| Form: Course Syllabus | Form Number | EXC-01-02-01 |
|---|---|---|
| | Issue Number and Date | 2/3/24/2022/2963<br>5/12/2022 |
| | Number and Date of Revision or Modification | |
| | Deans Council Approval Decision Number | |
| | The Date of the Deans Council Approval Decision | |
| | Number of Pages | 06 |

| | | | |
|---|---|---|---|
| 1. | Course title | Introduction to Pathology | |
| 2. | Course number | 0504205 | |
| 3. | Credit hours | 2 Theory | |
| | Contact hours (theory, practical) | 25 Lectures | |
| 4. | Prerequisites/Corequisites | -- | |
| 5. | Program title | Doctor of Medicine | |
| 6. | Program code | 05 | |
| 7. | Awarding institution | The University of Jordan | |
| 8. | School | School of Medicine | |
| 9. | Department | Department of Forensic Medicine, Microbiolgy and Histopathology | |
| 10. | Course level | Bachelor | |
| 11. | Year of study and semester (s) | Second year, first semester | |
| 12. | Other department (s) involved in teaching the course | - | |
| 13. | Main Learning language | English | |
| 14. | Learning Types | ☐Face to face learning x☐Blended ☐Fully online | |
| 15. | Online platforms(s) | x☐Moodle ☐Microsoft Teams ☐Skype ☐Zoom | |

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|---|---|---|
| | | ☐Others…… |
| **16.** | **Issuing/Revision Date** | **27/12/2023** |

**17. Course Coordinator:**

**Name: Dr Heyam Awad**

**Contact hours: Mondays and Thursdays (10:00-12:00)**

**Office number: 3rd floor, JUH**

**Email:** h_awad@ju.edu.jo

**18. Other instructors:**

Name: **Dr Manar Hajeer** Contact hours: **Mondays and Thursdays (11:00-12:00)**

Office number: **3rd floor, JUH**

Email: m.hajeer83@hotmail.com

Name: **P**rof Mousa Alabbadi Contact hours: **S**undays **and Thursdays (8:00-10:00)**

Office number: **3rd floor, JUH**

Email: alabbadima@yahoo.com

**19. Course Description and Aims:**

**A- Course Description:**

**This course covers the study of cell injury including its types, causes, and mechanisms, cellular adaptation to growth and differentiation, inflammation including its types and mechanisms, cellular healing, infections and its causes and characteristics, tumors and neoplasia, types of cancer, its mechanisms of occurrence, characteristics and epidemiology, and circulatory disorders including edema, congestion, thrombosis, infarction and shock.**

**B- Aims:**

**The aims of this course are to introduce students to the basic knowledge of cell injury, apoptosis, inflammation and neoplasia. These will form basic framework to be used later to understand the pathology of diseases of the organ systems**

**20. Program Intended Learning Outcomes (PLOs) (To be used in designing the matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program):**

1. **Demonstrate basic knowledge of normal human structure and function at molecular, genetic, cellular, tissue, organ, system and whole-body levels in terms of growth, development, and health maintenance. Analyze the basic molecular and cellular mechanisms involved in the causation and treatment of human disease and their influence on clinical presentation and therapy.**

2. **Collect, interpret, document, and communicate accurately a comprehensive medical history, including the psychological and behavioral factors, and a thorough organ-system-specific physical examination inclusive of the mental status of the patient.**

3. **Integrate and communicate collected clinical information in the construction of appropriate diagnostic and therapeutic management strategies to identify life-threatening conditions ensuring prompt therapy, referral, and consultation with relevant disciplines and skillfully perform basic medical procedures for general practice on patients with common illness, acute and chronic, taking into account environmental, social, cultural and psychological factors.**

4. **Demonstrate in-depth knowledge of the epidemiology and biostatistics of common diseases, and analyze the impact of ethnicity, culture, socioeconomic factors and other social factors on health, disease and individual patient's health care.**

5. **Communicate effectively and professionally, both orally and in writing, with patients, their families, and with other healthcare providers utilizing information technology resources in his/her scholarly activities and professional development with the ability to teach others, and to understand and respect other healthcare professionals 'roles, and apply the principles of multidisciplinary teamwork dynamics and collaboration.**

6. **Apply scientific methods including evidence –based approach to the medical practice including problem identification, data collection, hypothesis formulation, etc., and apply inductive reasoning to problem solving and ensure that clinical reasoning and decision making are guided by sound ethical principles.**

7. **Demonstrate knowledge of scientific research methods and ethical principles of clinical research and be able to write research proposals or research papers.**

8. **Demonstrate professionally the skills needed for Quality improvement, lifelong learning, and continuous medical education including the ability to identify and address personal strength and weakness, self-assess knowledge and performance, and develop a self-improvement plan.**

**21. Intended Learning outcomes of the course (CLOs): Upon completion of the course, the student will be able to achieve the following intended learning outcomes:**

1. **List types, causes and mechanisms of cell injury** *(Knowledge)*
2. **Define apoptosis and necrosis (***Knowledge)*
3. **Appraise the processes involved in acute inflammation and link them to clinical scenarios** *(Skill)*
4. **Relate the common mutations of cancer to their phenotypic effects (***Skill)*
5. **Demonstrate critical thinking skills to predict possible pathologic outcomes of cell injury and inflammation.** *(Skill)*
6. **Exhibit behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers and society**. *(Skill)*
7. **Recognize the hallmarks of cancer and their genetic causes.** *(Competency)*

**22. The matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program):**

| Program ILOs / ILOs of the course | CLO (1) | CLO (2) | CLO (3) | CLO (4) | CLO (5) | CLO (6) | CLO (7) |
|---|---|---|---|---|---|---|---|
| PLO (1) | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| PLO (2) | | | | | | | |
| PLO (3) | | | | | | | |
| PLO (4) | | | | | | | |
| PLO (5) | | | | | | ✓ | |
| PLO (6) | | | | | | | ✓ |
| PLO (7) | | | | | | | |
| PLO (8) | | | | | | | |

**23. Topic Outline and Schedule:**

| Week | Lecture | Topic | Student Learning Outcome (SLO) | Descriptors ** | Learning Types (Face to Face/Blended/ | Platform Used | Synchronous / Asynchronous Lecturing | Evaluation Methods | Learning Resources |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.1 | **Adaptation** | List Adaptive mechanisms<br>Define Hypertrophy, Hyperplasia, Atrophy and Metaplasia<br>List Causes of cell injury. | K<br>K<br>K | Face to face | | Synchronous Lecturing | Written exam | 26. A |
| | 1.2 | **Reversible and irreversible Cell injury** | Describe Reversible and Irreversible injury (necrosis).<br>Analyze the clinical implications of cell injury Clinical implications.<br>Describe Patterns of necrosis. | K<br>C<br>K | Blended | Moodle | Asynchronous Lecturing | Written exam/ | 26 |

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| | | | | | | | | | |
| 2 | 2.1 | **Mechanisms of Cell injury** | Classify mechanisms of cell injury | S | Face to face | | Synchronous Lecturing | Written exam | 26 |
| | 2.2 | **Apoptosis** | Define apoptosis<br>List causes of apoptosis<br>Analyze mechanisms of apoptosis | K<br>K<br>S | Blended | Moodle | Asynchronous Lecturing | Written exam | 26 |
| 3 | 3.1 | **Cellular accumulations** | Describe causes of cellular accumulation<br>Classify types of cellular accumulation and link them to clinical causes | K<br>S | Face to face | | Synchronous Lecturing | Written exam | 26 |
| | 3.2 | **Inflammation, overview** | Define inflammation<br>Compare acute and chronic inflammation | K<br>S | Blended | Moodle | Asynchronous Lecturing | Written exam | 26 |

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| 4 | 4.1 | **Acute inflammatory mechanisms** | Explain the processes involved in acute inflammation<br><br>List examples acute inflammatory processes | K<br><br>K | Face to face | | Synchronous Lecturing | Written exam | 26 |
| | 4.2 | **Inflammatory mediators** | List mediators of acute inflammation<br><br>Describe the effect of the most common inflammatory mediators | K<br><br>K | Blended | Moodle | Asynchronous Lecturing | Written exam/ | 26 |
| 5 | 5.1 | **Cellular events in inflammation** | State the sequence of cellular events involved in acute inflammation<br><br>Describe the mechanisms of cellular events in nflammation | K<br><br>K | Face to face | | Synchronous Lecturing | Written exam | 26 |
| | 5.2 | **Moropholoy of inflammation** | Describe the various morphologic patterns of acute inflammatory processes<br><br>Classify morphologic changes of acute inflammation according to the cause and severity of inflammation | K<br><br>S | Blended | Moodle | Asynchronous Lecturing | Written exam | 26 |

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| 6 | 6.1 | **Chronic inflammation** | List causes of chronic inflammation<br>Describe mechanisms of chronic nflammation<br>Link chronic inflammatory processes to common clinical senarios | K<br>K<br>C | Face to face | | Synchronous Lecturing | Written exam | 26 |
| | 6.2 | **Granulomatous inflammation** | Define granulomas<br>List causes of granulomas<br>Link granulomatous processes to common clinical senarios | K<br>K<br>C | Blended | Moodle | Asynchronous Lecturing | Written exam | 26 |
| 7 | 7.1 | **Extracellular matrix** | List ECM components<br>Describe functions of ECM in repair | K<br>K | Face to face | | Synchronous Lecturing | Written exam | 26 |
| | 7.2 | **Repair** | Define repair<br>Describe repair mechanisms | K<br>K | Blended | Moodle | Asynchronous Lecturing | Written exam | 26 |

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| 8 | **Midterm exam** | | | | | | | | |
| 9 | 9.1 | **Repair in clinical settings** | Compare repair by first and second intention and link these to surgical procedures | C | Face to face | | Synchronous Lecturing | Written exam | 26 |
| | 9.2 | **Cancer terminology** | Define neoplasia<br>Define benign and malignant tumors<br>Apply nomenculature of malignant tumors to several tumor types | K<br>K<br>S | Blended | Moodle | Asynchronous Lecturing | Written exam | 26 |
| 10 | 10.1 | **Benign and malignant tumors** | Compare benign and malignant tumors clinically and histologically<br>List histologic features of anaplasia | S<br>K | Face to face | | Synchronous Lecturing | Written exam | 26 |
| | 10.2 | **Molecular bases of cancer** | Describe the various types of genetic damages causing cancer | K | Blended | Moodle | Asynchronous Lecturing | Written exam | 26 |
| 11 | 11.1 | **Hall marks of cancer** | Describe the phenotypic changes occurring in malignant cells | K | Face to face | | Synchronous Lecturing | Written exam | 26 |

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| | | | List the 8 hallmarks of cancer | K | | | | | |
| | 11.2 | **Self sufficiency in growth signals** | Describe the processes involved in acquiring this hallmark and the genetic damages involved<br><br>List the oncogenes that are mutated to acquire this hallmark | S<br><br>K | Blended | Moodle | Asynchronous Lecturing | Written exam/ | 26 |
| 12 | 12.1 | Insensitivity to growth inhibition | Describe the processes involved in acquiring this hallmark and the genetic damages involved<br><br>List the types of genes that are mutated to acquire this hallmark | K<br><br>K | Face to face | | Synchronous Lecturing | Written exam | 26 |
| | 12.2 | Evading apoptosis and senescence | Describe the processes involved in Evading apoptosis and senescence<br><br>List the geness that are mutated to acquire this hallmark | S<br><br>K | Blended | Moodle | Asynchronous Lecturing | Written exam | 26 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13 | 13.1 | Angiogenesis and metastasis in neoplasia | List genes involves in metastasis and angiogenic switch<br><br>Describe the steps involved in metastatic cascade | K<br><br>K | Face to face | | Synchronous Lecturing | Written exam | 26 |
| | 13.2 | Enablers of malignancy | List the two enablers of malignancy<br>Describe the effect of the enablers on malignant transformation | K<br><br>K | Blended | Moodle | Asynchronous Lecturing | Written exam | 26 |
| 14 | 14.1 | Causes of malignancy | List the most important causes of malignancy.<br><br>Describe the mechanisms involved in malignant transformation | K<br><br>K | Face to face | | Synchronous Lecturing | Written exam | 26 |
| ** K: Knowledge, S: Skills, C: Competency | | | | | | | | | |

## 24. Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

| Evaluation Activity | Mark | Topic(s) | SLOs | Descriptors ** | Period (Week) | Platform |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| **Midterm exam** | **40** | Cell injury and inflammation | 1.1/ 1.2/ 2.1/ 2.2/ 3.1/ 3.2/ 4.1/ 4.2/ 5.1/ 5.2/ 6.1/ 6.2/ 7.1/ 7.2 | K S C | 8th week | Paper-based exam |
| **Final exam** | **60** | Repair and neoplasia | 9.1/ 9.2/ 10.1/ 10.2/ 11.1/ 11.2/ 12.1/ 12.2/ 13.1/ 13.2/ 14.1 | K S C | 15th -16th week | Paper-based exam |
| ** **K: Knowledge, S: Skills, C: Competency** | | | | | | |

**25. Course Requirements**

- ✓ **Class room Lectures**
- ✓ **Internet connection**
- ✓ **Online educational material using Moodle platform (Electronic Videos and Activities)**

**26. Teaching Methods and Assignments:**

**Development of ILOs is promoted through the following <u>teaching and learning methods</u>:**

**Class room Lectures**
**Interactive Videos and Animations**
**Online activities and assignments**
**Discussion sessions and forums**

**26. Course Policies:**

**A- Attendance policies:**

Attendance will be monitored by the course coordinator. Attendance policies will be announced at the beginning of the course.

**B- Absences from exams and handing in assignments on time:**

Will be managed according to the University of Jordan regulations. Refer to http://registration.ju.edu.jo/Documents/daleel.pdf

**C- Health and safety procedures:**

Faculty Members and students must at all times, conform to Health and Safety rules and procedures.

**D- Honesty policy regarding cheating, plagiarism, misbehavior:**

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this course and also integrity in your behavior in and out of the classroom. Students violate this policy would be subjected to disciplinary action according to University of Jordan disciplinary policies

**E- Grading policy:**

Grade-point average, Rules are preset by the Faculty and Department Councils

F- **Available university services that support achievement in the course:**

Availability of comfortable lecture halls, data show, internet service and E learning website https://elearning.ju.edu.jo/ .

## 27. References:

A. Robbins Basic Pathology 10th edition

## 28. Additional information:

Name of Course Coordinator: ---------- Date:----------
Signature: ----------

Head of Department: ---------- Signature: ----------

Head of Curriculum Committee/Faculty: ---------- Signature:

Dean:---------- Signature: ----------