Course specification

University/Academy: Damanhour
Faculty/Institute: Science
Department: Zoology

1. course Data:

<table>
<thead>
<tr>
<th>Course code:</th>
<th>Course title:</th>
<th>Academic year:</th>
<th>level:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zool 322</td>
<td>evolution and invertebrate embryology</td>
<td>2009/2010</td>
<td>(second term) / 3rd year</td>
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</tbody>
</table>

Specialization: Zoology and chemistry

<table>
<thead>
<tr>
<th>No. of instructional units:</th>
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<tbody>
<tr>
<td>lecture 2</td>
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</table>

2. course Aim

- The main purpose of this course is teaching students information about asexual and sexual reproduction, morphology of gametes, mechanism of development in sponges, coelenterates, platyhelminthes, annelida and crustacean with an introduction to the evolution and history of biological sciences.

3. Intended learning outcome

a) Knowledge and understanding

A 1: Identify the preformation theory and the theory of epigensis in relation to current concept of development.
A 2: Illustrate the sexual and asexual reproduction.
A 3: List the type of sperm and ova.

b) Intellectual skills

By the end of the course, students will be able to:

B1: Compare between the larval stages of the major invertebrate phyla.
B2: Discuss the development in sponges, coelenterates, platyhelminthes, annelida and
| c) Professional skills | By the end of the course, students will be able to:  
C1: Use the light microscope to identify the larval stages of the samples  
C: examine and Draw the larval stages and the different type of sperm and ova. |
|--------------------------|--------------------------------------------------------------------------------------------------|
| d) General skills       | By the end of the course, students will be able to:  
D1: write reports with the standard scientific guidelines.  
D2: Go through the internet and other electronic sources as a source of information  
D3: Exchange ideas, principles and information by oral, written and visual means. |
| 4. course content       | • Introduction in the history of biological sciences.  
• Types of Reproduction  
• Reproduction in protozoa  
Gametogenesis: 1-types of sperm  
• 2-types of ova  
• Reproduction in sponges  
• Reproduction in cnidaria  
• Reproductionin platyhelminthes  
• Reproduction in annelid  
• Reproduction in crustacean |
| 5. Teaching and learning methods | 1. Lectures.  
2. practical work. |
| 6. teaching and learning methods for students with special needs | ---------- |
| 7. Student Assessment    | |
# a) Procedures used:

1. Mid term exam.
2. Final Practical exam.
3. Final written exam.

# b) Schedule:

- Assessment 1: Mid term exam week: 8
- Assessment 2: Practical exam week: 15
- Assessment 3: Final written exam at the end of the term

# c) Weighing of Assessment:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Weight</th>
</tr>
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<tbody>
<tr>
<td>Mid-Term Examination</td>
<td>10</td>
</tr>
<tr>
<td>Final-Term Examination</td>
<td>100</td>
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<tr>
<td>Oral Examination</td>
<td>100</td>
</tr>
<tr>
<td>Practical Examination</td>
<td>30</td>
</tr>
<tr>
<td>Semester Work</td>
<td>10</td>
</tr>
<tr>
<td>Other types of assessment</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
</tr>
</tbody>
</table>

# 8. List of Textbooks and References:

## a) Course Notes

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## b) Required Books (Textbooks)

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## c) Recommended Books

- Barnes, R.S.K. :”Kingdom animalia”.
  In Asynoptic classification of living organisms.
  Blachwell scientific publication 1984.
| d) Periodicals, web sites, etc | www.mhhe.com  
|                             | www.blackwellpublishing.com |

Course Instructor: Dr. Gihan El-Khodary

Head of Department: Prof. Karoline Kamel Abdel Aziz

Date: ----/-----/2011