Course specification

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

1. course Data:

<table>
<thead>
<tr>
<th>Course code: Bot405</th>
<th>Course title: Genetics</th>
<th>Academic year/level: 2010/2011</th>
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<tbody>
<tr>
<td></td>
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<td>Fourth year / first term</td>
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Specialization: special botany
No. of instructional units: lecture 2 practical 3

2. course Aim

The aim for all awards in the course is to provide a general understanding of inheritance with particular emphasis on mapping of linkage groups, concepts and molecular basis of mutation, population genetics and gene biotechnology.

3. Intended learning outcome

a) Knowledge and understanding

1- Realize linkage, genetic maps, molecular basis of recombination.
2- Describe nonchromosomal genetic inheritance.
3- List gene mutation, concepts and molecular pathways.
4- Describe role of environment in gene expression.
5- Identify genetics of cancer.
6- Realize evolution and population genetics.
7- Recognize gene manipulation and biotechnology.

b) Intellectual skills

By the end of the course the student is expected to develop higher order skills that are reflected in the student ability to:

1- Apply their knowledge and understanding of essential facts, concepts, principles and theories to diagnose genetical and environmental problems.
2- Apply such knowledge and understanding to suggest solutions of qualitative and quantitative problems of genetical and environmental origin.
3- Synthesize scientific material both orally and in writing in a scholarly manner.

C) Professional skills

By the end of the course the students will have the ability to:

1- Show the importance of the practical skills and explain the scientific approach in genetics.
2- Construct genetic maps and practice gene manipulation biotechnology

d) General skills

D1: Exchange ideas, principles, theories and information by oral, written, and visual means.
D2: Work effectively both in a team and independently

<table>
<thead>
<tr>
<th>4. course content</th>
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<tbody>
<tr>
<td>- Linkage maps</td>
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<tr>
<td>a. Genes, allelism.</td>
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<tr>
<td>b. Linkage maps and concepts</td>
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<tr>
<td>c. Molecular mechanisms</td>
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<tr>
<td>- Mutations</td>
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<tr>
<td>a. Concepts</td>
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<tr>
<td>b. Mutagens</td>
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<tr>
<td>c. Molecular basis and DNA repair</td>
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Genetics of Cancer
Nonchromosomal inheritance
Hereditary diseases and congenital malformations
Population genetics
a. Different breeding systems.
b. Isoalleles, isozymes.
c. Evolution and speciation

Gene biotechnology

5. Teaching and learning methods

Lectures, seminars, textbooks
Problems
Lab-work
Course work, essay

6. teaching and learning methods for students with special needs

Lectures, seminars, textbooks
Problems
Lab-work
Course work, essay

Student Assessment

Written exam
Practical exam
Problems
Assignments
### a) Procedures used:
Recent text books, data show, overhead projector, simple microscopes, compound light microscopes, prepared slides and dyes.

### b) Schedule:
- Assessment 1: Problems Week: 5-7
- Assessment 2: Med term Week: 9
- Assessment 3: Final practical Week: 12
- Assessment 4: Final written Week: 14

### c) Weighing of Assessment:
- Mid-Term examination….10
- Final term examination….100
- Practical examination…30
- Semester work…..10
- Other type of assessment….0
- Total………..150

### 7. List of Textbooks and References:
- Course Notes
- Essential Books (Text Books)

### a) Course Notes
- 

### b) Required Books (Textbooks)
- 

### c) Recommended Books
- 

### d) Periodicals, web sites,…etc
- ---- Genome; The cell; Mutation Research; Soil; Air and Water Pollution.
- - Web Sites:
  - http://www.envimed.com/emb03.shtml;
    http://www.elsevier.com/locate/ecoleg

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Course Instructor: Dr. Mona El-Hadary

Head of Department: Prof. Dr. Mona Mabrouk

Date: -----/-----/ 2008