Course Specification

Programme on which the course is given: M.Sc. Zoology (Comparative anatomy).

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: *Tissue Culture* Code: *Z6610*

Credit Hours: 3 Lecture: 2

Tutorial: 2 Practical: 2 Total: 3

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 concept of culture medium, blood and solid tissue culture, and to apply this knowledge efficiently in production of antibodies, cytokimes from stem cell.

2- Intended Learning Outcomes (ILOs):

a- Knowledge and Understanding:

a1- summarize different culture medium.

a2. Know the contents of culture medium.

a3. Describe human hypreidomas.

a4. Explain the production of antibodies and cytokims by tissue culture.

b- Intellectual Skills:

b1- Analysis the differences between different culture medium.

b2. Conclude different methods for tissue culture.

b3. Modify production of antibodies cytokims by cell culture.

b4. Apply tissue culture in evaluation of hazardous of environmental pollutants.

b5. Apply cell culture and tissue culture preparation of chromosome for prenatal and postnatal diagnosis.

c- Professional and Practical Skills:

c1- Use appropriate lab equipment and tools for tissue culture.

c2- Design and perform experiments in the lab and field within proper technical, scientific and ethical frameworks for obtaining tissues for *in vitro* cultures.

c3- Collect, preserve, store and handle samples and specimens obtained from *in vitro* cultures.

d- General and Transferable Skills:

d1- Write reports tissue culture success.

d2- Computer-based mining of databases and references about tissue culture success.

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 tissue culture	2	-	2
Tissue culture media	4	2	2
Blood cell cultures	4	2	2
Solid tissue cultures	4	2	2
Hybridoma and human Hybridomas	4	2	2
Invertebrate cell culture	4	2	2
Stem cells	4	2	2
Production of antibodies from cultured cells	4	2	2
Production of cytokines from cultured cells	4	2	2

Production of hormones from cultured cells	4	2	2
Production of enzymes from cultured cells	4	2	2
Production of drugs from cultured cells	2	-	2
Applications of tissue cultures in medicine and diagnosis	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

- Tissue Culture: Studies in Experimental Morphology and General Physiology of Tissue Cells in Vitro. By: Albert Fischer, 2011.
- Culture Of Cells For Tissue Engineering. By: Gordana Vunjak-Novakovic, R. Ian Freshney, 2006.

- Invertebrate tissue culture methods. By: Jun Mitsuhashi, 2002.

6.2. Recommended Books:

- Tissue culture techniques: an introduction. By: Bernice Michaelene Martin, 1994.
- Tissue culture: methods and applications. By: Paul F. Kruse, Manford Kenneth Patterson, 1973.

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.
- 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