# SYLLABUS

| Course Code | Course .Num | Course Name | Credit Hours | .Lec | .Lab | .Tut | Private study | requisites-Pre | Course Level | Teaching Language |
|---|---|---|---|---|---|---|---|---|---|---|
| BIO | 436 | Human and Genetic Engineering | 3 | 2 | 2 | 0 | 5-3 | 333BIO | 7 | English |

## A. Description Course

The course is designed to introduce methods and applications of genetic engineering, including gene manipulation and transfer techniques in prokaryotes and eukaryotes. Emphasis on applications of recombinant DNA technology in the elucidation of gene function. Consideration of recent technological developments in molecular genetics, such as cloning, gene therapy, the patenting and release of genetically engineered organisms, and societal issues related to these developments.

## B. Outcomes Course

At the end of this course the student will be able:

1. To gain an understanding of basic principles and new advances in genetics.
2. To gain appreciation of how genetics can impact humans.
3. To evaluate the risks and benefits of different applications of genetic Knowledge.

## C. :References

**Required Textbook**

- *Desmond S. T. Nicholl, an Introduction to Genetic Engineering, Cambridge University Press,* .(٢٠٠٨) .٠٥٢١٦١٥٢١١-٩٧٨ :١٣-Recombinant DNA (Paperback), ISBN
- *Stefan Surzycki Human Molecular Biology Laboratory Manual 1st Edition.* :١٣-ISBN .(٢٠٠٣) .٠٦٣٢٠٤٦٧٦٨ -٩٧٨

**:Other references**

- *Rasko C.S. Downes, Genes in Medicine: Molecular biology and human genetic disorders, Publisher:* Springer; 1st edition (1994) ISBN-10: 0412373408.

**Course Website:** Google Classroom Webpage: http://www.imamm.org/

## D. Topics Outline

**topics Lectures .1D**

1. **Formal Analysis of the Transmission of Genes from Generation to Generation.**
   *Mendelian Inheritance and the Role of Chromosomes; Population Genetics; Quantitative Inheritance.*
2. **.Genes The Nature of**
   *Definition of Genes: Mutation, Open Reading Frames, Complementation, Activities of Gene Products.Location of Genes: Recombination Mapping, Restriction Mapping.*

3. **.Manipulation of Genes**
   *Natural Genetic Engineering; Lysogeny; Transposition; Genetic Engineering by Human Intervention; Gene Therapy.*
4. **Molecular Mechanisms of Genetic Processes.**
   *Regulation of Gene Action.*
   *DNA Replication.*
5. **.Genetics Human**
6. **.Disease Genetic**
7. **Speculations on Genetic Engineering, Eugenics, and Human Evolution**
8. **Methods and issues relating to micro-organisms a genetic engineered.**
9. **Methods and topics related to genetic engineered plants.**
10. **Organisms of Genetic engineering techniques (cloning).**
11. **Applications for engineer genetic beings.**

**Laboratories topics .٢D**

1. ***Cytology preparations for human chromosomes.***
2. ***Study of packages on human chromosomes.***
3. ***Chromosomal abnormalities*** *(quantitative and structural) inHuman.*
4. ***.cloning Genes***
5. ***.DNA Library of***
6. ***.Measures Extraordinary***
7. ***Identify and know the sequences.***
8. ***.transfer Gene***
9. ***.databases Human genome sequence***
10. ***.revision General***

## E. Hours Office

Office hours give students the opportunity to ask in-depth questions and to explore points of confusion or interest that cannot be fully addressed in class.

## F. System Exams & Grading

The semi-official dates of the exams for this course are:

- **Midterm 1:** 6th or 7th week.
- **Midterm 2:** 11th or 12th week.
- **Quizzes & Homeworks:** During the semester.
- **Final lab. Exam** : 14th or 15th week.
- **Exam Final** .week th16 **:**

Your course grade will be based on your semester work as follows:

| | | | |
|---|---|---|---|
| % 15 **:1Midterm** | % 15 **:2Midterm** | **%20Final lab. Exam:** | %40**:ExamFinal** |
| % 10 **:Quizzes, Homework, Attendance & Participation** | | | |

:The grading distribution

| +A | A | +B | B | +C | C | +D | D | F |
|---|---|---|---|---|---|---|---|---|
| [100 ,95] | (95 ,90] | (90 ,85] | (85 ,80] | (80 ,75] | (75 ,70] | (70 ,65] | (65 ,60] | (60 ,0] |

## G. Workload Student

| # | Teaching/Learning activities | Contact hours | Frequency | Total contact hocturs | -Self study hours | Total -self study hours | Student learning time |
|---|---|---|---|---|---|---|---|
| ٥ | Lecture | ٢ | ١٥ | ٣٠ | ٢ | ٣٠ | ٦٠ |
| ٢ | Tutorial | ٠ | ٠ | ٠ | ٠ | ٠ | ٠ |
| ٠ | practi\Labcal | ٢ | ١٥ | ٣٠ | ١ | ١٥ | ٤٥ |
| ٥ | Homework | ٠ | ٤ | ٠ | ٢ | ٨ | ٨ |
| ٤ | Quiz | ٠.٥ | ٢ | ١ | ١ | ٢ | ٣ |
| ٦ | Midterm | ١.٥ | ٢ | ٣ | ٥ | ١٠ | ١٣ |
| ٧ | Final Exam | ٢ | ١ | ٢ | ١٢ | ١٢ | ١٤ |
| Total | | | | ٦٦ | | ٧٧ | ١٤٣ |

The independent self-study is approximately 5 hours per week.

## H. Attendance/Absence Student

Only three situations will be considered as possible excused absences:

- Occurrence of a birth or death in the immediate family will be excused. (“Immediate family” is defined by the University as spouse, grandparents, parents, brother, or sister).
- Severe illness in which a student is under the care of a doctor and physically unable to attend class

will be excused. Students are not excused for a doctor's appointment. Do not make appointments that conflict with rehearsals. .accepted Notes from the University Health Center will be

**Executive Rules for Study Regulations and Exams**

**goo.gl/ykm7t3**