|  |  |  |
| --- | --- | --- |
| جامعة بنها | **Benha University****Faculty of Science****Department of Zoology** | E:\الجودة\templets\وحدة الجودة لوجو.jpg |

|  |
| --- |
| **Course Specification** **609 Z PhI: Toxicology** |
| **A- Affiliation** |
| **Relevant program:** | Physiology and immunology Msc. Program |
| **Department offering the program:** | Department of Zoology |
| **Department offering the course:** | Department of Zoology |
| **Date of specifications approval:** |  |
| ***B - Basic information*** |
| **Title:** Toxicology  | **Code:** 609 Z PhI |  |
| **Teaching Hours: 3 h/week** | **Lectures:** 3 | **Tutorial:** 0 |
|  | **Practical:**  0 | **Total:** 3 h/week |
| ***C - Professional information*** |
| **1 – Course Learning Objectives:** |
| The objective of this course is to enable the students to study main principles of toxicology, modes of toxic action and different sources of toxins. Understand the relationship between dose of toxins and response by animals. Study the effect of pollutants and toxins on some vital organs as endocrine system toxicity. |

|  |
| --- |
| **2 - Intended Learning Outcomes (ILOS)** |
| **a - Knowledge and understanding:** On successful completion of the course, the student should be able to: a1- Recognize the modes of toxic action. a2- List different classes and sources of pollution and toxin. a3- understand the different responses of animals to toxins.  a4- Recognize the different sources of toxins. |
| **b - Intellectual skills:**On successful completion of the course, the student should be able to. b1- Link the dose of toxins and response by animals. b2- Explain the routes of exposure to pollutants |
| **c - Practical and professional skills:** c1 - Describe different effects of pollutants on the environment. c2 – Describe endocrine system toxicity.  c3 – Examine vital organ to detect toxicity.  |
| **d - General skills:**On successful completion of the course, the student should be able to: d1- Use computers and internet for communication, data handling and word processing. d2 - Solve problems on scientific basis in practical.  d3 - Communicate and collaborate with others, work in a team effectively, manage time and involvement in group discussion and seminars. d4 - Modify sense of beauty and neatness.  d 5- Develop the skills effectively in research activities. |
| **3 - Contents** |
| **Topic** | **Lecture hours** | **Tutorial hours** | **Practical hours** |
| 1. General principles of toxicology.
 | 3 | - | - |
| 1. Some basic definitions and terminology.
 | 3 | - | - |
| 1. Modes of toxic action.
 | 3 | - | - |
| 1. Dose response relationships.
 | 3 | - | - |
| 1. Sources of toxic compounds.
 | 3 | - | - |
| 1. Classes and sources of toxicants.
 | 6 | - | - |
| 1. Environmental effects of pollutants.
 | 3 | - | - |
| 1. Examples of pollutants.
 | 3 | - | - |
| 1. Routes of exposure to pollutants.
 | 3 | - | - |
| 1. Hepatotoxicity.
 | 3 | - | - |
| 1. Nephrotoxicity.
 | 3 | - | - |
| 1. Endocrine system toxicity.
 | 6 | - | - |
| **Total hours** | **42** | - | **-** |

|  |
| --- |
| **4 - Teaching and Learning methods:** |

4-1. Visiting Libraries.

 4-2. Using Information Technology.

4-3. Researches.

 4-4. Internal seminars and discussions.

|  |
| --- |
| **5- Students’ Assessment Methods and Grading:** |

|  |  |
| --- | --- |
| **Method of Assessment** | **Percent**  |
| 1-  | Semester work & mid Term Exam | 10% |
| 4- | Final Oral Exam | 10% |
| 5-  | Final Term Examination | 80% |
|  | **Total** | 100% |

|  |
| --- |
| **6- List of references:** |
|

|  |
| --- |
| **6-1 Course notes** Non**6-2 Required books.**A Small Dose of Toxicology, 2nd Edition, steven G. G**6-3 Recommended books.**Toxic Exposures Contested Illnesses and the Environmental Health Movement, Phil Brown. Foreword by Lois GibbsClinical Environmental Health and Toxic Exposures, John Burke Sullivan, Gary R. Krieger**6-4 Periodicals, Web sites, etc.** <http://books.google.com.eg>. <http://cup.columbia.edu/book/toxic-exposures> |

|  |
| --- |
| **7- Facilities required for teaching and learning:** |
| * Chemicals and microscopes.
* Computer and data show.
 |

 |

|  |  |
| --- | --- |
| **Course coordinator: Prof. Dr. Magda El-Azaby** |  |
| **Head of the Department: Prof. Dr. Salwa Ebrahim Abd El-Hady** |  |
| **Date: 2015 / 2016** |  |