|  |  |
| --- | --- |
| **Course Title:** | **PHARMACOLOGY-3** |
| **Course Code:** | **444 PHCL-3** |
| **Program:** | **Pharmaceutical Sciences** |
| **Department:** | **Pharmacology** |
| **College:** | **Pharmacy** |
| **Institution:** | **Najran University** |

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# A. Course Identification

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1. Credit hours:** | | | | **3 (2+1)** | | | | | | | | | | | | |
| **2. Course type** | | | | | | | | | | | | | | | | |
| **a.** | University | |  | | College | | | **√** | Department | | | |  | Others |  |  |
| **b.** | | Required | | | | **√** | Elective | | |  |  | | | | | |
| **3. Level/year at which this course is offered:** | | | | | | | | | | | | **8th level/ Fourth year** | | | | |
| **4. Pre-requisites for this course** (if any)**:**  **Pharmacology-2 (443 PHCL-3)** | | | | | | | | | | | | | | | | |
| **5. Co-requisites for this course** (if any)**: None** | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |

## 6. Mode of Instruction (mark all that apply)

| **No** | **Mode of Instruction** | **Contact Hours** | **Percentage** |
| --- | --- | --- | --- |
| **1** | **Traditional classroom** | 60 | 100% |
| **2** | **Blended** | -- | -- |
| **3** | **E-learning** | -- | -- |
| **4** | **Correspondence** | -- | -- |
| **5** | **Other** | -- | -- |

**7. Actual Learning Hours** (based on academic semester)

|  |  |  |
| --- | --- | --- |
| **No** | **Activity** | **Learning Hours** |
| **Contact Hours** | | |
| **1** | **Lectures** | 30 |
| **2** | **Practical classes** | 30 |
| 3 | **Tutorial** | -- |
| **Other Learning Hours\*** | | |
| **1** | **Study** | 45 |
| **2** | **Assignment/presentation** | 10 |
| **4** | **Library** | 5 |
| **5** | **Others** (specify) | -- |
|  | **Total** | **120** |

**\*** The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

# B. Course Objectives and Learning Outcomes

|  |
| --- |
| 1. Course Description This course deals with describing and explaining the theoretical basis and pharmacological principles of chemotherapy including antibacterial, antitubercular, antifungal, antiviral, antiprotozoal and antineoplastic drugs. In addition, the course deals with studying the pharmacological basis of endocrine pharmacology including natural and synthetic hormonal analogues, hormonal physiological effects, hormonal antagonists, hormonal synthesis inhibitors, its therapeutic uses, and adverse effects. The practical part deals with training students on studying and solving of clinical cases and choice of the proper drug therapeutic protocol for topics related to chemotherapy and endocrine pharmacology. |
|  |
| 2. Course Main Objective |
| Students after the completion of this course will be:  • Aware by the pharmacological basis of antibacterial, antifungal, and antiviral chemotherapy.  • Acquainted with the pharmacological principals of antiprotozoal and antineoplastic chemotherapy.  • Conversant with the pharmacological principles of natural and synthetic hormone analogs and its physiological effects.  • Knowledgeable with the pharmacological basis of hormonal antagonists and hormonal synthesis inhibitors and its clinical uses in treatment of endocrine disorders |

## 

## 3. Course Learning Outcomes

| **CLOs** | | **Aligned****PLOs** |
| --- | --- | --- |
| 1 | **Knowledge:** |  |
| 1.1 | Students after completion this course will be able to:  Describe the pharmacological basis of antibacterial and antimycobacterial chemotherapy. | K4 |
| 1.2 | List the classification, mechanisms of action, uses, and adverse drug reactions, of antifungal, antiviral, antiprotozoal, and anticancer drugs. | K4 |
| 1.3 | Describe the pharmacological basis, of hypothalamic, anterior, and posterior pituitary, thyroid and adrenocortical hormones and its synthetic analogs, antagonists, and hormonal synthesis inhibitors. | K4 |
| 1.4 | Describe the classification, mechanism of action, therapeutic uses and adverse reactions of male and female sex hormones, hormonal contraceptives, Insulin, and oral antidiabetic drugs and its use in treatment of endocrine disorders. | K4 |
| **2** | **Skills:** |  |
| 2.1 | Select, on a clear pharmacological basis, the proper antimicrobial agent(s), its dose, dosage regimen depending on its therapeutic uses and adverse effects for treatment of urinary tract, upper and lower respiratory tract and gastrointestinal tract and skin infections. | S1 |
| 2.2 | Select, on a clear pharmacological basis the proper therapeutic protocol used for treatment of endocrine dysfunctions and hormonal contraceptives. | S1 |
| **3** | **Competence:** |  |
| 3.1 | Work independently, professionally, and communicate clearly by verbal and written means. | C2 |
| 3.2 | Professional use of IT and computer in preparing reports, assignments, and oral presentations and to be skilled in the use of electronic resources for self-directed learning. | C3 |

# C. Course Content

|  |  |  |
| --- | --- | --- |
| **No** | 1. **List of Theoretical Topics** | **Contact Hours** |
| 1 | Introduction to Chemotherapy | 1 |
| 2 | Sulfonamides | 1 |
| 3 | Fluoroquinolones | 1 |
| 4 | β -lactam antibiotics: Penicillins | 1 |
| 5 | β-lactam antibiotics: Cephalosporins | 1 |
| 6 | Aminoglycosides | 1 |
| 7 | Tetracyclines, Chloramphenicol | 1 |
| 8 | Macrolide antibiotics. | 1 |
| 9 | New antibiotics | 1 |
| 10 | Anti-tubercular drugs. | 1 |
| 11 | Antifungal agents | 2 |
| 12 | Antiparasitic agents | 1 |
| 13 | Anthelmintic agents | 1 |
| 14 | Antiviral agents: Drug treatment of viral infections | 2 |
| 15 | Cancer chemotherapy | 2 |
| 16 | Introduction to hormones | 1 |
| 17 | Hypothalamic & Pituitary hormones: Synthetic analogues and Antagonists | 2 |
| 18 | Thyroid hormones: Synthetic analogues and antagonists | 2 |
| 19 | Corticosteroid hormones: Synthetic analogues and antagonists | 2 |
| 20 | Treatment of Type-1 Diabetes mellitus: Insulin and its preparation | 1 |
| 21 | Treatment of Type-2 Diabetes. Oral antidiabetic drugs. | 1 |
| 22 | Male Sex Hormones, anabolic steroids & its antagonists | 1 |
| 23 | Female sex hormones & its antagonists | 1 |
| 24 | Hormonal contraceptives | 1 |
| **Total** | | 30 |

|  |  |  |
| --- | --- | --- |
| **No** | **List of Topics** | **Contact Hours** |
| 1 | Introduction to chemotherapy | 2 |
| 2 | Urinary tract infections (Clinical Cases) | 2 |
| 3 | Upper respiratory tract infections (Clinical Cases) | 2 |
| 4 | Lower respiratory tract infections (Clinical Cases) | 2 |
| 5 | Treatment of Tuberculosis (Clinical Cases) | 2 |
| 6 | Gastrointestinal infections (Clinical Cases) | 2 |
| 7 | Topical antimicrobial agents | 2 |
| 8 | Pituitary hormones (Clinical Cases) | 2 |
| 9 | Thyroid hormones & Thyrotoxicosis (Clinical cases) | 2 |
| 10 | Corticosteroids (Clinical case) | 2 |
| 11 | Practical of Diabetes mellitus (Type-I) (Clinical cases) | 2 |
| 12 | Diabetes mellitus (Type-II) (Clinical cases) | 2 |
| 13 | Male sex hormones & anabolic steroids | 2 |
| 14 | Female sex hormones | 2 |
| 15 | Contraceptive techniques | 2 |
| **Total** | | 30 |

# 

# D. Teaching and Assessment

## 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| **Code** | **Course Learning Outcomes** | **Teaching Strategies** | **Assessment Methods** |
| --- | --- | --- | --- |
| **1.0** | **Knowledge** | | |
| 1.1 | Students after completion this course will be able to:  Describe the pharmacological basis of antibacterial and antimycobacterial chemotherapy. | Lectures | Theoretical exams |
| 1.2 | List the classification, mechanisms of action, uses, and adverse drug reactions, of antifungal, antiviral, antiprotozoal and anticancer drugs. | Lectures | Theoretical exams |
| 1.3 | Describe the pharmacological basis, of hypothalamic, anterior and posterior pituitary, thyroid and adrenocortical hormones and its synthetic analogs, antagonists and hormonal synthesis inhibitors. | Lectures  Self-directed learning | Theoretical exams |
| 1.4 | Describe the classification, mechanism of action, therapeutic uses and adverse reactions of male and female sex hormones, hormonal contraceptives, Insulin and oral antidiabetic drugs its use in treatment of endocrine disorders. | Lectures  Self-directed learning | Theoretical exams |
| **2.0** | **Skills** | | |
| 2.1 | Select, on a clear pharmacological basis, the proper antibacterial agent, drug dose, dosage regimen used in treatment of urinary tract, respiratory tract and gastrointestinal tract and skin infections. | Practical classes. | Practical Exams |
| 2.2 | Select, on a clear pharmacological basis the proper therapeutic protocol used for treatment of endocrine dysfunctions and hormonal contraceptives. | Practical classes. | Practical Exams |
| **3.0** | **Competence** | | |
| 3.1 | Work independently, professionally, and communicate clearly by verbal and written means. | Practical classes | Observation card |
| 3.2 | Professional use of IT and computer in preparing reports, assignments, and oral presentations and to be skilled in the use of electronic resources for self-directed learning. | Lectures  Self-directed learning | Assignment/  Oral presentation |

## 

## 2. Assessment Tasks for Students

| **#** | **Assessment task\*** | **Week Due** | **Percentage of Total Assessment Score** |
| --- | --- | --- | --- |
| **1** | Midterm Exam-1 | 6th week | 15% |
| **2** | Midterm Exam-2 | 10th week | 15% |
| **3** | Practical Quizzes | Per semester | 5% |
| **4** | Student Activity/Assignment/Presentation | 12th Week | 5% |
| **5** | Observation card (Practical) | 2-12 Week | 5% |
| **6** | Final Practical Examination | 15th week | 15% |
| **7** | Final Theoretical Examination | 16-17th week | 40% |
| **8** | Total |  | 100% |

**\*Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

# E. Student Academic Counseling and Support

|  |
| --- |
| **Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:** |
| * Office hours (2 hours per week). * Office hours are announced on the staff office door and the course site on blackboard. * Students support via blackboard discussions, E-mail, and WhatsApp messages. |

# F. Learning Resources and Facilities

## 1.Learning Resources

|  |  |
| --- | --- |
| **Required Textbooks** | 1. B. Katzung. Basic & Clinical Pharmacology. 14th edition by B.G. Katzung. 2. Rang and Dale’s Pharmacology. 8th edition by J Ritter, R Flower, G Henderson, H Rang. |
| **Essential References Materials** | * 1. Goodman and Gilman’s: The pharmacological Basis of therapeutics. 13th edition by. Brunton, B. Knollmann, R. Hilal-Dandan.   2. PowerPoint slides of the lecture.   3. Practical log-book |
| **Electronic Materials** | 1. Pub Med 2. Medscape. 3. **www.dlaf.nu.edu.sa** |
| **Other Learning Materials** | 1. Microsoft word software. 2. Microsoft PowerPoint software. 3. Microsoft Excel software. |

## 2. Facilities Required

| **Item** | **Resources** |
| --- | --- |
| **Accommodation**  (Classrooms, laboratories, demonstration rooms/labs, etc.) | 1. Suitable lecture room equipped with data show and internet and sufficient number of seats. 2. Suitable laboratories equipped with health and safety tools, internet and sufficient number of seats. 3. Blackboard collaborative system for e-learning in NU. |
| **Technology Resources**  (AV, data show, Smart Board, software, etc.) | 1. Data show. 2. Computer software listed above. 3. Internet and WIFI access. |
| **Other Resources**  (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list) | 1. Different drug samples related to chemotherapy and endocrine pharmacology available in the dispensing lab. |

# G. Course Quality Evaluation

| **Evaluation**  **Areas/Issues** | **Evaluators** | **Evaluation Methods** |
| --- | --- | --- |
| Effectiveness of teaching strategies | Head of departments  and students | Direct  Questionnaires (indirect) |
| Effectiveness of student assessment | Department faculty members  and Department council | Direct  Direct |
| Achievement of CLOs | Students  Department faculty members | Indirect  Direct |
| Quality of learning resources | Students | Questionnaires (Indirect) |

# H. Specification Approval Data

|  |  |
| --- | --- |
| **Council / Committee** | **Pharmacology department Council** |
| **Reference No.** | **Council No.** 7, 1441-1442 H |
| **Date** | 24/04/1442 H |