Name: Dedumo, Kim F. **ENVIRONMENTAL SCIENCE**

Course/Year/Section: BSCE – 2A **MODULE 1**

- **What is environmental science?**

Environmental Science is an inter-disciplinary field of study of the biological and physical sciences. By “inter-disciplinary”, it integrates concepts from the fields of biology, chemistry, physics, mathematics, statistics, ecology, and geology, among other scientific fields, in order to analyze and solve problems concerning our environment.

- **Can you give examples of principles of environmental science?**

Principles of Environmental Sciences provide a comprehensive picture of the principles, concepts and methods that are applicable to problems originating from the interaction between the living and non-living environment and mankind.

- **The Principle of Sustainable Development**
- **The Principle of the Conservation of Energy** *(First Law of Thermodynamics)*
- **The Principle E=MC2** *(energy equals mass times the speed of light squared)*
- **The Principle of the Conservation of Matter**
- **The Entropy Principle** *(Second Law of Thermodynamics)*
- **The Principle of Evolution through natural selection**
- **The Principle of Ecology**
- **The Principle of Population**
- **The Vicious Circle Principle**

PAUSE AND PONDER

What environmental problems are you aware of? Give some examples.

- Pollution
- Global warming due to emission of greenhouse gases
- Overpopulation
- Natural resources depletion
- Waste disposal
- Food Waste
- Deforestation

Environmental component	What activities in your day-to-day life interact with these environmental components?
AIR	- *When I go somewhere I use motor vehicles.* - *Packaged spray products* (harmful air pollution particulates such as volatile organic compounds which are also known to cause certain long term health effects.) - *Burning of woods and dead leaves*
WATER	- *Throwing food as waste (when cleaning the dishes)* - *Excessive use of plastic (shopping, drinking using bottled water etc.)*
LAND	- *Drinking coffee* - *Waste Paper* *(supports an industry responsible for deforestation)*
BIOTA (PLANTS & ANIMALS)	- *Throwing oil somewhere like (creek)* - *Throwing ink and batteries out.*

LATEST DEVELOPMENTS. Match the following technological innovations to the environmental problems they address.

1. Air pollution and depletion of fossil fuels in transportation
2. Climate change
3. Energy wastage from appliances

a. smart home technology

b. "Direct Air Capture" (DAC) of CO2 from the atmosphere

c. coco bio-diesel

SELF-EVALUATION

- **What is environmental science? In your own words.**

  Environmental science really boils down to the study of the interactions, for better or worse (mostly worse), between earth systems and human systems. It differs from other fields of study in that the focus is less about one discipline in particular, and more about the connections between disciplines (i.e., interdisciplinary), and how we can use this understanding to solve environmental problems.

- **Explain each of the environmental principles in your own words.**

- **The Principle of Sustainable Development –** development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development recognizes the interdependence of environmental, social and economic systems and promotes equality and justice through people empowerment and a sense of global citizenship.
- **The Principle of the Conservation of Energy –** In its most general form, the principle of conservation of energy says that energy is "conserved"- that is, it can't be created or destroyed, so that the total amount of energy in any closed system doesn't changed. However, energy exists in many forms, and it can change from one form to another.
- **The Principle E=MC2 –** energy and mass (matter) are interchangeable; they are different forms of the same thing.
- **The Principle of the Conservation of Matter –** have the same number and kind of atoms after the chemical change as were present before the chemical change.

- **The Entropy Principle –** the concept of this principle basically talks about the spontaneous changes that occur in every phenomenon.
- **The Principle of Evolution through natural selection –** the change of characteristics of a species by means of natural selection. It is said that all species are related and gradually change over time.
- **The Principle of Ecology –** focuses the study of environment, the organisms and how the organisms interact with each other.
- **The Principle of Population –** is basically the law of supply and demand applied to the relationships between food production and population growth.
- **The Vicious Circle Principle –** chains of events where human involve that consist of a movement from situations, resources, consumptions and population.