# Course Specification

University: Menoufiya Faculty: Science

Course Specifications:

Programme (s) on which the Course is given: MSC.cytology,Histology & histochemistry

Major or Minor Element of Programmes: Major.

Department offering the Program: Zoology.

Department offering the Course: Zoology.

Qualifying course for M.SC. Students

Date of Specification Approval: 2013

## A- Basic Information

Title: Embryo Culture Code: Z6416

Credit Hours: 2 Lecture: 1

Tutorial: 0 Practical: 2

Total: 3

## B- Professional Information

**1- Overall Aims of the Course:** By the end of this course, the student should be able to:

* Recognize the different instruments and other requirements of embryo culture lab.

* Stand upon the superiority of the holy creator.

* Exploring different techniques used for embryo culture.

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

**a Knowledge and Understanding:**

**Student should acquire knowledge and understanding of:**

a1- The differences between Embryology and Embryo culture.

a2- The related basic scientific principles and techniques.

a3- The differences related to the culture of vertebrate embryos.

a4- The related terminology, nomenclature and classification systems.

**b- Intellectual Skills:**

**Student should be able to**

b1- Deduce the superiority of the holy creator.

b2- Differentiate between subject-related theories and assess their concepts and principles.

b3- Analyze, assess and interpret qualitatively and quantitatively science relevant data.

b4- Identify the main aspects upon which vertebrate embryo culturing stands.

b5- Construct several related integrated information to confirm, make evidence and test hypotheses.

b6- Think about mechanisms of embryonic development.

**c- Professional and Practical Skills:**

**Student should be able to:**

c1- Distinguish between different embryological courses.

c2- Plan and report on the investigated data, using appropriate techniques and considering scientific guidance.

c3- Write notes on embryo culturing.

c4- Apply techniques and tools considering scientific ethics.

c5- Make clear labeled drawings for different developmental stages.

**d- General and transferable Skills:**

**Student should be able to:**

d1- Monitoring different stages of embryo culturing .

d2- Use effectively information and communication technology.

d3- Development of scientific writing skills.

d4- Acquire self- and long life–learning.

d5- Think independently, set tasks and solve problems on scientific basis.

d6- Work in group effectively; manage time, collaborate and communicate with others positively.

d7- Consider community linked ethics.

**3- Contents**

| **Topic** | **No. of Hours** | **Lecture** | **Tutorial / Practical** |
|---|---|---|---|
| Instruments, Aseptic techniques, Oxygen and | 6 | 2 | 2 |

| | | | |
|---|---|---|---|
| carbon dioxide and life food. | | | |
| Culturing of amphibian larvae, induced ovulation. | 6 | 2 | 2 |
| Basic techniques for experimentation with amphibian embryos (Saline-removal of egg membranes-narcosis-vital staining and grafting operation) | 6 | 2 | 2 |
| Incubation of avian eggs, development in the opened egg-candling and making windows. | 6 | 2 | 2 |
| Avian embryos explantation | 6 | 2 | 2 |
| Culturing of mammalian eggs | | | |

| | | | |
|---|---|---|---|
| and blastocysts- Removal of the mammalian zona pellucida | 6 | 2 | 2 |
| Normal tables of early embryonic development in vertebrates | 6 | 2 | 2 |

**4- Teaching and Learning methods**

4.1- Lectures

4.2- Practical sessions.

4.3- Writing essays.

4.4- Oral presentation.

**5- Student assessment methods**

1- Essays to assess ability of writing

2- Oral exam to assess the degree of understanding

3- Mid-term to assess the degree of following up

4- Final exam to assess the whole performance.

**Assessment schedule**

Assessment 1 Essay 1essay/term

Assessment 2 Oral exam Twice/ term

Assessment 3 midterm Week 7 Midterm

Assessment 4 final exam Week 15 final exam

**Weighting of assessments**

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| | |
|---|---|
| Mid-term examination | 20% |
| Final-term examination | 40% |
| Oral examination | 10% |
| Practical examination | 20% |
| Semester work | 10% |
| Other type of assessment | 00% |
| Total | 100% |

## 5- List of references

5.1- Recent books in Embryo culture.

5.2- Scientific papers related to the subject of Embryo culture.

5.3- Related web sites.

## 6- Facilities required for teaching and learning

* Lecture room provided with a white board.
* Dark room provided with a projector or data show.
* Student laboratory provided with oven, hot plate, incubator, microtome, and other laboratory facilities related to the subject of Embryo culture..

**Course coordinator:** Dr. Gamal M Badawy

**Head of Department:** Prof. Dr. Saber Sakr