**Course Description**

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| **Faculty** | **Pharmacy** |
| **Department**  | **Pharmaceutical Chemistry** | **Level** |  |
| **Course**  | **Practical Phytochemistry** | **Code** | **1703323** | **Prerequisite** | 1703322 |
| **Credit hours** |  | **Theoretical**  |  | **Practical** |  |
| **Coordinator** | Hayat Al-Btoush | **Email** |  |
| **Teachers** | Lidia Al-Halaseh | **Emails** |  |
| **Lecture Time** |  | **Place** |  | **Attendance mode** |  |
| **Semester**  |  | **Preparation date**  |  | **Modification Date** |  |

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|  **Abstracted Course Description**  |
| The main goals of this course is to study the practical aspects of the chemistry of natural products, mainly methods used for screening, isolation, identification and quantitative determination of the main active constituents present in plants as volatile oil, glycosides, alkaloids, bitter principles …etc by applying a new methods as PC, TLC, GLC, HPLC. etc. |
| **Course Goals** |
| * To familiarize students with practical aspects of natural product chemistry.
* To provide hands-on experience in screening, isolating, and identifying active constituents in plants.
* To introduce modern analytical techniques used in phytochemical analysis.
* To enhance skills in quantitative determination of natural product constituents.
* To understand the applications of phytochemistry in drug discovery and development.
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| **CILOs** |
| **Knowledge** |
| a1. Understand the principles of screening, isolation, and identification of natural product constituents.a2. Identify different classes of active constituents present in plants.a3. Comprehend the principles and applications of modern analytical techniques in phytochemistry. |
| **Skills** |
| b1. Perform screening, isolation, and identification of active constituents using laboratory techniques.b2. Apply chromatographic methods such as PC, TLC, GLC, and HPLC for phytochemical analysis.b3. Quantitatively determine the concentration of active constituents in plant extracts. |
| **Competencies** |
| c1. Demonstrate proficiency in using modern analytical techniques in phytochemistry.c2. Apply knowledge gained to contribute to the discovery of bioactive compounds.c3. Interpret and analyze phytochemical data to draw conclusions about plant constituents. |
| **Learning Methods** |
| * Practical laboratory sessions with hands-on experiments.
* Demonstration of modern analytical techniques.
* Lectures covering theoretical principles of phytochemistry.
* Group discussions on the applications of phytochemistry in drug discovery.
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| **Evaluation Tools** |
| Quizzes, Midterm exam, Final Exam |
| **Week** | **Topics** | **Learning methods** | **Evaluation tool** | **ILOs** | **Hours** |
| **1.** | Introduction | Lecture material and notes | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **2.** | Qualitative and Quantitative Determination of Ascorbic Acid | Homework and Projects, Presentation, … | Assignments, | **A2,a3,b1,b3,c2,c3** | **3** |
| **3.** | Determination of Fixed Oils (1) | Lecture material and notes  | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **4.** | Determination of Fixed Oils (2) | Homework and Assignments, Projects, Presentation, … | Exams | **A1,a2,b1,b2,c1** | **3** |
| **5.** | Identification of Volatile Oils ( T.L.C) | Lecture material and notes  | Exams | **A1,a2,b1,b2,c1** | **3** |
| **6.** | Midterm Exam | Lecture material and notes  | Exams | **A1,a2,b1,b2,c1** | **3** |
| **7.** | Identification of Alkaloids | Homework and Assignments, Projects, Presentation, … | Exams | **A1,a2,b1,b2,c1** | **3** |
| **8.** | Identification of anthraquinones | Lecture material and notes  | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **9.** | Extraction of Caffeine from Tea Leaves | Lecture material and notes  | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **10.** | Extraction of Trimyristin from Nutmeg | Lecture material and notes  | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **11.** | Extraction of Lycopene from Tomato Paste | Lecture material and notes | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **12.** |  |  |  |  |  |
| **13.** |  |  |  |  |  |
| **14.** |  |  |  |  |  |
| **15.** | Final Exam |  |
| **16.** |  |  |  |  |  |

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| **Plan of Course Evaluation** |
| **Evaluation Tools** | **Mark** | **ILOs** |
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| **First Exam (Mid-term)**  | **30%** | **A1,a2,b1,b2,c1** |  |  |  |  |  |
| **Second Exam (If available)** |  |  |  |  |  |  |  |
| **Final Exam** | **50%** | **A1,A2,a3,b1,b2,b3,,c1c2,c3** |  |  |  |  |  |
| **Activities** |  |  |
| **Activities Evaluation** | Homework/Tasks | 10% | B1.B2,B3C1 |  |  |  |  |  |
| Case Study  |  |  |  |  |  |  |  |
| Discussion and Interactions |  |  |  |  |  |  |  |
| Group Activities |  |  |  |  |  |  |  |
| Laboratory Exams |  |  |  |  |  |  |  |
| Presentations |  |  |  |  |  |  |  |
| Quizzes | 10% | B1.B2,B3C1 |  |  |  |  |  |
| Others |  |  |  |  |  |  |  |
| **Total** | 100% |  |  |  |  |  |  |

 **Components**  |
| **Book** |  |
| **References** |  |
| **Recommended Readings** |  |
| **Electronic materials** |  |
| **Other websites** |  |