



# THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

## *Department of Applied Geology*

### AGY 514 – Marine Geology

#### COURSE PARTICULARS

**Course Code:** AGY 514

**Course Title:** Marine Geology

**No. of Units:** 3

**Course Duration:** Two hours of theory and three hours of practical per week for 15 weeks.

**Status:** Compulsory

**Course Email Address:**

**Course Webpage:**

**Prerequisite:** AGY 301, AGY 304

#### COURSE INSTRUCTORS

**Dr. S. O. Olabode**

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#### COURSE DESCRIPTION

This course is an applied, final year course designed primarily for students in applied geology and other relevant disciplines. However, it also meets the need of students in other fields, as a course that provides introduction to world oceans, basic understanding in the physical, chemical and biological aspects of these oceans and various geological processes that is going on in the oceans. As a course that integrates theory and practical, the purpose is to expose the students to a better understanding of the world oceans and impart useful skills on the mineral resources of the ocean, how these minerals could be accessed and management of coastal environment. Topics to be covered include world ocean and physical, chemical and biological oceanography; physiography of world oceans; plate tectonics as it relates to oceans; ophiolite complexes; coastal processes, deep sea sediments; mineralisation in the oceans and methods of ocean floor sampling.

#### COURSE OBJECTIVES

The objectives of this course are to:

- introduce students to the basic and applied knowledge of the world oceans;
- intimate the students with basic mineral resources of the world oceans and how these minerals can be exploited; and
- management of coastal environments in terms of pollution and natural hazards.

## COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:

*(Knowledge based)*

- know the different types of the world oceans and their fundamental properties;
- classify and explain the physiographic provinces of the oceans;
- understand the physical and other geological processes going on in the world oceans;

*(Skills)*

- understanding of data acquisition methods in marine environments
- interpret the various types of data that have been acquired in marine environments
- use the data to manage the coastal environments.

## GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Assignments	20%
Test(s)	20%
<u>Final Examination</u>	<u>60%</u>
<b><u>TOTAL</u></b>	<b><u>100%</u></b>

## GENERAL INSTRUCTIONS

**Attendance:** It is expected that every student will be in class for lectures and also participate in all practical exercises. Attendance records will be kept and used to determine each person's qualification to sit for the final examination. In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with any of the instructors, indicating the reason for the absence.

**Academic Integrity:** Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited. You are not allowed to make copies of another person's work and submit it as your own; that is plagiarism. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines for handling students' misconduct as spelt out in the Students' Handbook.

**Assignments and Group Work:** Students are expected to submit assignments as scheduled. Failure to submit an assignment as at when due will earn you zero for that assignment. Only

under extenuating circumstances, for which a student has notified any of the instructors in advance, will late submission of assignments be permitted.

**Code of Conduct in Lecture Rooms and Laboratories:** Students should turn off their cell phones during lectures. Students are prohibited from engaging in other activities (such as texting, watching videos, *etc.*) during lectures. Food and drinks are not permitted in the laboratories.

## READING LIST

<sup>1</sup>Davis, R.A. (Jr.). (1982) *Oceanography an Introduction to the Marine Environment*. 402p.

<sup>1</sup>Pickard, G.L. and Emery, W.J., 1995. *Descriptive Physical Oceanography*. 340.

<sup>2</sup> Gary N., (2009). *Sedimentology and Stratigraphy* 2<sup>nd</sup> Edition. 432p.

**Legend**

1- Available in the University Library

2- Available as Personal Collection

## COURSE OUTLINE

Week	Topic	Remarks
1	Introduction and Course Overview	During this first class, the

		expectation of the students from the course will also be documented.
2	Chronology and development of modern day oceans.	Students will be taught how the present oceans of the world evolved in the geological record.
3 & 4	Elements of physical, chemical and biological oceanography.	Important properties of the ocean such as temperature, salinity, pressure, density, light, sound, major and minor elements, flora and fauna and biogeochemical cycle will be explained.
5 & 6	Major features and physiography of the world oceans. Including active and passive margins.	The lecture will involve detailed explanation of continental terrace and continental margin including deep ocean basins.
7 & 8	Development and formation of ocean physiography and concept of eustacy.	Students will be exposed to various geological features that are responsible for the formation of the physiographic features. Practical work will involve interpretation of existing data acquired in marine environment.
		<b>MID-SEMESTER TEST</b>
9 & 10	Shallow marine environments with emphasis on deltas, coastal and near shore marine processes.	Students will be taught on beach erosion, deposition and protection. Practical work will continue on interpretation of marine data.

11 & 12	Marine sediments and Applied Oceanography	Students will be exposed to sources, classification and distribution of marine sediments. In addition, the various mineral resources of the ocean will be discussed.
13	Data acquisition in marine environments	Students will learn the various skills and methods of data acquisition in marine environments. Practical sessions will include how these data can be interpreted.
14	Application of marine geology to Niger Delta.	Students will be taught the marine geology of Niger Delta from shallow to deep offshore areas and the gradual changes in the marine processes..
15	REVISION	This is the week preceding the final examination. At this time, evaluation will be done to assess how far the students' expectations for the course have been met.