

Ministry of Higher Education and Scientific research



**Department of BIOLOGY.....**

**College of Education.....**

**University of Salahaddin.....**

**Subject: Genetics.....**

**Course Book – Msc. STUDENTS**

**Lecturer's Name: Assistant Professor Dr.Nihad  
Ahmed Ameen.**

**Academic Year: 2020\2021**

## Course Book

1. Course name	Advance Genetics for Msc students .
2. Lecturer in charge	Dr.Nihad Ahmed Ameen .
3. Department/ College	Biology Dept. College of Education.
4. Contact	e-mail: nihad.ameen@su.edu.krd Tel: (optional) 07507607712
5. Time (in hours) per week	For example Theory: 2 Practical: 9
6. Office hours	13 hours
7. Course code	
8. Teacher's academic profile	<ol style="list-style-type: none"> <li>1. In 1988 I am accepted as MSc. Student in the biology Department / College of Education.</li> <li>2. In 1991 i finished my MSc. study.</li> <li>3. In 1997 i am accepted as PhD. Student in the Biology Department / University of Bagdad/ Education college.</li> <li>4.In 2002 I finished my PhD. Study and i still working as Assistant Professor in Biology Dept.</li> </ol>
9. Keywords	Course Book ,Genetics,Chromosome,Gene,DNA.
10. Course overview:	<p>The Science of genetics, while still young in years, has been understood the hereditary nature of plants and species. Since the beginning of agriculture, people have been applying Genetic influence to their crops, increasing their yields. This has carried on to our time, where many agriculturists alter their crops in order to not only increase the number produced, but also to provide traits such as disease and pest resistance, nutritional qualities and characteristics that facilitate harvest pharmaceuticals have also benefited From genetics. Drugs and food additives are synthesized from bacteria and fungi that have Been genetically manipulated to make them producers of such substances. Growth hormones and insulin are among the products of these genetically modified bacteria. Though the field of genetics plays a bigger role in medicine. Doctors recognize that many patients suffer from some sort of genetic disorder and diseases, like Huntington's chorea .It is Estimated that about 3-5 % of the world population suffers from some genetic malady. Some common diseases, such as diabetes, hypertension, Asthma, are known to have a genetic component, meaning that if the parent Has it, then the offspring may be susceptible to that specific</p>

disease. Advances in the field molecular genetics have not only helped us gain insight in to the nature of previously terminal diseases such as cancer, but also given as Tools to combat many diseases and given us new diagnosis testes. The understanding of genetics not only plays a role in the classroom, but also for Us in our live. It changes the way we think about people with hereditary disorders. Also gives us an opportunity to manufacture crops and create new Drugs. It gives us tools against diseases that might otherwise be terminal. Understanding genetics can give us a better understanding of the human race And also a better understanding of ourselves.

**11. Course objective:**

1. The genetics explains the principles of Mendel's laws of inheritance of traits for example;
2. Genetics aims to sequencing DNA and cataloguing genes.
3. Understanding of DNA Replication, and the mechanism of gene expression.
4. How the genetic information changed.
5. Genetic & Evolution Levels of Genetic Analysis.
6. The study of population Genetics.
7. Role of genetics in Medicine.

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12. / 1. Using Data Show 2.Power point .3.White pord .4.Book.

**13. Assessment scheme:**

The Assessment schema of genetics include the following :

- 1.Writing a report about a selected thema in the field of advance genetics  
Out of 50 Mark +final examination out of 50 Mark.

**14. Student learning outcome:**

1. Clarify the Basic goal of teaching the subject of advance genetics

<p>like how the inheritance of traits occur from parents to their offspring in human and other organisms.</p> <p>2. The contents of advance genetics may be suitable for medical purposes also for researches centres of genetics .</p>	
<p><b>15 .Course Reading List and References:</b></p> <p>■Key references ;</p> <ol style="list-style-type: none"> <li>1. Benjamin,A.P.(2012).Genetics, a conceptual approach.2<sup>nd</sup> ed.W,H.Freeman and Company. New York.</li> <li>2. Robert,J.B.(2013).Genetics, analysis and principles.2<sup>n</sup> ed.McGraw-HiLL Companies, Inc, New YORK.</li> <li>3. American society of Genetics journal.</li> </ol>	
<p><b>16.The Topics -Theory lectures</b></p>	<p><b>Lecturer's name</b> Assistant prof.Dr.NIHAD AHMED AMIN.</p>
<ol style="list-style-type: none"> <li>1. Albinism.</li> <li>2. Somatic hybridization.</li> <li>3. Sex Determination in Humans Turner Syndrome,Klinefilter Syndrome.</li> <li>4. Polygenic inheritance.</li> <li>5. Genetic of Twins.</li> <li>6. Heterochromia .(Two different Eye colores).</li> <li>7. Factores affecting DNA STRUCTURE.</li> <li>8. POPULATION GENETICS</li> <li>9. Evolution.</li> <li>10.Immuno genetics.</li> <li>11.Multiple Alleles.</li> <li>12.Structural chromosomal aberrations.</li> <li>13.Numerical chromosomal Anomaly.</li> <li>14.Chromatid&amp;chromatin.</li> <li>15.Cell cycle in Eukaryotes.</li> </ol>	