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: *Cloning technology* Code: *Z668*

Credit Hours: 2 Lecture: 2

Tutorial: 2 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 transgenic animals, 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.

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 and Practical Skills:

c1- Write reports for gene cloning success.

c2- Computer-based mining of databases and references about gene cloning.

c3- PowerPoint- based presentations for reports in seminars or group meetings.

c4- Work coherently and successfully as a part of team in projects and assignments.

c5- Study and find information independently, and finding realistic solutions through right analysis and anticipation.

d- General and Transferable Skills:

d1- Computer-based mining of databases and references about different techniques of gene manipulation.

d2- PowerPoint- based presentations for reports in seminars or group meetings.

d3- Work coherently and successfully as a part of team in projects and assignments.

d4- Study and find information independently, and finding realistic solutions through right analysis and anticipation.

3- Contents:

Topic	No. of hours	Tutorial/ Practical	Lecture
Genetic modifications	4	2	2
Genetic modifications	4	2	2
Types of cloning	4	2	2
Types of cloning	4	2	2
Types of cloning	4	2	2
Animal transgenesis: Introduction	4	2	2
Animal transgenesis	4	2	2
Animal transgenesis	4	2	2
Animal transgenesis	4	2	2
Animal transgenesis	4	2	2
Human cloning	4	2	2
Human cloning	4	2	2
Human cloning	4	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	40 %.
Oral examination	00%
Practical examination	20%
Semester work	20%
Other types of assessment 00%	
Total	100%

6- List of references

6.1. Essential Books

- Cloning. By: Aaron D. Levine, 2009.
- Cloning: Dolly the Sheep. By: Teresa Wimmer, 2008.
- Cloning: responsible science or technomadness. By: Michael Ruse, Aryne Sheppard, 2001.

6.2. Recommended Books:

- Cloning: For and Against. By: M. L. Rantala, Arthur J. Milgram, 1999.
- Cloning: science and society. By: Gary E. McCuen, 1998.
- Cloning: A Biologist Reports. By: Robert Gilmore McKinnell, 1985.

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/
- Nucleotide database: http://www.ncbi.nlm.nih.gov/nuccore
- Protein database:

http://www.ncbi.nlm.nih.gov/protein
- Sanger Institute genome database:
www.sanger.ac.uk

7- Facilities Required for Teaching and Learning:

- Dark class room equipped with Data show device and a high-speed internet connection.
- 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