

مواصفات مقرر فيزياء إحصائية

- البرنامج الذي يقدم المقرر من خلاله (إعداد معلم الفيزياء)
- يمثل المقرر عنصرا (رئيسيا) بالنسبة للبرنامج
- القسم العلمي المسئول عن البرنامج (متعدد)
- القسم العلمي المسئول عن تدريس المقرر (قسم الفيزياء)
- السنة الدراسية / المستوى (الفرقة الثالثة عام. شعبة الطبيعة / الفصل الدراسي الأول)
- تاريخ اعتماد توصيف البرنامج ()

Basic Data

بيانات أساسية

- (1) العنوان : فيزياء إحصائية
- (2) الكود : 315 ph
- (3) الساعات المعتمدة Three credit hours
- المحاضرات : 2 h lect. /w
- الدروس العملية : 1h lab / w.
- 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 basic concepts in statistical physics as a basic prerequisite to study solid state 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 :

- a.1 How a system of many particles is described in statistical terms and understanding of macroscopic systems based on counting its accessible states.
- a.2 Understanding basic concepts as entropy, absolute temperature and different probability distributions.
- a.3 Discussing how one relates atomic concepts to macroscopic measurements

B) Cognitive Skills:

ب- المهارات العقلية:

- b.1 Apply mathematics, including calculus and statistics, to investigations in physics and the analysis of data.

- b.2 Relate the concepts of physics to contemporary, historical, technological, and societal issues; in particular, relate concepts of physics to current controversies, such as those around energy uses and medical research, as well as other issues.

C) Practical Skills:

ج- المهارات العملية:

- c.1 Locate resources, design and conduct inquiry-based open-ended investigations in physics, interpret findings, communicate results, and make judgments based on evidence
- c.2 Construct new knowledge for themselves through research, reading and discussion, and reflect in an informed way on the role of science in human affairs.
- c.3 Understand and promote the maintenance of a safe science classroom, including the appropriate use and storage of scientific equipment, and the safe storage, use, and disposal of chemicals.

D) Enabling Skills:

د- المهارات العامة والمنقولة:

- d.1 Demonstrate competence in the practice of teaching as defined within the Entry-Level Standards .
- d.2 Create and maintain an educational environment in which conceptual understanding will occur for all science students.
- d.3 Demonstrate competence in the practice of teaching through investigative experiences and by demonstrating the application of the scientific process and assessing student learning through multiple processes.
- d.4 Develop an understanding and appreciation for the nature of scientific inquiry.

Contents

المحتويات

Week	Topic	Assigned hours		
		Lectures	Rec	Total
First	• Energy states and energy levels.	2	1	3
Second	• Macro states and microstates.	2	1	3
Third	• Therodynamic probability • MB – Statistics	2	1	3
Fourth	• BE – Statistics.	2	1	3
Fifth	• FD – Statistics.	2	1	3
Sixth	• The Statistical interpretation of entropy.	2	1	3
Seventh	• MB and classical distribution functions Equipartition principle.	2	1	3
Eighth	• The function.	4	2	6
Ninth				
Tenth	• partition	4	2	6
Eleventh				
Twelfth	• Application to gases and other systems.	4	2	6
Thirteenth				

Activities, tasks and assignments:

أساليب التعليم والتعلم

Lectures.

Problems essay and assignments.

Assessment and Evaluation tools:

أساليب التقييم

Semester activities including classroom interactions and Quizzes.

Mid – term exam

Oral exam.

Final exam.



رؤية الكلية: انطلاقاً من رؤية جامعة الإسكندرية تسعى كلية التربية بدمهور إلى تحقيق الجودة والحصول على الاعتماد الأكاديمي لتحتل مكانة متميزة بين كليات التربية على المستوى القومي والعالمي (مجلس الكلية ، 8 مارس 2009) .



Summative Evaluation table

التقييم	نهاية الفصل الدراسي	الأسبوع الخامس عشر	Fifteenth Week	Final exam	Assessment
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النسبة المئوية لكل تقييم

التقييم	وزن الدرجة Score Weight	Assessment
1. امتحان نهاية الفصل الدراسي	80%	2. Final written exam
2. الامتحان العملي	-	3. Practical exam
3. أعمال فصلية	20%	4. assignments
المجموع	100%	Total

References:

قائمة المراجع

- **Text books.**
- 1- An Introduction to atomic and nuclear physics by H.Semat.
- 2- Advanced Physics by Kieth Gibbs.
- 3- Modern Physics by Weidner and sells

الإمكانات المطلوبة للتعليم والتعلم

Educational sources:

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

Course coordinator:

• منسق المقرر:

Head of the Department:

• رئيس القسم:

Date:

• التاريخ: