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| **1** | **Course title** | Toxicology |
| **2** | **Course number** | **1203562** |
| **3** | **Credit hours** | 2 |
| **Contact hours (theory, practical)** | 2 |
| **4** | **Prerequisites/corequisites** | 1203364 (Pharmacology II) |
| **5** | **Program title** | Pharmacy/Pharm D |
| **6** | **Program code** | 1203562 |
| **7** | **Awarding institution** | The University of Jordan |
| **8** | **School** | Pharmacy |
| **9** | **Department** | Biopharmaceutics & Clinical Pharmacy |
| **10** | **Level of course** | Undergraduate |
| **11** | **Year of study and semester (s)** | First Semester/ 2021-2022 |
| **12** | **Final Qualification** | Pharmacy / Pharm D |
| **13** | **Other department (s) involved in teaching the course** | - |
| **14** | **Language of Instruction** | English |
| **15** | **Teaching methodology** | Blended Online |
| **16** | **Electronic platform(s)** | Moodle Microsoft Teams Skype Zoom  Others What sap & messenger |
| **17** | **Date of production/revision** | 8th .10.2021 |

**18 Course Coordinator:**

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| Name: Khawla Abu Hammour  Office number:  Phone number:  Email: k.hammour@ju.edu.jo |

**19 Other instructors:**

**20 Course Description:**

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| This 2-credit hour course covers many aspects of toxicology. Learners receive basic background information on important traditional areas in toxicology, as well as in areas that are currently developing. This background information will include principles, definitions, and basic information, and is designed to bring participants up to current levels of understanding of toxicology as it applies to both the human health and environmental areas. |

**21 Course aims and outcomes:**

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| A- Aims:  1. Have current cutting-edge knowledge in human health toxicology  2. Be familiar with the process used to interpret biotoxicological data (clinical presentations and the differential lab and physical examinations)  3. Have a working knowledge of techniques for risk assessment in human health  4. Know different sources of toxicants and their mechanism of toxicity.  B- Course Intended Learning Outcomes (ILOs):  Upon successful completion of this course students will be able to …  A. Knowledge and Understanding: Student is expected to:  A.1- Understand the basic principles of toxicokinetics and toxicodynamics  A.2- Provide students with general principles for the management of poisoned patients  A.3- Be familiar with the treatment algorithm (general and toxicants-specific)  A.4- Provide knowledge of the commonly encountered toxidromes  A.5- Have knowledge of different types of toxicants (environmental, household/industrial, medical, and drugs of abuse) and their mechanism of toxicity  A.6- Have knowledge of clinical presentations and the differential lab physical examinations  B. Intellectual Analytical and Cognitive Skills: Student is expected to:  -Through case discussion, to be able to identify toxin-related problems and recommend the appropriate pharmacological and non-pharmacological treatment methods  C. Subject-Specific Skills: Student is expected to:  C.1- Have a critical understanding of the principles underpinning the various classes and individualizing tests performed by the laboratory, for each type of physical evidence.  C.3- Provide knowledge of the most commonly encountered antidotes, their mechanisms of actions, routes of administration and any special precautions  D. Transferable Key Skills: Students is expected to:  D.1- Apply key scientific principles underpinning the toxicological sciences  D.2- Make appropriate therapeutic decisions for individual poisoned patients  C] Attitudes and behaviors necessary for personal and professional development  Exhibit behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers, and society (Professional)  7) Demonstrate integrity by not cheating and not committing plagiarism  8) Demonstrate respect to professors and classmates by observing active listening inside the classroom |

**22. Topic Outline and Schedule:**

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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Week** | **Lecture** | **Topic** | **Teaching Methods\*/platform** | **Evaluation Methods\*\*** | **References** | | 1 | 1.1 | **Introduction &** Definition and terminology | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 1.2 | Review of relevant toxicokinetic principles | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 1.3 | Review of relevant toxicodynamic principles | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 2 | 2.1 | Factors that influence toxicity | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 3 | 3.1 | Evaluation of the patient  Initial assessment  Certain toxicokinetics  Pathophysiologyical mechanisms of toxicants  Identification of patient and toxicant | Asynchronous lecturing/meeting; | Exams & assignments | As mentioned below | | 4 |  | Decontamination  Inhalation exposure  Ocular exposure | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 5 | 5.1 | Toxidromes | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Quiz | As mentioned below | | 5.2 | Lead | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 5.3 | Iron | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 6 | 6.1 | Nitrate | Aynchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 6.2 | CO | Aynchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 6.3 | Pesticides | Aynchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams & assignments | As mentioned below | | 7 | 7.1 | Cyanide | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 7.2 | NSAIDs | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 7.3 | Aspitrin | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 8 | 8.1 | Acetamenophen | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 8.2 | Nicotine | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 8.3 | Alcohol | Synchronous lecturing/meeting; Asynchronous lecturing/meeting | Exams | As mentioned below | | 9 | 9.1 | Opioid | Exams & assignments | Exams & assignments | As mentioned below | | 10 | 10.1 | CNS stimulants | Self-Study | Self -Study material  Quiz | As mentioned below | |

* Teaching methods include: Synchronous lecturing/meeting; Asynchronous lecturing/meeting
* Evaluation methods include: Homework, Quiz, Exam, assignments …etc.

**23 Evaluation Methods:**

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| Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Evaluation Activity** | **Mark** | **Topic(s)** | **Period (Week)** | **Platform** | | Toxidrome and CNS stimulants | 15 | 5.1 & 10.1 | Week  1/8 - 5/8 | Moodle- Microsoft teams | | Midterm | 30 | 1-5 | Midterm exams period |  | | **Assignment**  TBD | 5 |  | Week 8 | Moodle | | Final exam | 50 | 6-9.1 | Final exams |  | |

**24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform…etc):**

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| **students should have a computer, internet connection, webcam, account on a specific software/platform** |

**25 Course Policies:**

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| A- Attendance policies:  Attendance: Mandatory.  B- Absences from exams and handing in assignments on time:  Will result in zero achievement unless health report or other significant excuse is documented.  C- Health and safety procedures: NA  D- Honesty policy regarding cheating, plagiarism, misbehavior:  The participation, the commitment of cheating will lead to applying all following penalties together  1) Failing the subject he/she cheated at  2) Failing the other subjects taken in the same course  3) Not allowed to register for the next semester. The summer semester is not considered as a semester  E- Grading policy:  Quiz 15 points  Assignment 5 points  Midterm 30 points  Final Exam 50 points  Total 100 points  F- Available university services that support achievement in the course:  library, internet classes |

**26 References:**

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| A- Required book(s), assigned reading and audio-visuals:  1. Casarett & Doull’s: Essentials of Toxicology, latest Ed. 2015 by Curtis Klaassen and John Watkins III (ISBN: 978-0071622400)  2. Casarett & Doull’s: Essentials of Toxicology, 2nd Ed. 2010 by Curtis Klaassen and John Watkins III (ISBN: 978-0071622400)  3. Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed. 2013 by Curtis D. Klaassen (ISBN: 978-0071769235)  4. Poisoning and Drug Overdose, 6th Ed. 2012 by Kent R. Olson (ISBN: 978-0071668330)  5. Goldfrank's Toxicologic Emergencies, 10th Ed. 2014 by Robert S. Hoffman, Mary Ann Howland,  Neal A. Lewin, Lewis S. Nelson, and Lewis R. Goldfrank (ISBN: 978-0-07-180184-3)  6. Clinical toxicology : principles and mechanisms, 2nd Ed. 2010 by Barile, Frank A. (ISBN: 978-1420092257) |

**27 Additional information:**

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| **Course Material and Announcements:** Students need to use the e-learning page at the JU website in order to get all lecture handouts and guidelines which will be uploaded there.  In addition, course related announcements and exam results will be posted on the e-learning page and **it is the responsibility of each student to check the site regularly**.  Username and password to access the course on the e-learning page will be provided to students in the beginning of the semester. |

Name of Course Coordinator: ----Khawla Abu Hammour------Signature: --------- Date: -8th .7.2021

Head of Curriculum Committee/Department: ---------------------------- Signature: --------------------------

Head of Department: ------------------------------------------------------------ Signature: -----------------------

Head of Curriculum Committee/Faculty: ---------------------------------------- Signature: -------------------

Dean: ---------------------------------------------------------- Signature: -------------------------------------------