Ministry of Higher Education and Scientific Research

Republic of Iraq

University: University Of Basrah

College: SCIENCE

Department : GEOLOGY

Year : 2021-2022

Semester : First Ph. Students

SYLLABUS: <BASIN ANALYSIS>

INSTRUCTOR: **Dr. Muwafaq Fadhil Al- Shahwan**	***Phone:*** *PHONE NO.07801769816*
Hours: 2	***Office:*** **University of Basrah**
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COURSE OVERVIEW

The student must finish courses in Advanced Sequence Stratigraphy, Geotectonic, and Reservoir Geology, before inscription in this course.. Basin Analysis topics include as Essential elements of Basin Formation, Basin Fill Analysis, Geohistory Analysis, and Geothermal Analysis, Exploration Strategic of Petroleum system

Basin Analysis topics include:

- Essential elements of Basin Formation.
- Basin Fill Analysis.
- Geohistory Analysis.
- Geothermal Analysis.
- Exploration Strategic of Petroleum system

GOALS AND OBJECTIVES

The aim of this course is to give students more information about Basin Analysis in first semester. And explain the importance of understood the Basin in Exploration, Development and Production works. Basin Analysis is an essential course in geology department, the duration of it is 14-15 weeks.

TEXTBOOK AND READINGS

[1] Allen A. and Allen J. R., 2005, Basin Analysis : Principles and Applications, . Blackwell Publishing, Second Edition.pp 562.

[2]Alsharhan A. S.,and Nairn A. E. M., 2003. Sedementary Basin and Petroleum geology of the Middle East., ELSEVIER , 870 p.

[3] Veeken P. C. H., ,Seismic statigraphy, Basin Analysis and Reservoir Characterisation, HANDBOOK OF

GEOPHYSICAL EXPLORATION , SEISMIC EXPLORATION ,V. 37. Editors: Klaus Helbig and Sven Treitel, 523p.

COURSE ASSESSMENTS

The course grade (**100** points) will be based on the following elements:

	Points
Exams	**20**
Participation	**10**
Final exam for the semester	**70**
Assignments	**100**

COURSE DESCRIPTION AND ASSIGNMENT SCHEDULE

This NO. -credit hour course is 15 weeks long. You should invest NO. hours every week in this course.

WK	DATE	TOPIC	READING	ASSIGNMENT
1	1st week	Essential Definitions, Sedimentary basin. Tectonics and Sedimentation		
2	2nd week	The foundation of Sedimentary Basin. Scope and purpose of Basin Analysis topics. The Stratigraphy and Sedimentology of sedimentary basins		
3	3rd week	The mechanics of sedimentary Basin Formation, Development of Basin Classification stages, Basin Classifications		
4	4th week	Wilson Cycle, Tectonic Regimes,		
5	5th week	Tectonic Theory of Basin Analysis, Accommodation: Creating Space for sediment to fill, Examples of Rift to Drift Basin Accommodation		
6	6th week	First semester exam		Assignment 1
7	7th week	Depositional system and Sequence Stratigraphy,Modern revolution in Stratigraphy		
8	8th week	Formation Mechanism of Depositional Sequence, Controls on the Stratigraphic Record.Regressive Sequences		
9	9th week	Basin subsidence and fill models, Components of a basin model.Stratigraphic events.Dynamic events		
10	10th week	Burial History (Backstripping techniques), Subsidence History, Tectonic subsidence. Sedimentary (load) subsidence.Paleogeography evolution.		

11	11th week	Thermal History, Measurement techniques, Optical techniques, Chemical Assessments, Stratigraphic mathematic techniques		
12	12th week	Second semester exam		Assignment 2
13	13th week	PetroMod Software, Application of PetrMod Software. Example: selected well of southern Iraqi Field		
14	14th week	The sequence concept in basin exploration		
15	***Mid Exam***			