

**University: Alqadisiya University**

**College: College of Biotechnology**

**Department: Medecal Biotechnology**

**Stage: Second stage**

**Lecturer name:** **Dr.Nazar A. Hamzah**

**Academic Status:Assistance prof.**

**Qualification:PHD**

**Place of work: Alqadisiya University**

**Republic of Iraq**

**The Ministry of Higher Education**

**& Scientific Research**

**Course Weekly Outline**

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| --- | --- | --- | --- | --- | --- |
| **Course Instructor** | Dr.Nazar A. Hamzah | | | | |
| **E\_mail** | Type your mail as nazarah72@yahoo.com | | | | |
| **Title** | Cell Biology | | | | |
| **Course Coordinator** |  | | | | |
| **Course Objective** | Apply understanding of scientific concepts instead of simply memorizing facts. Master fundamental math required in the modern Molecular Biology Lab. Be able to make and interpret figures, charts, and graphs | | | | |
| **Course Description** | Current techniques that are utilized in a modern Molecular Biology research laboratory. Practical skills taught include monitoring bacterial growth, phenotype testing of bacterial strains, plasmid DNA isolation, restriction digest analysis, DNA cloning, and DNA fingerprinting using the polymerase chain reaction (PCR | | | | |
| **Textbook** | The cell: evaluation of the first organism 2005,Joseph Panno, fact on file, Inc. 1st edition  The cell2011, Kara Rogers, published by Britannica , 1st edition | | | | |
| **References** | Type here the reference (title,author,edition,publisher,year) | | | | |
| **Course Assessment** | Term Tests | Laboratory | Quizzes | Project | Final Exam |
| As (35%) | As (15%) | As (10%) | ---- | As (40%) |
| **General Notes** | Type here general notes regarding the course | | | | |

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**Course weekly Outline**

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| --- | --- | --- | --- | --- |
| **week** | **Date** | **Topics Covered** | **Lab. Experiment Assignments** | **Notes** |
| **1** |  | Cells and organelles | Basic Bacterial Techniques |  |
| **2** |  | Membranes: Their structure, function and chemistry | Bacterial growth |  |
| **3** |  | Transport across membranes: overcoming the permeability  barrier | Gel electrophoresis of pre-digested DNA |  |
| **4** |  | The endomembrane system and peroxisomes | Cloning I – Restriction digest and ligation |  |
| **5** |  | Signal transduction mechanisms. III. Messengers and receptors | Cloning II - Bacterial transformation \*(will need to check the results before the next lab) |  |
| **6** |  | Cytoskeletal system | Cloning III – Isolation of plasmid DNA, restriction digest |  |
| **7** |  | Cellular movement. Motility and contractility | Plasmid analysis; DNA fingerprinting using PCR |  |
| **8** |  | Cell adhesions. Cell junctions and extracellular | **Exam** |  |
| **9** |  | Discovering Cell Cycle Regulation | Basic cell culture techniques - transfection at the time of the lecture |  |
| **10** |  | Cell Cycle Regulation, p53 and Apoptosis | Cell culture lecture |  |
| **11** |  | Targeting Angiogenesis | Biomembranes and Ion Trapping Fluorescent Microscopy |  |
| **12** |  | Cell Migration & Metastasis | Biomembranes and Ion Trapping Fluorescent Microscopy |  |
| **13** |  | Stem Cells | Ames test |  |
| **14** |  | Stem Cells | Ames test |  |

**Instructor Signature: Dean Signature:**