



THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Applied Geology

AGY 415- Crustal Evolution and Metallogeny

COURSE PARTICULARS

Course Code: AGY 415
Course Title: Crustal Evolution and Metallogeny
No. of Units: 2
Course Duration: 1 Semester
Status: Elective
Course Email Address:
Course Webpage:
Prerequisite: AGY 304, 312

COURSE INSTRUCTORS

Staff
Dept. of Applied Geology ,
Federal University of Technology, Akure, Nigeria

COURSE DESCRIPTION

This course deals with the geological evolution of the Earth's crust, and its associated mineralization through geological time.

COURSE OBJECTIVES

The objectives of this course are to:

- acquaint students with the main elements of crustal evolution
- trace the metallogenic significance of the events

COURSE LEARNING OUTCOMES / COMPETENCIES

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

(Knowledge based)

- understand the main elements of crustal evolution
- understand their relationships to metallogeny

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

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

GENERAL INSTRUCTIONS

Attendance: Every student is expected to attend all lectures and practical classes. Records of attendance will be kept.

Academic Integrity: Academic integrity is expected to be maintained as any dishonesty will be sanctioned in accordance with the provisions in the Students' Handbook.

Assignments and Group Work: Assignments are to be submitted as scheduled. Failure to do so will earn the defaulter zero for that assignment.

Code of Conduct in Lecture Rooms and Laboratories: Cell phones should be switched off during lectures. Eating and drinking are also prohibited.

READING LIST

¹Condie, K.C. 1982. *Plate Tectonics and crustal evolution*. Pergamon Press, Oxford.

Hutchison, C.S.1983. *Economic Deposits and their Tectonic Settings*. MacMillan Press.

Keary, P. , Klepeis, K.A. and Vine, F.J. 2009. *Global Tectonics*. Wiley, Blackwell.

Mitchell, A.H.G. and Garson, M.S. 1981. *Mineral Deposits and Global Tectonic Settings*. Academic Press.

Sawkins, F.J. 1990. *Metal Deposits in relation to Plate Tectonics*. Springer Verlag

Tarling, D.H. (ed.)1981. *Economic Geology and Geotectonics*. Blackwell.

Legend

¹- Available in the Departmental Library

COURSE OUTLINE

Week	Topic	Remarks
1	Introduction and Course Outline The geological time-scale	Expectations of the course and its scope will be outlined.
2&3	Precambrian heat flow Archean geology- cratonic nuclei Horizontal and vertical tectonics Archean orogenies and orogenic belts Archean mineralization	The nature, geometry and distribution of these belts and deposits will be discussed.
4&5	General geology and petrology of the Proterozoic crust <ul style="list-style-type: none"> • Paleoproterozoic • Mesoproterozoic • Neoproterozoic 	Their characteristics and structural context will be treated.. The evidences for these and their impacts will be examined.
4&5	Proterozoic plate tectonics Proterozoic orogenies and orogenic belts	Their genesis and locations will be discussed.
6	Proterozoic metallogeny	The main features will examined.
MID-SEMESTER TEST		
7&8	Paleozoic paleogeography <ul style="list-style-type: none"> • Pre-Mesozoic reconstructions • Pangaea • Gondwanaland 	The main features of these will be studied.

9&10	Modern plate tectonics	The nature, geometry and mechanism of plate tectonics will be discussed.
11&12	Plate tectonics and mineral deposits	The distribution and association of mineral deposits with various plate settings will be examined.
13&14	Environmental impacts of crustal evolution	.
15	REVISION	This is the week before the final examination..