

**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation &  
Assessment**

**COURSE SPECIFICATION**

**Micro techniques**

**431 ZOO**

# Course Specification

Institution <b>King Khalid University</b>
College/Department <b>College of Science/ Department of Biology</b>

## A Course Identification and General Information

1. Course title and code: <b>Micro techniques 431 ZOO</b>
2. Credit hours <b>1 h</b>
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)  <b>Science College - Department of Biology</b>
4. Name of faculty member responsible for the course <b>Mr. Abo Bakr Salama</b>
5. Level/year at which this course is offered <b>second term – 1433 – 1434 H</b>
6. Pre-requisites for this course (if any) <b>Histology – Plant anatomy - Vertebrates</b>
7. Co-requisites for this course (if any) <b>----</b>
8. Location if not on main campus

## B Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

**The course will expand the student's knowledge of some applied microscopic techniques to prepare and study histological sections in animals and plants using different stains. This could be achieved through a group of practical laboratories.**

2. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field)

- 1. The course material in the form of Power point presentations will be deposited as pdf files on the department Website that could be accessed by the students enrolled in the course.**
- 2. Assignments, Quizzes, and any other material will be posted on an e-learning home page of the course.**

**C. Practical Course Description** (Note: General description in the form to be used for the Bulletin or Handbook should be attached)

1.1 Topics to be Covered

List of Topics	No of Weeks	Contact hours
<b>Definitions of microtechniques – Objectives – preparation of some temporary slides.</b>	<b>1</b>	<b>1</b>
<b>Different methods to study histological tissues using microscope</b>	<b>1</b>	<b>1</b>
<b>General steps to prepare histological sections (permanent preparation of squamous epithelial tissue)</b>	<b>1</b>	<b>1</b>
<b>Detailed study of the steps of: anatomy – sampling and fixation</b>	<b>1</b>	<b>1</b>
<b>Temporary and permanent preparation of dividing chromosomes from root tips.</b>	<b>1</b>	<b>1</b>
<b>Detailed study of different methods of dehydration and fixation.</b>	<b>1</b>	<b>1</b>
<b>Detailed study of sectioning (slicing) and mounting</b>	<b>1</b>	<b>1</b>
<b>Detailed study of the block preparation</b>	<b>1</b>	<b>1</b>
<b>Staining of animal histological preparation using Haematoxylin and Eosin.</b>	<b>1</b>	<b>1</b>
<b>Staining with Tri Malory stain.</b>	<b>1</b>	<b>1</b>
<b>Preparation of some insects and warms.</b>	<b>1</b>	<b>1</b>
<b>Biochemical stains</b>	<b>1</b>	<b>1</b>
<b>Preparation of plant sections</b>	<b>1</b>	<b>1</b>
<b>Staining of plant sections using Safranin and Ethylene blue.</b>	<b>1</b>	<b>1</b>

Practical: <b>14</b>	Tutorial: --	Field work/Internship: ---	Other:
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3. Additional private study/learning hours expected for students per week. (This should be an average for the semester not a specific requirement in each week)

NA

#### 4. Development of Learning Outcomes in Domains of Learning

For each of the domains of learning shown below indicate:

- A brief summary of the knowledge or skill the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

##### **a. Knowledge**

(i) Description of the knowledge to be acquired

1. Biological terms
2. Microscopes and their uses
3. Permanent preparation
4. Section preparation
5. Staining

(ii) Teaching strategies to be used to develop that knowledge

- **Practical labs**
- **Multi-media, videos , animations .....etc.**

(iii) Methods of assessment of knowledge acquire

**First practical exam 50%**

**Second practical exam 50%**

##### **b. Cognitive Skills**

(i) Description of cognitive skills to be developed

1. **Understanding the concept of Micro techniques**
2. **Understanding the preparation of temporary and permanent slides**
3. **Understanding the preparation of sections.**

(ii) Teaching strategies to be used to develop these cognitive skills

- **Presentation of some instruments in the department e.g. microtome**
- **Practical labs**

(iii) Methods of assessment of students cognitive skills

1. **In class MCQ's Quizes**
2. **practicalexams**
3. **oral discussion**

### **c. Interpersonal Skills and Responsibility**

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. **Work independently and as a team work**
2. **Manage recourses, time and other members of the group**
3. **Communicate results of work with others**

(ii) Teaching strategies to be used to develop these skills and abilities

1. **presentations in the central laboratory in the department**
2. **Oral communications with the students**

(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility

**Writing short essays in certain topic related to the course**

### **d. Communication, Information Technology and Numerical Skills**

(i) Description of the skills to be developed in this domain. <b>Use of Microscopes</b>
(ii) Teaching strategies to be used to develop these skills  1. <b>Using computer programs in the course requirements</b> 2. <b>Visits to the central laboratory.</b>
(iii) Methods of assessment of students numerical and communication skills  1. <b>In class MCQ's Quizzes</b> 2. <b>practical exams</b> 3. <b>oral discussion</b>
<b>e. Psychomotor Skills (if applicable)</b>
(i) Description of the psychomotor skills to be developed and the level of performance required  <b>Not applicable</b>
(ii) Teaching strategies to be used to develop these skills  <b>Not applicable</b>
(iii) Methods of assessment of students psychomotor skills  <b>Not applicable</b>

<b>5. Schedule of Assessment Tasks for Students During the Semester</b>			
Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	<b>Quiz 1</b>	<b>6</b>	<b>5%</b>
2	<b>First practical Exam</b>	<b>7</b>	<b>45%</b>
	<b>Quiz 2</b>	<b>11</b>	<b>5%</b>
3	<b>Second practical Exam</b>	<b>12</b>	<b>45%</b>

## D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

**10 Office hours / week**

## E Learning Resources

1. Required Text(s)

2. Essential References

3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)

4-.Electronic Materials, Web Sites etc

**Websites on the internet that are relevant to the topics of the course**

5- Other learning material such as computer-based programs/CD, professional standards/regulations

**Multimedia associated with the text book and the relevant websites**

## F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Lecture rooms, laboratories, etc.)

**25 seats/ labs**

**Computer access with data show and internet**

2. Computing resources

**Computer room containing about 15 computers**

3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list)

**Data show**

**Overhead projector**

**Models**

## G Course Evaluation and Improvement Processes

<p>1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching</p> <p><b>Course evaluation by student</b> <b>Student-faculty meeting</b></p>
<p>2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department</p> <p><b>Peer consultation on teaching</b> <b>Discussion with the group of faculty teaching the same course</b> <b>Departmental council discussions</b></p>
<p>3 Processes for Improvement of Teaching</p> <p><b>Conducting Departmental workshops given by experts</b> <b>Periodical departmental revisions of each method of teaching</b> <b>Monitoring of teaching activities by senior faculty members</b> <b>Development of the parent relation between the teacher and the students.</b></p>
<p>4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)</p> <p><b>Assigning group of faculty members teaching the same course to grade some question for various students</b></p>
<p>5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.</p> <ol style="list-style-type: none"><li><b>1. The course material and learning outcomes are periodically reviewed and the changes to taken are approved by the departmental and the higher councils</b></li><li><b>2. The head of the department take the responsibility of implementing the proposed change.</b></li><li><b>3. Periodical meetings with outstanding students in the course to discuss the problems that face them in the course</b></li><li><b>4. Comparison between similar courses in relevant faculties from different universities.</b></li></ol>