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: *Hematogenetic diseases* Code: *Z664*

Credit Hours: 2 Lecture: 2

Tutorial: 2 Practical: - 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 in bone marrow and blood production, some genetic disorders as leukemia and thalythemic anemia, gene therapy and bone marrow transplantation.

2- Intended Learning Outcomes (ILOs):

a- Knowledge and Understanding:

a1- knowledge and understanding.

a1. descripe bone marrow formation.

a2. list some hematological disorders.

a3. explain gene therapy.

a4. describe the bone marrow transplantation.

b- Intellectual Skills:

b1- Conclude the relationship between bone marrow and blood formation.

b2. diagnosis of hematological disorder.

b3. analysis blood picture.

b4. evaluate gene therapy with hematological disorders.

b5. conclude the mechanism of bone marrow transplantation.

c- Professional Skills:

c1- Identify different hematogenetic diseases.

c2- Use methods for genetic diagnosis for finding out causes of hematogenetic disorders.

c3- Use appropriate equipment for DNA isolation for bone marrow and blood collection for diagnosing the hematogenetic disorders.

d- General and Transferable Skills:

d1- Write reports for hematogenetic diseases and syndromes.

d2- Computer-based mining of databases for hematogenetic disorders.

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
Bone marrow structure and physiology	2	-	2
Bone marrow structure and physiology	2	-	2
Bone marrow structure and physiology	2	-	2
Genetic bases for Anemias	2	-	2
Genetic bases for Anemias	2	-	2
Genetic bases for Anemias	2	-	2
Genetic bases for Leukemia	2	-	2
Genetic bases for Leukemia	2	-	2
Genetic bases for Leukemia	2	-	2
Principles of gene therapy	2	-	2
Principles of gene therapy	2	-	2
Bone marrow transplantation	2	-	2
Bone marrow transplantation	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	60 %.
Oral examination	00%
Practical examination	00%
Semester work	20%
Other types of assessment	00%
Total	100%

6- List of references

6.1. Essential Books

- Hemoglobin disorders: molecular methods and protocols. By: Ronald L. Nagel, 2003.
- Regenerative and cell therapy: clinical advances. By Armand Keating, 2005.
- Gene Therapy. By: Mauro Giacca - 2010.

6.2. Recommended Books:

- Principles of medical genetics. By: Thomas D. Gelehrter, Francis S. Collins, David Ginsburg, 1998.
- Therapy for genetic disease. By: Theodore Friedmann – 1991.
- Gene therapy: the use of DNA as a drug. By: Gavin Brooks, 2002.

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/
- http://www.genetherapynet.com/clinical-trials.html

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