**Course Weekly Outline**

|  |  |
| --- | --- |
| **Course Instructor** | Alaa kamil abualla  |
| **E\_mail** | Alaakamil74@gmail.com  |
| **Title** | Molecular biotechnology  |
| **Course Coordinator** | First  |
| **Course Objective** |  |
| **Course Description** | Study Molecular lab. Instrument and equipment, nucleic acid extraction, Primer design, Gel electrophoresis and PCR technique.  |
| **Textbook** | No  |
| **References** | Molecular biotechnology principles & application of recombinant DNA 3ed education, B.R.G. &J.A. Pasternak, 2005 |
| **Course Assessment** | Term Tests | Laboratory | Quizzes | Project | Final Exam |
| As (35%) | As (15%) | As (10%) | ---- | As (40%) |
| **General Notes** |  |

**University: Al-qadesiayh**

**College: biotechnology**

**Department: medical biotechnology**

**Stage: second**

**Lecturer name: Alaa kamil abdulla**

**Academic Status:**

**Qualification:**

**Place of work:**



**Republic of Iraq**

**The Ministry of Higher Education**

**& Scientific Research**

**Course weekly Outline**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **week** | **Date** | **Topics Covered** | **Lab. Experiment Assignments** | **Notes** |
| **1** |  |  | Safety Rules  |  |
| **2** |  |  | Molecular lab. Instrument and equipment  |  |
| **3** |  |  | DNA extraction  |  |
| **4** |  |  | RNA extraction |  |
| **5** |  |  | Purification and Precipitation  |  |
| **6** |  |  | Quantitation by Spectrophotometry |  |
| **7** |  |  | Primer design |  |
| **8** |  |  | PCR |  |
| **9** |  |  | Gel electrophoresis  |  |
| **10** |  |  | Northern Blot  |  |
| **11** |  |  | Western blot  |  |
| **12** |  |  | Real time PCR |  |
| **13** |  |  | Digital PCR |  |
| **14** |  |  | Gene expression |  |
| **15** |  |  | DNA sequencing  |  |
| **16** |  |  | Assaying DNA-protein interaction |  |
| **Half- year Break** |

**Instructor Signature: Dean Signature:**



**Republic of Iraq**

 **The Ministry of Higher Education**

 **& Scientific Research**

**University: Al-qadesiayh**

**College: biotechnology**

**Department: medical biotechnology**

**Stage: second**

**Lecturer name: Alaa kamil abdulla**

**Academic Status:**

**Qualification:**

**Place of work:**

**Course Weekly Outline**

|  |  |
| --- | --- |
| **Course Instructor** | Alaa kamil abualla  |
| **E\_mail** | Alaakamil74@gmail.com  |
| **Title** | Lab. Embryology |
| **Course Coordinator** | First  |
| **Course Objective** | Embryology in mammals, reptiles, amphibians and birds.  |
| **Course Description** | Study of embryology terms , embryology development stage and reproduction types in mammals, reptiles, amphibians and birds.  |
| **Textbook** | No  |
| **References** | Color Atlas of Embryology .. Drews 19952-Developmental Biology .. Gilbert 2003-20063-Modern Embryology .. Bodemer 1968**4- المدخل إلى علم الأجنة الوصفي والتجريبي .. ا.د. صالح كريم ,, 1990****5- الأجنة التجريبي ... ا.د. صالح كريم ....ا.د.أحمد راشد الحميدي 1429** |
| **Course Assessment** | Term Tests | Laboratory | Quizzes | Project | Final Exam |
| As (35%) | As (15%) | As (10%) | ---- | As (40%) |

**University:**

**College:**

**Department:**

**Stage:**

**Lecturer name:**

**Academic Status:**

**Qualification:**

**Place of work:**



**Republic of Iraq**

**The Ministry of Higher Education**

**& Scientific Research**

**Course weekly Outline**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **week** | **Date** | **Topics Covered** | **Lab. Experiment Assignments** | **Notes** |
| **1** |  |  | Embryology |  |
| **2** |  |  | Male Gametogenesis  |  |
| **3** |  |  | Female Gametogenesis |  |
| **4** |  |  | Fertilization  |  |
| **5** |  |  | [Implantation](http://www.med.howard.edu/physio.biophys/MILLIS%20HOME%20PAGE_files/Biomed/28PPT_lect/28-01_pptlect.ppt) |  |
| **6** |  |  | Cleavage in Amphibians |  |
| **7** |  |  | Cleavage in birds |  |
| **8** |  |  | Cleavage in mammals |  |
| **9** |  |  | Gastrulation in Amphibians |  |
| **10** |  |  | Gastrulation in bird |  |
| **11** |  |  | Gastrulation in mammals |  |
| **12** |  |  | Organogenesis ([Establishment of General Body](http://rover.vetmed.lsu.edu/student/2009/4%20-%20ESTABLISHMENT%20OF%20GENERAL%20BODY%20FORM.ppt))1 |  |
| **13** |  |  | Organogenesis ([Establishment of General Body](http://rover.vetmed.lsu.edu/student/2009/4%20-%20ESTABLISHMENT%20OF%20GENERAL%20BODY%20FORM.ppt))2 |  |
| **14** |  |  | Embryonic configuration for birds (chicken) |  |
| **15** |  |  | Embryonic configuration for amphibians  |  |
| **16** |  |  | Embryonic configuration for mammals |  |
| **Half- year Break** |

**Instructor Signature: Dean Signature:**