	Practice professional and ethical teaching standards sensitive to the local, national, and global realities.	**Responsible in Ethical and Moral Decision-Making Engaged in Nation - Building**
Common to Samar College Graduates:		
P14	**Develop** innovative ideas and problem-solving strategies by integrating critical and creative thinking.	**Critical Thinking/Innovation**
P15	**Demonstrate** commitment to lifelong learning by keeping abreast of current trends and issues in local, national, and international contexts.	**Lifelong Learning**

VIII. Course Description

This 3-unit course deals with the general concepts and principles pertaining to complex pattern of interaction between the physical environment and biological communities on Earth. Emphasis is also given on the current environmental issues and concerns as well as disaster risk management techniques.

IX. COURSE LEARNING OUTCOMES AND CURRICULUM MAP

(You can add more CLOs here. The number of Program Outcomes should match with the listed outcomes in ***Section XI).***

CLO CODE	COURSE LEARNING OUTCOME	Program Outcomes														
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
CLO1	Identify and define major environmental concepts such as ecosystems, biodiversity, natural resources, and pollution.	P	D	P	D	D	I	I	P	D	P	D	I	I	P	P
CLO2	Explain the interconnectedness between human activities and environmental impacts.	P	P	P	D	D	I	P	P	P	P	D	P	P	I	P
CLO3	Propose a sustainable solution to local or global environmental problems and demonstrate a commitment to promoting	P	P	P	D	D	P	I	P	P	P	D	I	D	P	P

	environmentally friendly practices in their daily lives and communities.															
CLO4	Recognize and appreciate the importance of environmental stewardship and ethical decision-making in addressing environmental challenges.	P	D	P	D	D	I	I	P	P	P	D	I	P	P	P

I – Introduced P – Practiced with Supervision D – Demonstrated across different settings with minimal supervision

X. COURSE CONTENT

Topic	Week No./ Number of Hours	CLO Alignment
1. Course Orientation • Vision, Mission, Goals, and Objectives of Samar College • School and Classroom Policies • Grading System • Classroom Rules and Regulation	**2 hrs.**	
2. **Basic Units of Ecology** ▪ Components of Ecosystem • Biotic • Abiotic ▪ Levels of Organization of Life • Organism • Species • Population • Community	**7 hrs.**	**CLO1/ CLO2**

• Ecosystem • Biosphere ▪ Ecological Interaction • Predation • Parasitism • Competition • Mutualism • Commensalism ▪ Biogeochemical Cycles: • Carbon Cycles • Oxygen Cycles • Nitrogen Cycles • Phosphorous Cycle • Sulfur Cycles • Hydrologic Cycle ▪ Food Chain ▪ Food Web ▪ Ecological Pyramid	**8 hrs.**	
PRELIM EXAMINATION	**1 hr.**	
3. Population ▪ Population ▪ Characteristics of Population ▪ Dynamics of Population ▪ The Population Problem **4. The Impact of Population Growth on The Environment** ▪ Human's Intervention with Nature ▪ Energy and Environment	**9 hrs.** **8 hrs.**	**CLO1/ CLO2/ CLO4**

• Sources of Energy		
MIDTERM EXAMINATION	**1 hr.**	
5 Environmental Issues and Concerns ▪ Global Warming ▪ Stratospheric Ozone Depletion ▪ Meaning of Pollution and Air Pollution ▪ Water and Marine Pollution ▪ Land and Soil Pollution ▪ Noise and Thermal Pollution ▪ Acid Rain ▪ Red Tide ▪ Waste Management ▪ Deforestation and Forest Denudation ▪ Endangered Species ▪ Destruction and Protection of Biota	**9 hrs.** **8 hrs.**	**CLO1/ CLO2 CLO3/ CLO4**
FINAL EXAMINATION	**1 hr.**	

XI. LEARNING PLAN

Intended Learning Outcomes (ILO)	Course Content	Teaching and Learning Activities/Resources Needed	Assessment Tasks	Time-frame/ Allotment
PRELIMINARIES				
At the end of the lesson, the students are expected to: 1. Discuss and identify the Vision, Mission, Goals and Objectives of the college.	I. GENERAL ORIENTATION • College vision, mission, goals and objectives • Course description and outcomes • Classroom rules/policies • Introduction	Self-directed learning Lecture method	Oral recitation	2 hrs.

2. Identify and orient them with the different criterion of the grading system, classroom rules and policies.				
At the end of the lesson, the students are expected to: **1.** Identify and describe the abiotic and biotic components of an ecosystem. **2.** Explain the general importance of biogeochemical cycles in sustaining life on earth. **3.** Trace the major pathways of carbon through the atmosphere, oceans, land, and living organisms. **4.** Outline the main steps of the nitrogen cycle, including nitrogen fixation, nitrification, assimilation, ammonification, and denitrification. **5.** Illustrate and label the main processes of the hydrologic (water) cycle, including evaporation, condensation, precipitation, and runoff.	3. **Basic Units of Ecology** ▪ Components of Ecosystem • Biotic • Abiotic ▪ Levels of Organization of Life • Organism • Species • Population • Community • Ecosystem • Biosphere ▪ Ecological Interaction • Predation • Parasitism • Competition • Mutualism • Commensalism ▪ Biogeochemical Cycles: • Carbon Cycles • Oxygen Cycles • Nitrogen Cycles • Phosphorous Cycle • Sulfur Cycles • Hydrologic Cycle ▪ Food Chain ▪ Food Web	Lecture method and interactive discussion Inquiry-based learning Think-Pair-Share PowerPoint presentation Technology integration through LMS	Oral recitation Formative and summative test Reflective essay Students presentation	7 hrs. 8 hrs.

6. Construct a simple food chain, correctly identifying producers, consumers (primary, secondary, tertiary), and decomposers. **7.** Differentiate between a food chain and a food web **8.** Describe the concepts of pyramids of numbers, biomass, and energy.	• Ecological Pyramid			
PRELIM EXAM				**1 hour**
MIDTERM				
At the end of the lesson, the students are expected to: 1. Define a population and give examples of different types of populations. 2. Describe key characteristics of a population, such as population size, density, distribution, age structure, and sex ratio. 3. Explain the factors that influence population growth (birth rate, death rate, immigration, emigration).	**4. Population** ▪ Population ▪ Characteristics of Population ▪ Dynamics of Population ▪ The Population Problem **5. The Impact of Population Growth on The Environment** ▪ Human's Intervention with Nature ▪ Energy and Environment ▪ Sources of Energy	Lecture method and interactive discussion Brainstorming Inquiry-based learning Performance-based learning PowerPoint presentation Technology integration through LMS	Oral recitation Reflective essay Collaborative presentation	9 hrs. 8 hrs.

4. Discuss the environmental and societal challenges associated with human population growth. 5. Analyze the direct and indirect impacts of human population growth on various environmental aspects, such as resource depletion, habitat loss, and pollution. 6. Describe various ways in which human activities (e.g., agriculture, urbanization, industrialization) modify natural ecosystems and their processes. 7. Compare and contrast different sources of energy, distinguishing between renewable and non-renewable sources and evaluating their respective environmental consequences.			Formative and summative test	
MIDTERM EXAM				**1 hour**
FINALS				
At the end of the lesson, the students are expected to: 1. Identify different environmental issues.	11. **Environmental Issues and Concerns** ▪ Global Warming ▪ Stratospheric Ozone Depletion	Lecture method and interactive discussion	Oral recitation	9 hrs.

2. Explain the causes and potential consequences of global warming, including the greenhouse effect. 3. Describe the process of stratospheric ozone depletion, its primary causes, and its impact on human health and ecosystems. 4. Define pollution and identify the types, major sources and types of pollutants, along with their effects. 5. Explain the formation of acid rain and its detrimental effects on ecosystems, infrastructure, and human health. 6. Describe what causes red tide phenomena and discuss their ecological and economic consequences, particularly in coastal areas. 7. Outline different strategies for effective waste management (e.g., reduce, reuse, recycle, proper disposal) and explain their environmental benefits.	▪ Meaning of Pollution and Air Pollution ▪ Water and Marine Pollution ▪ Land and Soil Pollution ▪ Noise and Thermal Pollution ▪ Acid Rain ▪ Red Tide ▪ Waste Management ▪ Deforestation and Forest Denudation ▪ Endangered Species • Destruction and Protection of Biota	Inquiry-based learning Performance-based learning PowerPoint presentation Technology integration through LMS	Reflective essay Collaborative presentation Formative and summative test Case study analysis	8 hrs.

8. Explain the causes and widespread environmental impacts of deforestation and forest denudation (e.g., soil erosion, biodiversity loss, climate change). 9. Define what makes a species endangered and identify the primary threats leading to species endangerment. 10. Describe the various forms of biodiversity destruction and evaluate different conservation strategies aimed at protecting plants and animals.				
	FINAL EXAM			**1 hour**

XII. GRADING SYSTEM/BREAKDOWN

The following are the different areas in which students in this course will be rated to their performance:

Major Examination	**30 %**
Written Assessment	**25%**
Reporting/Class Participation/Recitation	**10%**
Performance Task/Final Output	**25%**
Attendance	**10%**

Total	**=**	**100%**
Equivalent Rating	**=**	**(Score/Number of Items) x 40 + 60**
Final Rating	**=**	**1/3 (Prelim grade) + 1/3 (Midterm grade) + 1/3 (Final grade)**

XIII. SUGGESTED REFERENCES

a. Textbook

- Botkin, D. B., & Keller, E. A. (2020). Environmental science: Earth as a living planet (11th ed.). John Wiley & Sons.
- Cunningham, W. P., & Cunningham, M. A. (2023). Principles of environmental science: Inquiry and application (Edition). McGraw-Hill.

b. Suggested Instructional Materials

The following instructional materials are necessary to make the contents of the course very much understandable to the students: Reference books, Photocopies, softcopies, handouts of selected topics, and power point presentations.

XIV. HOUSE RULES AND CLASSROOM POLICIES

1. School's guidelines found in the student handbook should be strictly followed.
2. Proper decorum is always expected.
3. Academic honesty is expected at all times. Any students found to have engaged in academic misconduct such as cheating, plagiarism, or collusion is subject to disciplinary sanction as outlined in the student Handbook.
4. Students with special needs are given priority.
5. Attend the class regularly and punctually.
6. Intellectual discussion is highly encouraged.
7. Coordinate with the instructor, using various modes given on concerns/problems regarding the subject.
8. Class requirements should be submitted on or before the deadline.
9. No extra work will be given for extra credit under any circumstance.
10. Any other details or policies shall be announced in class as needed during the first week of class.

XV. CONSULTATION HOURS

Day	Time	Room
Monday/Wednesday	1:00 – 4:00 PM	Faculty
Tuesday/Thursday	1:00 – 4:00 PM	Faculty

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