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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 |
| **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
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| **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**

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| 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% |

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| **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.
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| **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 questionsQ1/ Answer by (True) or (false):Q2/ Fill with suitable answers:Q3/ Write about the following: progressive staining, metachromasia, differentiation, etcQ4/ Mention the use of the following in slide preparation: xylole, glutaraldehyde, osmium tetroxide, etc... |