# Cytology Description Form

## نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Cell Biology** | | | **Module Delivery** | |
| **Module Type** | **Core** | | | ☒ **Theory**<br>☐ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☒ **Seminar** | |
| **Module Code** | **ZU-SC-FS-1101** | | | | |
| **ECTS Credits** | **7** | | | | |
| **SWL (hr/sem)** | **150** | | | | |
| **Module Level** | 1 | | **Semester of Delivery** | 2 | |
| **Administering Department** | Forensic Science | | **College** | **College of Science** | |
| **Module Leader** | **Dr. Ahmed Hasan Kadhim** | | **e-mail** | ahmed.hassan@alzahu.edu.iq | |
| **Module Leader's Acad. Title** | Lecturer | | **Module Leader's Qualification** | Ph.D. | |
| **Module Tutor** | | | **e-mail** | | |
| **Peer Reviewer Name** | Name | | **e-mail** | E-mail | |
| **Scientific Committee Approval Date** | | | **Version Number** | | |

| Relation with other Modules<br>انعلاقت مع انمساد انذراسيت الأخري | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents<br>أهذاف انمادة انذراسيت ونتائج انتعهم وانمحتياث الإرشاديت | |
|---|---|
| **Module Aims**<br>أهذاف انمادة انذراسيت | Module aims - intentions of the module This module aims to develop an advanced understanding of cell biology. It will address the major processes that occur within cells, including: principles of cell signaling, regulation of cell shape, cell division, apoptosis and the functions of the endomembrane system. |
| **Module Learning Outcomes**<br>مخرجاث انتعهم نهمادة انذراسيت | 1. Students will develop a deeper understanding of cell structure and how it relates to cell functions.<br>2. Students will understand how these cellular components are used to generate and utilize energy in cells<br>3. Students will understand how cells grow, divide, and die and how these important processes are regulated.<br>4. Students will understand cell signaling and how it regulates cellular functions.<br>5. Students will apply their knowledge of cell biology to selected examples of changes or losses in cell function. These can include responses to environmental or physiological changes, or alterations of cell function brought about by mutation. |
| **Indicative Contents**<br>انمحتياث الإرشايت | **Tier 1**- All cell biology sections will cover the following topics<br>Understand the basic components cell and its basic activities.<br>**The cell concept**<br>Cellular compartmentalization.<br>The functions of organelles and how do they accomplish them.<br>Materials storage and transportation between intracellular compartments.<br>**Membranes**<br>Lipids, bilayers<br>Chemical evolution: micelles into cells<br>M Pores and pumps: facilitated diffusion, active transport, cotransport<br>Organelles<br>Prokaryotes vs. eukaryotes<br>**Understand how energy is used and generated in cells**<br>ATP and its uses |

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| | Respiration<br>Electron carriers<br>Roles of enzymes<br>Glycolysis<br>Krebs<br>Oxidative phosphorylation<br>**The cytoskeleton and cell motility**<br>Microtubule ultrastructure<br>Microfilaments<br>Cilia and flagella<br>The cells cortex<br>**Cell nucleus and chromosome organization**<br>Nucleus structure and functions<br>Organization of DNA in chromosomes.<br>**Cellular level: cell cycle and cell division**<br>1. The key roles of mitosis and meiosis during the life cycle.<br>Compare and contrast different life cycle strategies, focusing on the human life cycle.<br>2. Stages of mitosis and meiosis, highlighting similarities and differences. Describe stages of the Cell cycle.<br>**Cell differentiation**<br>Stem cells and development<br>The Major Types of Stem Cells<br>Cellular Differentiation<br>Human Diseases that Experimentally Being Treated with Stem Cells<br>**Cell apoptosis**<br>Cell Renewal<br>Cell death<br>Mechanism of Necrosis<br>Mechanism of Apoptosis<br>Regulation of Apoptosis<br>**Cell signaling**<br>Signaling Molecules<br>Signal Transduction<br>Signaling Defects and Disease |
| | |

| Learning and Teaching Strategies<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | تتمثل الاس رتاتيجية الرئيسية المُتبعة في تدريس هذه الوحدة صقل مهارات التفك رت النقدي لدى الطلاب وتوسيعها. ويتحقق ذلك من خلال الحصص الدراسية ودراسة أنواع من التجارب البسيطة ال د يت تتضمن بعض أنشطة المحاكاة ال د يت تهم الطلاب. |

| Student Workload (SWL)<br>انحمم انذراسي نهطانة محسب نـ ٥١ اسبعا | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>انحمم انذراسي انمنتظم نهطانة خلال انفصم | 93 | **Structured SWL (h/w)**<br>انحمم انذراسي انمنتظم نهطانة أسبعيا | 5 |
| **Unstructured SWL (h/sem)**<br>انحمم انذراسي غير انمنتظم نهطانة خلال انفصم | 57 | **Unstructured SWL (h/w)**<br>انحمم انذراسي غير انمنتظم نهطانة أسبعيا | 5 |
| **Total SWL (h/sem)**<br>انحمم انذراسي انكهي نهطانة خلال انفصم | 150 | | |

| Module Evaluation<br>تقييم انمادة انذراسيت | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 5% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 15% (10) | Continuous | All |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus)<br>انمنهاج الاسبعي انتظري | |
|---|---|
| | **Material Covered** |
| **Week 1** | Introduction and basic principle of cell biology |
| **Week 2** | Cell types, structure and functions |
| **Week 3** | Cytoplasmic membrane system and membrane trafficking |
| **Week 4** | Energy release and mitochondria |
| **Week 5** | Protein synthesis and Transportation |
| **Week 6** | The cytoskeleton and cell motility |
| **Week 7** | Cellular Metabolism |
| **Week 8** | Mid exam |
| **Week 9** | Cell nucleus and chromosome organization |
| **Week 10** | Cell cycle : Mitosis |
| **Week 11** | Cell cycle :Meiosis |
| **Week 12** | Cell differentiation |
| **Week 13** | Cell apoptosis |
| **Week 14** | Cell signaling |
| **Week 15** | **Preparatory week before the final Exam** |

| Delivery Plan (Weekly Lab. Syllabus)<br>انمنهاج الاسبعي نهمختبر | |
|---|---|
| | **Material Covered** |
| **Week 1** | Laboratory safety roles |
| **Week 2** | Types of microscopes and Parts of the Microscope |
| **Week 3** | Cell structure |
| **Week 4** | Types of cells in human body |
| **Week 5** | Cell membrane and transportation |
| **Week 6** | The Chromosomes |
| **Week 7** | Mid exam |
| **Week 8** | The Cell Cycle: Mitosis |
| **Week 9** | The Cell Cycle: Meiosis |
| **Week 10** | Apoptosis |
| **Week 11** | Necrosis |
| **Week 12** | Chromosomal defect |
| **Week 13** | Cell culture |
| **Week 14** | Preparatory week |
| **Week 15** | Final Exam |

| Learning and Teaching Resources<br>مصادر انتعهم وانتذريس | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Reference book: Bruce Alberts Karen Hopkin Alexander D. Johnson David Morgan Martin Raff , Essential Cell Biology | No (Available as an e-book) |
| **Recommended Texts** | | |
| **Websites** | From Wikipedia, the free encyclopedia | |

| Grading Scheme<br>مخطط انذرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | انتقدير | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | امتياز | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | جيد جدا | 80 - 89 | Above average with some errors |
| | **C -** Good | جيد | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | متسط | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | مقبل | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX –** Fail | راسة (قيد انمعانجت) | (45-49) | More work required but credit awarded |
| | **F –** Fail | راسة | (0-44) | Considerable amount of work required |
| | | | | |

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.