## COURSE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Master Degree</th>
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<tbody>
<tr>
<td>University: Benha.</td>
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<tr>
<td>Faculty: Veterinary Medicine.</td>
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<tr>
<td>Course Title: Biochemistry of Proteins, Immunity and radiations</td>
</tr>
<tr>
<td>Code: 31.</td>
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<tr>
<td>Department offering the course: Biochemistry Department.</td>
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<tr>
<td>Program(s) on which the course is given: Master degree in veterinary science (Biochemistry).</td>
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<tr>
<td>Academic Year / level: 2011-2012.</td>
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<td>Date of specification approval: 10 / 1 / 2012.</td>
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### A- Basic Information

<table>
<thead>
<tr>
<th>Lecture:</th>
<th>Practical:</th>
<th>Total:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>4h /w</td>
</tr>
</tbody>
</table>

### B- Professional Information

1- **Overall Aims of the Course:** The postgraduate student:
   1- prepare qualified graduate in the field of protein technique.
   2- provide a student the opportunity to have deep skills and attitude in protein separation using recent technique with diagnostic tools.
   3- guide the graduate to be able to understand the self development and continues learning
   4- gain information from different sources.

2- **Intended Learning Outcomes of the Course:** ( ILOs )

#### A- knowledge and Understanding

After the completion of these courses the student should be able to:

- a.1. Understand the basic knowledge about Proteins classifications.
- a.2. list the basic knowledge about amino acids classifications.
- a.3. Illustrate the basic knowledge about their chemical composition of protein.
a.4. Describe the basic knowledge about their chemical composition of amino acids.
a.5. Summarize the importance of protein which is the main source of cell building.
a.7. Recognize the normal pathway of protein and amino acids metabolism.
a.8. Recognize the abnormal pathway of protein and amino acids metabolism.
a.9. Translate the genetic code as main way of protein biosynthesis.
a.10. Mention the end product of protein and amino acid metabolism.

**B-Intellectual skills:**
After the completion of these courses the student should be able to:

b.1. Design a research proposal in the field of proteins.
b.2. Assess a new articles research papers in Proteins
b.3. Assess a new articles research papers in Immunity
b.4. Assess a new articles research papers in Radiations
b.5. Criticize and Assess their own research data regarding the research area.
b.6. Comment accurately up on the obtained results in the laboratory.
b.7. Determine area where further research is necessary to be done.
b.8. Analyze different types of amino acids by electrophoreses.
b.9. Determination of immunoglobulin in different diseases.

**C-Professional and practical skills:**
After the completion of these courses the student should be able to:
c.1. Perform a new method for determination of amino acids abnormalities.
c.2. Write Correctively the report of the Biochemical reactions that have been tested.
c.3. Do relevant statistical analysis on data obtained from own research which support his Biochemical skills.
c.4. Conduct research project using appropriate range of Experimental techniques.
c.5. Explain their results of research.

**D-General and transferable skills:**
After the completion of these courses the student should be able to:
D.1. successful member chemist.
D.2. Illustrate a scientific study in the Biochemistry laboratories.
D.3. Set the basis of the scientific chemists' terms.
D.4. Have problem solving skills.
D.5. Communication skills.
D.6. Information technology skills.
D.7. Continuous self learning (life long learning).
D.8. Focus in his role in community development.

**E- Attitude:**
After the students fishing this courses they should be able to:
E.1. have Scientific Integrity.
E.2. Know the rules and ethics of Scientific research

3 – CONTENTS:

<table>
<thead>
<tr>
<th>Topic</th>
<th>No. of hours</th>
<th>Lecture</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification, chemistry and classification of amino acids</td>
<td>36</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Chemistry of Proteins and nucleoprotein</td>
<td>40</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Immunoglobulin</td>
<td>16</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Normal and abnormal amino acids metabolism</td>
<td>48</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Protein and nucleoproteins biosynthesis</td>
<td>40</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>176</strong></td>
<td><strong>88</strong></td>
<td><strong>88</strong></td>
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</tbody>
</table>

4- **Teaching and learning methods:**

  4.1. Lectures.
  4.2. Practical demonstration of chemical reactions.
  4.3. Visiting the Central Laboratory.
  4.4. Reports.

5- **Student assessment methods:**

  5.1. Research work | To assess student ability for discussion of his attendants.
  5.2. Oral Examination | To assess student ability to demonstrate
his knowledge

5.3. Practical Exam
To assess Practical skills.

5.4. written Exam
To assess different skills.

### Weighing of assessments:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Mid-year exam</td>
<td>10 %</td>
</tr>
<tr>
<td>Oral examination</td>
<td>10 %</td>
</tr>
<tr>
<td>Practical examination</td>
<td>15 %</td>
</tr>
<tr>
<td>Research work</td>
<td>15 %</td>
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<tr>
<td>Final examination</td>
<td>50 %</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100 %</strong></td>
</tr>
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</table>

6- List of References:


6.2. Essential books (Text books):


6.3. Recommended books:


6.4. Periodicals, Web sites, etc:

- Journal of Biochemistry.
- American Journal of Veterinary research.
- http://www.labtestsonline.org
- http://www.indstate.edu/thcme/mwking/enzyme-kinetics.html
- http://www-biol.paisley.ac.uk/kinetics/contents.html

### 7- Facilities Required for Teaching and Learning:

7.1. Data show and computer.
7.2. Biochemistry Laboratory.
7.3. Laboratory animals.
7.4. Library.

### Course Coordinators (Teaching Committee):

1. Prof. Dr/ Sami Ali Hussein Aziza
2. Prof. Dr/ Omayma Ahmed Ragab
3. Assistant Prof/ Afaf Desoky Abd El-Magid

### Head of Biochemistry Department:

Prof. Dr / Yakout abdel -Fattah

**Date:** 10 / 1 / 2012.

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**Matrix of the course no: 31(biochemistry of proteins, immunity and radiations)**

<table>
<thead>
<tr>
<th>Course title</th>
<th>No of hours teaching</th>
<th>Program ILOs covered by No</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Lecture</td>
<td>Practical Lab</td>
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<tr>
<td>Classification , chemistry and properties of amino acids</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Chemistry of Proteins and nucleoprotein</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Category</td>
<td>Amino Acid Metabolism</td>
<td>8</td>
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<td>---------------------------------------------------</td>
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<tr>
<td>Immunoglobulin</td>
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<td>a.9, a.10</td>
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