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| Course Plan for Bachelor Program - Study Plan Development and Updating Procedures/<br>Pharmacy Department | QF02/0408-4.0E |
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|----------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Study Plan No. | 2021/2022                                                                                                             | University Specialization                                                                                             | Bachelor of Pharmacy                                                                                       |
| Course No.     | 0201553                                                                                                               | Course Name                                                                                                           | Clinical Toxicology                                                                                        |
| Credit Hours   | 3                                                                                                                     | Prerequisite<br>*Co-requisite                                                                                         | Toxicology                                                                                                 |
| Course Type    | <input type="checkbox"/> Mandatory University Requirement<br><input type="checkbox"/> University Elective Requirement | <input type="checkbox"/> Faculty Mandatory Requirement<br><input type="checkbox"/> Support course family requirements | <input type="checkbox"/> Mandatory Requirement<br><input checked="" type="checkbox"/> Elective Requirement |
| Teaching Style | <input type="checkbox"/> Full Online Learning                                                                         | <input checked="" type="checkbox"/> Blended Learning                                                                  | <input type="checkbox"/> Traditional Learning                                                              |
| Teaching Model | <input type="checkbox"/> 1 Synchronous: 1 Asynchronous                                                                | <input checked="" type="checkbox"/> 1 Face to Face: 1 Asynchronous                                                    | <input type="checkbox"/> 2 Traditional                                                                     |

#### Faculty Member and Study Divisions Information (to be filled in each semester by the subject instructor)

| Faculty Member and Study Divisions Information (to be filled in each semester by the subject instructor) |                              |            |                      |                  |                                |
|----------------------------------------------------------------------------------------------------------|------------------------------|------------|----------------------|------------------|--------------------------------|
| Name                                                                                                     | Academic rank                | Office No. | Phone No.            | E-mail           |                                |
|                                                                                                          |                              |            |                      |                  |                                |
| Office Hours (Days/Time)                                                                                 | Sunday, Tuesday, Thursday () |            | Monday, Wednesday () |                  |                                |
| Division number                                                                                          | Time                         | Place      | Number of Students   | Teaching Style   | Approved Model                 |
|                                                                                                          |                              |            |                      | Blended Learning | 1 Face to Face: 1 Asynchronous |

#### Brief Description

This elective course is designed to help the students to acquire the required knowledge and skills in the clinical management of poisoning, including the assessment of poisoning potential, stabilization of vital functions, principles and techniques for decontamination and poison elimination, and antidotal therapy. This course covers the toxic effects and treatment approaches for selected drug classes, substances of dependence and abuse, food poisoning, and natural toxins (plants, snakes, arthropods).

#### Learning Resources

|                                                                                                  |                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course Book Information<br>(Title, author, date of issue, publisher ... etc)                     | 1. Goldfrank's Toxicologic Emergencies, 10th Edition /<br>Editors: Flomenbaum, Neal E.; Goldfrank, Lewis R.; Hoffman, Robert S.; Howland, Mary Ann; Lewin, Neal A.; Nelson, Lewis S. / 2015<br>McGraw-Hill                                                                             |
| Supportive Learning Resources<br>(Books, databases, periodicals, software, applications, others) | 1. Modern Medical Toxicology, 4th Edition / V V Pillay / published in 2013 by Jaypee Brothers Medical Publishers (P) Ltd<br>2. Color Atlas of Human Poisoning / James Diaz / Published in 2006 by CRC Press Taylor & Francis Group<br>3. Selected review articles from the literature. |
| Supporting Websites                                                                              | <a href="https://elearning.zuj.edu.jo/login/index.php">https://elearning.zuj.edu.jo/login/index.php</a>                                                                                                                                                                                |
| The Physical Environment for Teaching                                                            | <input checked="" type="checkbox"/> Classroom<br><input type="checkbox"/> Labs<br><input checked="" type="checkbox"/> Virtual Educational Platform<br><input type="checkbox"/> Others                                                                                                  |
| Necessary Equipment and Software                                                                 | - Microsoft Office.<br>- Moodle.                                                                                                                                                                                                                                                       |
| Supporting People with Special Needs                                                             |                                                                                                                                                                                                                                                                                        |

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| For Technical Support | E-Learning & Open Educational Resources Center.<br>Email: <a href="mailto:ellearning@zu.edu.jo">ellearning@zu.edu.jo</a> ; Phone: +962 6 429 1511 ext. 425/362. |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Course learning outcomes (K= Knowledge, S= Skills, C= Competencies)

| No.                                   | Course Learning Outcomes                                                                                                       | The Associated Program Learning Output Code |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| <b>Knowledge</b>                      |                                                                                                                                |                                             |
| <b>The student should be able to:</b> |                                                                                                                                |                                             |
| K1                                    | Recognize the pathophysiology and the clinical manifestations of toxins and toxicants covered in this course.                  | MK3                                         |
| K2                                    | Discuss the impact of toxicity in special populations (pregnancy, pediatric, and geriatric).                                   | MK3                                         |
| K3                                    | Recognize the assessment and therapy considerations associated with the management of a toxic exposure.                        | MK3                                         |
| K4                                    | Demonstrate the treatment guidelines for specific toxic substances.                                                            | MK3                                         |
| <b>Skills</b>                         |                                                                                                                                |                                             |
| <b>The student should be able to:</b> |                                                                                                                                |                                             |
| S1                                    | Interpret bio-toxicological data (signs & symptoms, diagnostic tests, lab analysis, principles in managing poisoned patients). | MS2                                         |
| S2                                    | Solve common medical problems related to clinical toxicology.                                                                  | MS2                                         |
| <b>Competencies</b>                   |                                                                                                                                |                                             |
| <b>The student should be able to:</b> |                                                                                                                                |                                             |
| C1                                    | Recommend appropriate treatment methods for toxin-related problems based on case analysis.                                     | MC1                                         |

### Mechanisms for Direct Evaluation of Learning Outcomes

| Type of Assessment / Learning Style    | Fully Electronic Learning | Blended Learning | Traditional Learning (Theory Learning) | Traditional Learning (Practical Learning) |
|----------------------------------------|---------------------------|------------------|----------------------------------------|-------------------------------------------|
| Midterm Exam                           | 30%                       | 30%              | 30%                                    | 0%                                        |
| Participation / Practical Applications | 0%                        | 0%               | 30%                                    | 60%                                       |
| Asynchronous Interactive Activities    | 30%                       | 30%              | 0%                                     | 0%                                        |
| Final Exam                             | 40%                       | 40%              | 40%                                    | 40%                                       |

**Note 1:** Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, and work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.

**Note 2:** According to the Regulations of granting Master's degree at Al-Zaytoonah University of Jordan, 40% of final evaluation goes for the final exam, and 60% for the semester work (examinations, reports, research or any scientific activity assigned to the student).

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### Schedule of Simultaneous / Face-to-Face Encounters and their Topics

| Week | Subject                                                                                                                        | Learning Style* | Reference **               |
|------|--------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------|
| 1    | <b>The General Approach to Clinical Toxicology:</b><br>-Initial evaluation of the patient:<br>-Vital signs and toxic syndromes | lecture         | 99- 105                    |
| 2    | -Principles of managing the acutely poisoned or overdosed patient -Techniques used to prevent GI absorption                    | lecture         | 106-117<br>202 - 240       |
| 3    | -Techniques applied to enhance elimination<br>-Withdrawal principles                                                           | lecture         | 269 -285                   |
| 4    | <b>Special Populations:</b><br>-Reproductive and perinatal principles,                                                         | lecture         | 768 - 828                  |
| 5    | Pediatric principles, and Geriatric principles<br><b>Drugs overdose:</b><br>- NSAID                                            | lecture         | 768 – 828<br>907 - 955     |
| 6    | - NSAID<br>- Opioids                                                                                                           | lecture         | 907 – 955                  |
| 7    | - Methylxanthines<br>- Sedative-hypnotics                                                                                      | lecture         | 1598 – 1614<br>1748 - 1770 |
| 8    | - Anticonvulsants<br>- Cardioactive steroids                                                                                   | lecture         | 1161 – 1285<br>1572-1576   |
| 9    | <b>Midterm Exam</b>                                                                                                            | -----           | -----                      |
| 10   | - Antihistamines and decongestants<br>- Antihistamines and decongestants                                                       |                 | 1186-1220                  |
| 11   | - Antidiabetics and Hypoglycemics                                                                                              | lecture         | 1282-1318                  |
| 12   | - Calcium channel blockers<br>- B-adrenergic antagonist                                                                        | lecture         | 1498-1538                  |
| 13   | - Anticoagulants                                                                                                               | lecture         | 1441-1495                  |
| 14   | -Thyroid and antithyroid medications                                                                                           | lecture         | 1355-1368                  |
| 15   | <b>Substances of abuse:</b><br>-Amphetamines<br>- Cannabinoids                                                                 | lecture         | 1794 - 1832                |
| 16   | <b>Final Exam</b>                                                                                                              | -----           | -----                      |

\* Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.

\*\* Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.

### Schedule of Asynchronous Interactive Activities (in the case of e-learning and blended learning)

| Week | Task / Activity                         | Reference | Expected Results |
|------|-----------------------------------------|-----------|------------------|
| 1    | ----                                    | ----      | ----             |
| 2    | -----                                   | -----     | -----            |
| 3    | Case in management of poisoned patients | 107 - 108 | Online case      |
| 4    | Drug overdose during pregnancy &        | 223 - 226 | Online quiz      |

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|    | elderly                                                                                                      |             |                   |
| 5  | General discussion<br>(Includes lectures for the 1 <sup>st</sup> , 2 <sup>nd</sup> , & 3 <sup>rd</sup> week) |             | Review            |
| 6  | -----                                                                                                        | -----       | -----             |
| 7  | methylxanthines                                                                                              | 1598 - 1614 | Online quiz       |
| 8  | Sedatives & hypnotics                                                                                        | 1748-1770   | Online quiz       |
| 9  | <b>Mid-term Exam</b>                                                                                         |             |                   |
| 10 | <b>Mid-term Exam</b>                                                                                         |             |                   |
| 11 | Cardioactive steroids                                                                                        | 1572-1576   | Online quiz       |
| 12 | Antihistamines                                                                                               | 1186-1220   | Online quiz       |
| 13 | Antidiabetics                                                                                                | 1282-1318   | Online quiz       |
| 14 | CASE STUDY /Propranolol overdose                                                                             | 1498-1538   | oral discussion   |
| 15 | CASE STUDY (to be announced at the time)                                                                     | -----       | -----             |
| 16 | <b>Final Exam</b>                                                                                            |             | <b>Final Exam</b> |