# COURSE SPECIFICATION ANLAYTICAL CHEMISTRY FIRST YEAR FIRST COURSE

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| HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW |

**COURSE SPECIFICATION**

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| This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification. |

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| 1. Teaching Institution | Al-Nahrain University |
| 2. University Department/Centre | Chemistry Department |
| 3. Course title/code | Qualitative analytical Chemistry |
| 4. Modes of Attendance offered | In university (attendant) direct classes |
| 5. Semester/Year | 2022-2023 |
| 6. Number of hours tuition (total) | 48 |
| 7. Date of production/revision of this specification | 2022 |
| 8. Aims of the Course |
| Introduction to Analytical Chemistry with a goal of teaching the reason for doing analytical  |
| chemistry and the basic steps of dealing with analytical issues present for a professional chemist |
| Later the curriculum develops to learning the main units in regard to analytical chemistry and the relations between  |
| them and the ability to exchange them |
| Also, the course develops to studying Stoichiometry and later studies gravimetrical methods  |
| And solubility |
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| 9· Learning Outcomes, Teaching ,Learning and Assessment Methode |

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| A- Cognitive goals. A1. Learning the correct methods to understand analytical issuesA2. introduction to main definitions for volumetric and gravimetric analysis A3. understanding the Mole unit and studying StoichiometryA4. Understanding main units in analytical chemistryA5.genral introduction to solubility and common ion effectA6 . |
| B. The skills goals special to the course. B1. Develop student abilities to adapt units and numbers and exchange themB2. Learn the ability to choose an analytical method for any analytical issueB3. Develop the ability to interact and balance chemical equations and do a stoichiometryB4. Develop basic abilities to interact with chemicals at an analytical lab and methods of detecting some elements |
| Teaching and Learning Methods |
| * In uni interactive lectures involving educational videos
* Practical in lab lectures
* Adapting interactivity with student’s interaction by rising a questions and asking the group to find the relevant answers to them as a main way of teaching.
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| Assessment methods |
| * Evaluation of individual daily participation from students
* Daily quizzes
* Monthly and midcourse exams
* Final exam
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| C. Affective and value goals C1. Develop the student abilities of reasoning and scientific approach C2. Develop students’ abilities to deal with professional matters C3. Increase students’ abilities in linking between academic an in practice issues C4. |

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| D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)D1. Develop the abilities to interact with chemicals and detecting elementsD2. Basic introduction to actual in market needs for chemists and analytical chemistD3. Leading students to discover external knowledge resources (ref and sites) for self-developmentD4. Explain to students the personal skills needed in professional market |

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| 10. Course Structure |
| Week | Hours | ILOs | Unit/Module or Topic Title | Teaching Method | Assessment Method |
| 1-2 | 4 | Learning basics of analytical chemistry and scientific steps of analysis  | Introduction to Analytical chemistry | In class (uni) lectures | Daily quizzes and mid exams |
| 3-5 | 6 | Learning molecular mass, Moles, Molarity, Molality, Normality, and other concentration units | Solution preparation and concentration | In class (uni) lectures | Daily quizzes and mid exams |
| 6-8 | 6 | Learning balancing chemical equation and stoichiometry | Stoichiometric Relationships | In class (uni) lectures | Daily quizzes and mid exams |
| 9-11 | 6 | Gravimetric analysis and solubility | Gravimetric methods of analysis | In class (uni) lectures | Daily quizzes and mid exams |
| 12 |  |  |  | In class (uni) lectures | Final exam |

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| 11. Infrastructure |
| 1. Books Required reading: | Fundamental of analytical chemistry, D.A. Skoog, D. M.West, F. J. Holler and S. R. Crouch, 8th ed., 2004, Brooks/Cole. |
| 2. Main references (sources) | Analytical chemistry, "Theoretical and Metrological Fundamentals", K. Danzer, 1st ed., 2006, Springer. |
| A- Recommended books and references (scientific journals, reports…). |  |
| B-Electronic references, Internet sites… | These are relative and usually recommended according to the actual need for extra material |
| 12. The development of the curriculum plan |
| The approach is to always lean towards the latest versions of the reference, in addition to, adapt more visual content to suit the current student approach to study using pc, mobile , tablet…etc.  |

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