

**COURSE DESCRIPTIONS**

|                      |                               |                   |  |                     |          |
|----------------------|-------------------------------|-------------------|--|---------------------|----------|
| <b>Faculty</b>       | Pharmacy                      |                   |  |                     |          |
| <b>Department</b>    | Medical Laboratory Sciences   | <b>NQF level</b>  | 5  |                     |          |
| <b>Course Title</b>  | Blood Banking and Transfusion | <b>Code</b>       | 902350   | <b>Prerequisite</b> | 902346   |
| <b>Credit Hours</b>  | 2                             | <b>Theory</b>     | 1  | <b>Practical</b>    | 1        |
| <b>Course Leader</b> | Dr. Mohammad Bani-Ahmad       | <b>email</b>      | <a href="mailto:m.baniahmad@jadara.edu.jo">m.baniahmad@jadara.edu.jo</a> |                     |          |
| <b>Lecturers</b>     | Dr. Mohammad Bani-Ahmad       | <b>emails</b>     | <a href="mailto:m.baniahmad@jadara.edu.jo">m.baniahmad@jadara.edu.jo</a> |                     |          |
| <b>Lecture time</b>  | Sun, Tue 11:30-12:30          | <b>Classroom</b>  | D308   | <b>Attendance</b>   | Fulltime |
| <b>Semester</b>      | First 2022/2023               | <b>Production</b> | 2019   | <b>Updated</b>      | 2022     |

**Short Description**

The mission of blood banks is to provide safe blood and blood components for safe transfusion to the proper recipients who are suffering of specific blood disorders. To achieve so, a series of technical procedures are needed to be performed prior to the release of blood/blood components to ensure safe blood donation and transfusion.

This course intends to provide the students with the basics of immunohematology principles and applications including blood grouping, pre-transfusion testing, therapeutic approaches and adverse reaction to blood donation and transfusion

The practical sessions intend to educate the students about the practical application and technical performance of blood bank procedures required for transfusion of blood and blood components and for handling and storage of blood and blood components.

**Course Objectives**

The major goal of this course is to provide the students with the basic knowledge in Immunohematology and blood banking. Therefore, upon completion of this course, the student will be able to:

1. To understand the basic principles and applications in immunohematology.
2. To understand the flow-work and the routine blood bank procedures
3. To describe the process of blood donation and preparation of blood components.
4. To understand and experience compatibility testing including blood typing, cross matching, antibodies screening and identification
5. To be aware of the adverse reaction of blood donation and administration

**Course Intended Learning Outcomes (CILOs)**

**A. Knowledge - Theoretical Understanding**

- a1. Outline the main concepts and terms in immunohematology and blood banking.
- a2. Explain the standard operating procedures (SOP) and the principle techniques and protocols in blood donation and transfusion issues.

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| <b>B. Knowledge - Practical Application</b>  |
| a3. Apply technical laboratory procedures in blood banking including blood component donation and release issues   |
| <b>C. Skills - Generic Problem Solving and Analytical Skills</b>   |
| b1. Analyze the scientific evidence underlying our current understanding of immunohematology to solve problems in medical analysis.  |
| <b>D. Skills - Communication, ICT, and Numeracy</b>  |
| b2. prove the ability to intellectual independence and commitment to lifelong learning.  |
| <b>E. Competence: Autonomy, Responsibility, and Context</b>  |
| c1. Adapt the knowledge gained from this course, in some of the specific methodologies used in blood banking management in accordance to accredited operating procedures   |
| <b>Teaching and Learning Methods</b>   |
| <ul style="list-style-type: none"> <li>Lectures will be given according to the specified time and location as assigned on the academic schedule (see course information above)</li> </ul> <p>Lectures will be administrated using power-point presentations and will be provided to the students</p> <ul style="list-style-type: none"> <li>through JU e-learning website.</li> <li>Textbook is obligatory and required by the students</li> </ul> |
| <b>Assessment Methods</b>  |
| <ul style="list-style-type: none"> <li>Midterm Exam</li> <li>Assignments</li> <li>Quizes</li> <li>Final Exam</li> </ul>  |

| Course Contents                 |     |                   |  |                             |                         |
|---------------------------------|-----|-------------------|--|-----------------------------|-------------------------|
| Week                            | Hrs | CILOs             | Topics   | Teaching & Learning Methods | Assessment Methods      |
| 1<br>Oct 23 – 25<br>2022        | 3   | a1                | <ul style="list-style-type: none"> <li>Introduction to Blood Banking</li> </ul>  | Handout<br>Textbook         | Midterm<br>& Final Exam |
| 2<br>Oct 30 –<br>Nov 25<br>2022 | 3   | a1                | <ul style="list-style-type: none"> <li>Blood Donation</li> </ul>   | Handout<br>Textbook         | Midterm<br>& Final Exam |
| 3<br>Nov 6 – 8<br>2022          | 3   | a1                | <ul style="list-style-type: none"> <li>ABO grouping system</li> </ul>  | Handout<br>Textbook         | Midterm<br>& Final Exam |
| 4<br>Nov 13 – 15<br>2022        | 3   | a2, a3,<br>b1, c1 | <ul style="list-style-type: none"> <li>Rh grouping system</li> <li>Other Blood grouping system</li> </ul>                | Handout<br>Textbook         | Midterm<br>& Final Exam |
| 5<br>Nov 20 – 22<br>2022        | 3   | a1                | <ul style="list-style-type: none"> <li>Blood Release</li> <li>Anti-human globulin (Coombs) test</li> </ul>               | Handout<br>Textbook         | Midterm<br>& Final Exam |
| 6<br>Nov 27 – 29<br>2022        | 3   | a3, b1,<br>b2     | <ul style="list-style-type: none"> <li>Compatibility testing (I)<br/>Cross matching</li> </ul>                           | Handout<br>Textbook         |                         |
| 7<br>Dec 4 – 6<br>2022          | 3   | a2, a3,<br>b1, c1 | <ul style="list-style-type: none"> <li>Compatibility testing (II)<br/>Antibodies screening and Identification</li> </ul> | Handout<br>Textbook         | Final Exam              |
| 8<br>Dec 11 – 13<br>2022        | 3   | a1                | <ul style="list-style-type: none"> <li>Testing of transmitted diseases</li> </ul>  | Handout<br>Textbook         | Final Exam              |

|                           |   |                         |  |                     |                                    |
|---------------------------|---|-------------------------|--|---------------------|------------------------------------|
| 9<br>Dec 18 – 20<br>2022  | 3 | a1, a2,<br>a3           | <ul style="list-style-type: none"> <li>Adverse reactions to blood transfusion</li> </ul>   | Handout<br>Textbook | Final Exam                         |
| 10<br>Dec 25 – 27<br>2022 | 3 | a1, a2,<br>a3, b2       | <ul style="list-style-type: none"> <li>Practical Session (I): Blood donation</li> <li>Practical session (II): Blood component separation</li> </ul>          | Handout<br>Textbook | Final Exam                         |
| 11<br>Jan 1 – 3<br>2023   | 3 | a2, a3<br>b1, b2,<br>c1 | <ul style="list-style-type: none"> <li>Practical Session (III): ABO Typing</li> <li>Practical session (IV): Rh typing</li> </ul>                             | Lab<br>Manual       | Quizzes<br>Reports &<br>Final Exam |
| 12<br>Jan 8 – 7<br>2023   | 3 | a2, a3<br>b1, b2,<br>c1 | <ul style="list-style-type: none"> <li>Practical Session (V): Weak-D typing</li> <li>Practical session (VI): Cross matching</li> </ul>                       | Lab<br>Manual       | Quizzes<br>Reports &<br>Final Exam |
| 13<br>Jan 15 – 17<br>2023 | 3 | a2, a3<br>b1, b2,<br>c1 | <ul style="list-style-type: none"> <li>Practical Session (VII): Antibodies screening</li> <li>Practical session (VIII): Antibodies Identification</li> </ul> | Lab<br>Manual       | Quizzes<br>Reports &<br>Final Exam |

| <b>Infrastructure</b>       |  |
|-----------------------------|--|
| <b>Textbook</b>             | <b>Immunohematology: Principles and practice</b><br>Eva D. Quinley<br>Lippincott, Williams and Wilkins<br>1998<br>2nd edition<br><a href="http://www.lww.com/product/Immunohematology/?978-0-7817-8204-3">http://www.lww.com/product/Immunohematology/?978-0-7817-8204-3</a> |
| <b>References</b>           | ---  |
| <b>Required reading</b>     | ---  |
| <b>Electronic materials</b> | As provided at Jadara E-learning system  |
| <b>Other</b>                | ---  |

| <b>Course Assessment Plan</b>        |                            |              |              |  |  |  |
|--------------------------------------|----------------------------|--------------|--------------|--|--|--|
| <b>Assessment Method</b>             |                            | <b>Grade</b> | <b>CILOs</b> |  |  |  |
|                                      |                            |              |              |  |  |  |
| <b>First (Midterm)</b>               |                            | 30           |              |  |  |  |
| <b>Second (if applicable)</b>        |                            |              |              |  |  |  |
| <b>Final Exam</b>                    |                            | 50           |              |  |  |  |
| <b>Coursework</b>                    |                            |              |              |  |  |  |
| <b>Coursework assessment methods</b> | Assignments                |              |              |  |  |  |
|                                      | Case study                 |              |              |  |  |  |
|                                      | Discussion and interaction |              |              |  |  |  |
|                                      | Group work activities      |              |              |  |  |  |
|                                      | Lab tests and assignments  | 10           |              |  |  |  |
|                                      | Presentations              |              |              |  |  |  |
|                                      | Quizzes                    | 10           |              |  |  |  |
| <b>Total</b>                         |                            | 100          |              |  |  |  |

## **Plagiarism**

Plagiarism is claiming that someone else's work is your own. The department has a strict policy regarding plagiarism and, if plagiarism is indeed discovered, this policy will be applied. Note that punishments apply also to anyone assisting another to commit plagiarism (for example by knowingly allowing someone to copy your code).

Plagiarism is different from group work in which a number of individuals share ideas on how to carry out the coursework. You are strongly encouraged to work in small groups, and you will certainly not be penalized for doing so. This means that you may work together on the program. What is important is that you have a full understanding of all aspects of the completed program. In order to allow proper assessment that this is indeed the case, you must adhere strictly to the course work requirements as outlined above and detailed in the coursework problem description. These requirements are in place to encourage individual understanding, facilitate individual assessment, and deter plagiarism.