Republic of Iraq

The Ministry Of Higher Education

& Scientific Research

بسم الله الرحمن الرحيم

University: Diyala
College: Agriculture
Department: Animal Production
Stage: First
Lecturer name : Elaf Abdul wahab Shihab
Qualification: Msc
Place of work: Coll. Of Agriculture

Flow up of implementation celli pass play

Course Instructor	**Elaf Abdul wahab Shihab Ahmed**				
E-mail	**elafshihab@uodiyala.edu.iq**				
Title	**Analytical chemistry**				
Course Coordinator	**Spring course**				
Course Objective	**The module aims to teach students the basics of quantitative analytical chemistry (it includes lectures on volumetric analytical chemistry as well as teaching students about gravimetric analysis and instrumental analysis) in addition to the practical aspect that includes teaching students safety rules in the laboratory and explaining the tools and devices used in the laboratory. The curriculum also aims to teach students how to preparation of standard solutions and how to conduct experiments related to volumetric analysis**				
Course Description	**The module aims to teach students the basics of quantitative analytical chemistry (it includes lectures on volumetric analytical chemistry as well as teaching students about gravimetric analysis and instrumental analysis) in addition to the practical aspect that includes teaching students safety rules in the laboratory and explaining the tools and devices used in the laboratory. The curriculum also aims to teach students how to preparation of standard solutions and how to conduct experiments related to volumetric analysis , The curriculum items included introducing the science of analytical chemistry and its importance and studying (methods of expressing concentrations, neutralization reactions of acids and bases, Calculating the pH in solutions of acids, bases, salts and buffer solutions, complex formation analysis, precipitation analysis and explain Mohr, Volhard and Fajan method, oxidation and reduction analysis, gravimetric analysis , Instrumental analysis, learning about Beer-Lambert's law, and the spectrometer)**				
Textbook	**The book "Foundations of Analytical Chemistry" written by (Douglas A. Skoog and Donald M. West)**				
Course Assessments	**Term Tests**	**Laboratory**	**Quizzes**	**Project**	**Final Exam**
	20%	**15%**	**5%**	**%10**	**50%**
General Notes					

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week	Data	Topics Covered	Practical Part
1		Introduction to analytical chemistry, identifying its types (qualitative and quantitative) and explaining each one, and Methods of expressing concentrations (molarity, normality, molality, and mole fraction	Laboratory safety rules
2		Expressing the laws of v/v% , w/w% ,ppm and dilution laws with examples	Tools and equipment used in analytical chemistry laboratory
3		Neutralization reactions of acids and bases	Introduction to Quantitative Analytical Chemistry
4		Calculating the pH in solutions of acids, bases, salts and buffer solutions	Methods of expressing concentrations in volumetric analysis
5		First exam	Preparation of standard solutions
6		Derivation of the graph for the reaction of an acid and a base	Determination the concentration of a hydrochloric acid solution (HCl) by titrating it with a standard solution of sodium hydroxide (NaOH).
7		Precipitation Titration and explain Mohr, Volhard and Fajan method	Preparation of (0.1N) HCl solution and andardization of it with sodium carbonate Na_2CO_3
8		Titration of Complex formation	Determination Acidity of Vinegar
9		Titration of oxidation and reduction	Determination the ratio of carbonates and bicarbonates in a mixture of them.
10		Second exam	First exam
11		Measurement methods in gravimetric analysis	Preparation and standardization of (0.1N) of $AgNO_3$ solution by Mohr Method and Determination of chloridin soluble chloride
12		Instrumental analysis, learning about Beer-	Titration of oxidation and reduction

		Lambert's law, and the spectrometer, with questions.	**($KMnO_4$ with $Na_2C_2O_4$)**
13		**Third exam**	**Titration of oxidation and reduction (KIO_3 with $Na_2S_2O_3$)**
14		**nucleic acids-biological roles-nucleotides-function of nucleotide-structure-classification**	**Titration of Complex formation (EDTA with $CaCO_3$)**
15		**3rd exam**	**Second exam**

Instructor Signature :
Elaf Abdul wahab Shihab
15/1/2025

Dean Signature:
Prof. Dr.Raaed Ibrahim Khalil
15/1/2025