Course Specification

Programme on which the course is given: M.Sc. Zoology (Genetic engineering and molecular biology).

Major or Minor Element of Programme:

Department offering the progarmme: Zoology

Department offering the course: Zoology.

Academic Year/Level: 2012

Date of Specification approval:2012

A- Basic Information

Title: *Genetic Diseases* Code: *Z669*

Credit Hours: 2 Lecture: 2

Tutorial: 2 Practical: - Total: 2

B- Professional Information

1- Overall aims of the course: By the end of this course, the student will be able to:

Demonstrate knowledge of basic concepts of genetic diseases resulting , human cloning, and different types of cloning.

2- Intended Learning Outcomes (ILOs):

a- Knowledge and Understanding:

a1- Describe the transgenic animals.

a2- Understanding the cloning.

a3- Define different types of cloning.

a4- State how transgenic animals are produced.

a7- Summarize different methods for DNA insertion into cells.

a8- Explain the cloning strategies.

b- Intellectual Skills:

b1- Conclude the mechanisms of obtaining transgenic animals.

b2- Application of transgenic animal on obtaining of vital substances.

b3- To evaluate the advantages and disadvantages of cloning.

b4- Application of cloning in gene therapy.

c- Professional Skills:

c1- Identify different genetic diseases.

c2- Use methods for genetic diagnosis for finding out causes of different genome-related disorders.

c3- Use appropriate equipment for RNA and DNA isolation for diagnosing the genetic disorders.

d- General and Transferable Skills:

d1- Write reports for genetic diseases and syndromes.

d2- Computer-based mining of databases for genetic disorders.

d3- PowerPoint- based presentations for reports in seminars or group meetings.

d4- Work coherently and successfully as a part of team in projects and assignments.

d5- Study and find information independently, and finding realistic solutions through right analysis and anticipation.

3- Contents:

Topic	No. of hours	Tutorial/ Practical	Lecture
Introduction to cytogenetics	2	-	2
Introduction to cytogenetics	2	-	2
Introduction to molecular biology	2	-	2
Introduction to molecular biology	2	-	2
Introduction to chromosomal disorders	2	-	2
Introduction to chromosomal disorders	2	-	2
Genetic diseases related to chromosomal disorders	2	-	2
Genetic diseases related to chromosomal disorders	2	-	2
Detection of genetic diseases	2	-	2
Detection of genetic diseases	2	-	2
Human single gene diseases	2	-	2
Human single gene diseases	2	-	2
Detection of multiplte-gene-interaction-caused diseases	2	-	2

4- Teaching and Learning Methods

4.1- Lectures
4.2- Oral presentations.
4.3- Research assignment.
4.4- Exams.

5- Student Assessment Methods

5.1- Reports to assess collection of course material.
5.2- Mid-term exam to assess mid-term performance.
5.3- Final exam to assess final term performance.

Assessment Schedule

Assessment 1: Reports	a report/ three weeks.
Assessment 2: Report defense	a presentation/ three weeks.
Assessment 3: Mid-Term	week 8 (Mid-Term week)
Assessment 4: Final term exam	week 15 -16 (final-Term week)

Weighing of Assessments

Mid-term examination:	20 %.
Final-term examination	60 %.
Oral examination	00%
Practical examination	00%
Semester work	20%
Other types of assessment	00%
Total	100%

6- List of references

6.1. Essential Books

- Immunogenetics of Autoimmune Disease. By: Jorge R. Oksenberg, David Brassat, 2006.
- Immunological Diseases of Liver and Gut, By: M. Lukáš, 2004.
- Autoimmune diseases in endocrinology. By: Anthony P. Weetma, 2008.

6.2. Recommended Books:

- Comprehensive immunogenetics. By: W. H. Hildemann, E. A. Clark, R. L. Raison, 1981.
- The Immunogenetics of Autoimmune Diseases. By: Nadir R. Farid, 1990.

- Gene therapy: the use of DNA as a drug. By: Gavin Brooks, 2002.

6.3. Periodicals, Websites, ….etc

- Google books: http://books.google.com/bkshp?hl=en&tab=wp
- http://www.sciencedirect.com/
- http://www.ncbi.nlm.nih.gov/pubmed/
- The Immunogenetics database: http://www.ebi.ac.uk/imgt/

7- Facilities Required for Teaching and Learning:

- Dark class room equipped with Data show device.
- Molecular biology lab equipped with: PCR cycler, electrophoresis units, trans-illuminator, incubator and water path-shaker.

Course coordinator: Prof. Sobhy Hassab El-naby

Head of Department. Prof. Saber Sakr