**Course Description**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Faculty** | **Pharmacy** | | | | | | |
| **Department** | **Clinical Pharmacy** | | | **Level** | | |  |
| **Course** | **Pharmacogenomics** | **Code** | **1702440** | **Prerequisite** | | | 1702332 |
| **Credit hours** | 3 | **Theoretical** |  | **Practical** | | |  |
| **Coordinator** | Einas Al Manasrah | **Email** |  | | | | |
| **Teachers** | Abeer Kharshid | **Emails** |  | | | | |
| **Lecture Time** |  | **Place** |  | | **Attendance mode** |  | |
| **Semester** |  | **Preparation date** |  | | **Modification Date** |  | |

|  |
| --- |
| **Abstracted Course Description** |
| The Pharmacogenomics course equips students with the necessary knowledge to interpret a patient's genetic data effectively. It focuses on the integration of genetic information to tailor medication prescriptions and dosages according to an individual's unique genetic makeup. The course explores the intersection of genomics and pharmacology, offering insights into personalized medicine. |
| **Course Goals** |
| * To understand the principles and applications of pharmacogenomics. * To interpret genetic data for personalized medication decisions. * To apply genomic information in prescribing optimal drug dosages. * To explore the ethical considerations in pharmacogenomics |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CILOs** | | | | | |
| **Knowledge** | | | | | |
| a1. Comprehend the fundamentals of pharmacogenomics.  a2. Analyze and interpret genetic data relevant to drug response.  a3. Understand the role of genetic variations in drug metabolism. | | | | | |
| **Skills** | | | | | |
| b1. Apply pharmacogenomic principles to optimize drug therapy.  b2. Interpret and utilize genetic information in medication selection.  b3. Demonstrate proficiency in assessing genetic factors influencing drug response. | | | | | |
| **Competencies** | | | | | |
| c1. Apply pharmacogenomic knowledge to make informed medication decisions.  c2. Evaluate and adapt drug prescriptions based on individual genetic profiles.  c3. Address ethical considerations related to pharmacogenomic practices. | | | | | |
| **Learning Methods** | | | | | |
| * Lectures and discussions on pharmacogenomic principles. * Case studies involving the interpretation of genetic data | | | | | |
| **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.** | Genetic polymorphism in pharmacology | Homework and Projects, Presentation, … | Assignments, | **A2,a3,b1,b3,c2,c3** | **3** |
| **3.** | Undesirable effects and pharmacogenetics | Lecture material and notes | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **4.** | Genetic polymorphism of receptors | Homework and Assignments, Projects, Presentation, … | Exams | **A1,a2,b1,b2,c1** | **3** |
| **5.** | Drug metabolism and genetic diversity | Lecture material and notes | Exams | **A1,a2,b1,b2,c1** | **3** |
| **6.** | Selected diseases and examples of changed body response to drugs | Lecture material and notes | Exams | **A1,a2,b1,b2,c1** | **3** |
| **7.** | Practical use of pharmacogenetics in psychopharmacology | Homework and Assignments, Projects, Presentation, … | Exams | **A1,a2,b1,b2,c1** | **3** |
| **8.** | Midterm Exam | Lecture material and notes | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **9.** | Therapy development and potential cell therapy | Lecture material and notes | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **10.** | Gene therapy | Lecture material and notes | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **11.** | Modern cancer therapy | Lecture material and notes | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **12.** | Genetic tests in pharmacogenetics | Lecture material and notes | Exams | **A1,a2,b1,b2,c1** | **3** |
| **13.** | Ethical and economic issues | Presentation | Presentation, project, assignments | **A1,a2,b1,b2,c1** | **3** |
| **14.** |  | Final Exam | | |  |
| **15.** |  |
| **16.** |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Plan of Course Evaluation** | | | | | | | | | | **Evaluation Tools** | | **Mark** | **ILOs** | | | | | | |  |  |  |  |  |  | | **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** |  |