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**Department of Biology**

**College of Science**

**University of Salahaddin**

**Subject: Microtechniques**

**Course Book: Second Class**

**Practical Lecturer's name: Renas Najat Saleem**

**Academic Year: 2022/2023**

Course Book

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| **1. Course name** | | Microtechniques |
| **2. Lecturer in charge** | | Renas Najat Saleem |
| **3. Department/ College** | | Biology/Science |
| **4. Contact** | | e-mail: [renas.saleem@su.edu.krd](mailto: renas.saleem@su.edu.krd) |
| **5. Time (in hours) per week** | | Practical 8 hrs/week |
| **6. Office hours** | | To be return to the schedule on the office door |
| **7. Course code** | | SBIO |
| **8. Teacher's academic Profile** | | **Assistant lecturer Renas Najat Saleem**  **CV:**I graduated from Salahaddin Universitey-College of science in 2005.  In 2012 I finished my Higher Diploma degree at Salahaddin University.  In 2016 I finished my Msc degree at Salahaddin University. |
|  | | **Now I am PhD. Student In Hematology.** |
| **9. Keywords** | | Microtechniques, slide preparation, histotechnology, Immunohistochemistry, electron microscopy |
| **10. Course overview:**  This course is designed to learn and practise students about all details concerning the methods and techniques of slide preparation (microorganisms, animals and plants specimens). | | |
| **11. Course objective:**   1. All basic concepts concerning the steps and procedures of slide preparation 2. All methods used in slide preparation 3. All techniques used for slide preparation | | |
| **12. Student's obligation**  \***Exam policy:** Student Should take 3 exams during the course There will be no make-up exams for absences students without medical report.  **\*Classroom polices:**  **1- Attendance:** Students are strongly encouraged to attend class on a regular basis.  2- **Lateness:** Lateness to class is disruptive. | | |
| **13. Forms of teaching**  **Face-to-Face (Lectures and PowerPoint)** | | |
| **14. Assessment scheme**   |  |  |  | | --- | --- | --- | | Component | Date | Percent | | Exam 1 | 00/00/2023 | 30% | | Exam 2 | 00/00/2023 | 30% | | Quizes and Assignments | 00/00/2023 | 25% | | Attendance and Activities | 00/00/2023 | 15% | | Total |  | 100% | | | |
| **15. Student learning outcome:**  After completion of this course, you will be able to:     * Students should know the basic steps in routine slide preparation methods * Student will know the significance and details of each steps * Student will have the knowledge about most techniques used in slide preparation * Student will have the ability to do the techniques by himself and suggest modification in the techniques and alternatives for the materials. | | |
| **16. Course Reading List and References‌:**  **Useful Text books**  a. Kiernan, J. (1981). Histological and Histochemistry Methods.1st ed. Pergomon press. Oxford.  b. The world of the cell, Beckman, 2006 | | |
| Week | Subject | |
| 1 | Introduction into the course book | |
| 2 | Smearing ex blood film | |
| 3 | Squash and maceration ex root tip for studying mitosis | |
| 4 | Stripping off techniques | |
| 5 | Paraffin method fixation, dehydration clearing and infiltration | |
| 6 | paraffin method, embedding and trimming | |
| 7 | Paraffin, sectioning and stretching | |
| 8 | Paraffin method, staining | |
| 9 | Electron microscopic procedure, fixation to infiltration and embedding | |
| 10 | EM procedure, Sectioning and staining | |
| 11 | Microscopic measurements | |
| 12 | Freezing and cryostat microtomy | |
| 17. Examples of questions  Q1/ Answer by (True) or (false):  Q2/ Fill with suitable answers:  Q3/ Write about the following: progressive staining, metachromasia, differentiation, etc  Q4/ Mention the use of the following in slide preparation: xylole, glutaraldehyde, osmium tetroxide, etc... | | |