



Course Specification

(Bachelor)

Course Title: **Cell Biology**

Course Code: **BIOL 102**

Program: Bachelor of science (B.Sc) **Biology**

Department: **Biology department**

College: **science faculty in Zulfi**

Institution: **Majmaah University**

Version: **Third**

Last Revision Date: **20/12/2023**



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A. General information about the course:

1. Course Identification

1. Credit hours: 3 (2+2)

Equivalent to ECTS Credit Point : 4.5

2. Course type

A. University College Department Track Others

B. Required Elective

3. Level/year at which this course is offered: (2^{ed} Level / first year)

4. Course general Description:

Through this course the student will demonstrate an understanding of Cell biology, morphology, structure and function. In addition to the characteristic features, the form and function of different cell components. ,,etc.

Moreover, this course provides fundamental knowledge about biochemical interactions in cells and their role in the various functions, such as Bonding & Biochemical compounds, Bioenergetics and Cellular transport, etc.

This will prepare students for the broader understanding of cell biology with its different functions and roles.

5. Pre-requirements for this course (if any):

BIOL-101 General Biology

6. C-requirements for this course (if any):

Nil

7. Course Main Objective(s):

The main objective of this course to understand the cell and different components with their functions.

2. Teaching mode (mark all that apply)

| No | Mode of Instruction | Contact Hours | Percentage |
|----|--|---------------|------------|
| 1 | Traditional classroom | 60 | 80% |
| 2 | E-learning | 12 | 20% |
| 3 | Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning | | |
| 4 | Distance learning | | |





3. Contact Hours (based on the academic semester)

| No | Activity | Contact Hours |
|---------------------|-------------------|---------------|
| 1. | Lectures | 30 |
| 2. | Laboratory/Studio | 30 |
| 3. | Field | |
| 4. | Tutorial | |
| 5. | Others (specify) | |
| Total Contact hours | | 60 |

Workload (based on the academic semester)

| No | Activity | Work Load (in hours) |
|---|---|----------------------|
| 1. | Contact hrs | 60 |
| 2. | Self-study hours or Academic learning hours (Assignments, quizzes, reports, Discussions, Library, research....) | 60 |
| Total Workload | | 120 hours |
| Equivalent to ECTS Credit points | | 4.5 |

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

| Code | Course Learning Outcomes | Code of CLOs aligned with program | Teaching Strategies | Assessment Methods |
|------|---|-----------------------------------|---|---|
| 1.0 | Knowledge and understanding | | | |
| 1.1 | Recognize the basic knowledge of Acids and Bases, Bonding & Biochemical compounds, Bioenergetics. | K1 | -Lectures - online Lectures -Conduct scientific research (project) - Seminars. -Discussions -Brainstorming | - Midterm 1 - Midterm 2 - Final exam -Quizzes. - Class exercises - E exam - Assignments |
| 1.2 | Describe – Cell structure and function | K1 | -Lectures - online Lectures -Conduct scientific research (project) - Seminars. -Discussions -Brainstorming | - Midterm 1 - Midterm 2 - Final exam -Quizzes. - Class exercises - E exam - Assignments |





| Code | Course Learning Outcomes | Code of CLOs aligned with program | Teaching Strategies | Assessment Methods |
|------------|---|-----------------------------------|---|---|
| 1.3 | Diagram of different Cellular transport and cell components | K1 | -Lectures - online Lectures -Conduct scientific research (project) - Seminars. -Discussions -Brainstorming | - Midterm 1 - Midterm 2 - Final exam -Quizzes. - Class exercises - E exam - Assignments |
| 2.0 | Skills | | | |
| 2.3 | Illustrate the cell transports showing the mechanism of the developmental stages of macromolecules. | S3 | - Discussion - Brain storm - Case study - Projects - online lecture (blackboard) | - Midterm 1 - Midterm 2 - Final exam |
| 2.3 | Describing the of biological methods (Replication and Protein Synthesis, Cell Reproduction.,) to human cells. | S3 | - Discussion - Brain storm - Case study - Projects - online lecture (blackboard) | - Midterm 1 - Midterm 2 - Final exam |
| 2.4 | Examine the biological slides of biological cell samples. | S4 | - Practical training - Laboratory work - Lab Report | Rubrics of behaviour and performance in the lab Lab assignment Practical exam |
| 3.0 | Values, autonomy, and responsibility | | | |
| V1 | Identification of different cell components by teamwork. | (KPI 20) | -Training courses - Workshop -Project - Volunteers hours | -Reports, Assignment -Homework - Presentation - Oral questions , Viva voce Community services |
| | Communicate and work effectively in groups as well as individually to differentiate the various concepts of biochemical | (KPI 21) | -Training courses - Workshop -Project - Volunteers hours | -Reports, Assignment -Homework - Presentation - Oral questions , Viva voce Community |



| Code | Course Learning Outcomes | Code of CLOs aligned with program | Teaching Strategies | Assessment Methods |
|------|---|-----------------------------------|---------------------|--------------------|
| | interactions in cells and its role in cell functions. | | | services |
| ... | | | | |

C. Course Content

| No | List of Topics | Contact Hours |
|--------------|---|---------------|
| 1. | Unit 1 – Course Introduction, Acids & Bases. | 2 |
| 2. | Unit 2 – Bonding & Biochemical compounds | 2 |
| 3. | Unit 3 – Cell structure and function | 2 |
| 4. | Unit 4 – Cellular transport | 2 |
| 5. | Unit 5 – Bioenergetics | 3 |
| 6. | Unit 6 – Cellular respiration | 3 |
| 7. | Unit 7 – Replication and Protein Synthesis | 3 |
| 8. | Unit 8 – Cell Reproduction | 3 |
| 9. | Practical | 30 |
| 10. | | |
| Total | | 60 |

D. Students Assessment Activities

| No | Assessment Activities * | Assessment timing (in week no) | Percentage of Total Assessment Score |
|----|------------------------------|--------------------------------|--------------------------------------|
| 1. | First exam | 5 th week | 10% |
| 2. | Second exam | 10 th | 10% |
| 3. | E exam (online) | 8 th week | 10% |
| 4. | Quiz, Oral test and Homework | Every two weeks | 10% |
| 5. | Practice report | Every week | 10% |
| 6. | Practice exam | 10 th week | 10% |
| 7. | Final exam | 11 th week | 40% |

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources





| | |
|---------------------------------|--|
| Essential References | <ol style="list-style-type: none"> Essential Cell Biology-5th Edition- Bruce Alberts (2019) ISBN (13): 978-0393680379 Cell Biology-3th Edition- Graham Johnson (2017) ISBN (3): 978-0323341264 |
| Supportive References | <ul style="list-style-type: none"> Saudi Journal of biological sciences European Journal of Cell biology |
| Electronic Materials | <ul style="list-style-type: none"> Britannica https://www.britannica.com/science/cell-biology Khan academy https://www.khanacademy.org/science/biology/structure-of-a-cell |
| Other Learning Materials | Electronic materials of Lecture notes and PowerPoints available in 'Black board' database |

2. Required Facilities and equipment

| Items | Resources |
|---|--|
| facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.) | Classroom |
| Technology equipment (projector, smart board, software) | Smart board and e podium available |
| Other equipment (depending on the nature of the specialty) | Library and seminar room Wi-Fi internet connections |

F. Assessment of Course Quality

| Assessment Areas/Issues | Assessor | Assessment Methods |
|---|---|--------------------|
| Effectiveness of teaching | Faculty of the course | Direct |
| Effectiveness of Students' assessment | Faculty of the course, Course coordinator | Direct |
| Quality of learning resources | Program Leader | Direct |
| The extent to which CLOs have been achieved | Department | Indirect |
| Other | Faculty of the course | Direct |

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

| | |
|---------------------------|----------------------------|
| COUNCIL /COMMITTEE | BIOLOGY DEPARTMENT COUNCIL |
| REFERENCE NO. | 7 |
| DATE | 4/4/1446 (07/10/2024) |

