

Course Description of	مواصفات المقرر
Bio Physics فيزياء حيوية	

- البرنامج الذي يقدم المقرر من خلاله (برنامج إعداد معلم الفيزياء)
- The course is presented through the programme of Chemistry teacher
- يمثل المقرر عنصرا (رئيسيا) بالنسبة للبرنامج
- This is a core course in the programme.
- القسم العلمي المسئول عن البرنامج (متعدد)
- The Curriculum and Instruction Department is responsible for the programme.
- القسم العلمي المسئول عن تدريس المقرر (قسم الفيزياء)
- The Physics Department is responsible for teaching the course.
- السنة الدراسية / المستوى (الفرقة الثانية عام - شعبة الفيزياء / الفصل الدراسي الأول)
- The course is targeted to be presented for Second Year General Education students (for Chemistry section) / First semester.
- تاريخ اعتماد توصيف البرنامج (/ /)
- Date of accrediting the course description (\ \)

Basic Data

بيانات أساسية

- | | | |
|----------------------|--------------------------------------|-----|
| (1) Course Title: | العنوان : فيزياء حيوية Biophysics | (1) |
| (2) Course Code No.: | الكود : 222 ph | (2) |
| (3) Credit Hours: | الساعات المعتمدة: Three credit hours | (3) |
| Lectures: | المحاضرة : 2 credit hours | • |
| Laboratory practice: | الدروس العملية : 1credit hour | • |
| Total hours: | المجموع : 3 credit hours | • |

Professional Data

بيانات مهنية

- 1) General goals of the course** **(1) الأهداف العامة للمقرر**
- *The course is designed to help student-teachers achieve the following goals:*
Developing a clear understanding of the basis concepts of human body physics.
- 2) Operational learning objectives of the course** **(2) الأهداف الإجرائية للمقرر**
- By the end of this course, student teachers are expected to achieve the following objectives:*

A) Knowledge and Comprehension:

(أ) المعرفة والفهم

The students have to recognize the following :

- 1- What are biophysics – biophysical systems?
- 2- Biophysics techniques.
- 3- Bioelectric potentials and its applications.
- 4- Physical properties of living cells with emphasis on passive electrical properties.
- 5- Biomechanics of living cells, forces, in the body Physics of some parts of human body.

B) Cognitive Skills:

(ب) المهارات العقلية:

- Develop an understanding and appreciation for the nature of scientific inquiry
- Apply mathematics, including statistics and calculus and introductory differential equations, to investigations in physics and the analysis of data.
- Locate resources, design and conduct inquiry-based open-ended investigations in Biophysics, interpret findings, communicate results, and make judgments based on evidence.

C) Practical Skills:

(ج) المهارات العملية:

- the appropriate use and storage of scientific equipment.
- safe storage, use, and disposal of materials.

D) Enabling Skills:

(د) المهارات العامة والمنقولة:

- 1-Relate the concepts of Biophysics to contemporary, historical, technological, and societal issues; in particular.
- 2- Relate concepts of Biophysics to current controversies and other issues.
- 3-Construct new knowledge for themselves through research, reading and discussion, and reflect in an informed way on the role of Biophysics in human affairs

Contents

المحتويات

Week	Topic	Assigned hours
------	-------	----------------

		Lectures	Laboratory	Total
First	Introduction	2	1	3
Second	Electrode technique.	2	1	3
Third	Fundamentals of electrochemistry.	2	1	3
Fourth	Resting potential.	2	1	3
Fifth	Action potential.	2	1	3
Sixth	Surface potential The electro /myogram (E.M.G).	2	1	3
Seventh	The electro / cardiogram (E.C.G).	2	1	3
Eighth	The electro/ enceptdgram (E.E.G).	2	1	3
Ninth	The electro/retinogram (E.R.G)	2	1	3
Tenth	Physical properties of living cells.	2	1	3
Eleventh	Bio mechanics. Mechanical properties of living cells.	2	1	3
Twelfth	Forces on and in the body.	2	1	3
Thirteenth	Physics of the skeleton.	2	1	3

Activities, tasks and assignments:

أساليب التعلم والتعليم:

- Lectures
- Laboratory experiments.
- Demonstrations
- report writing
- brainstorming
- discussions
- Problem assignments and essay.

Assessment and Evaluation tools:

أساليب التقييم

- Semester activities including classroom interactions and Quizzes.
- Lab performance evaluation
- Oral exam.
- Final exam.
- Mid – term exam

Summative Evaluation table

جدول التقييم

First	Midterm	Seventh	الأسبوع السابع	نصف	التقييم
-------	---------	---------	----------------	-----	---------

Assessment	exam	Week		الفصل الدراسي	الأول
Second Assessment	Final exam	Fifteenth Week	الأسبوع الخامس عشر	نهاية الفصل الدراسي	التقييم الثاني

النسبة المئوية لكل تقييم

Assessment		التقييم
1. Midterm exam		1. امتحان نصف الفصل الدراسي
2. Final written exam		2. امتحان نهاية الفصل الدراسي
3. Final oral exam		3. الامتحان الشفوي
4. assignments		4. أعمال السنة
Total		المجموع

References:

قائمة المراجع

Students' Textbooks

(1) كتب الطالب

- 1- Principles of biophysics, Fadel M.Ali, 2003

Lecturer's References

(2) كتب المحاضر

- 2- Biophysics An introduction Rodney Cottenill, 2003, John Wiley & Sons LTD.

Periodicals and websites

(3) مجلات علمية، ومواقع الإنترنت

- The physics teacher

Educational Resources

الإمكانات المطلوبة للتعليم والتعلم

- Computer simulation programs and slides.
- Transparencies.
- Manual of solved problems (answer and solutions)
- Text books.

Course coordinator:

• منسق المقرر:

Head of the Department:

• رئيس القسم:

Date:

• التاريخ: