**PEKING UNIVERSITY HEALTH SCIENCE CENTER**
**- MACAO POLYTECHNIC UNIVERSITY NURSING ACADEMY (AE)**
**BACHELOR OF SCIENCE IN NURSING**
**LEARNING MODULE OUTLINE**

| | | | |
|---|---|---|---|
| Academic Year | 2024-2025 | Semester | 2 |
| Module Code | NPAT1102 | | |
| Learning Module | Pathophysiology | | |
| Pre-requisite(s) | Nil | | |
| Medium of Instruction | Chinese & English | | |
| Credits | 3 | Contact Hours | 45 |
| Instructor | Lang Bin (Subject Teacher)<br>Zhang Xiao Zhan*張曉戰<br>Zhang Yan 王艷(Bei Jing)<br>Wang Jin Yu 王瑾瑜(Bei Jing) | Email | blang@mpu.edu.mo<br>t1834@mpu.edu.mo<br>zhangy18@bjmu.edu.cn<br>wangjinyu@bjmu.edu.cn |
| Office | AE–LG105, BL-3 Taipa Campus | Office Phone | 88936952 |

**REMARK: *PART TIME TEACHER**

**MODULE DESCRIPTION**

Pathophysiology emphasizes on discussing the mechanism and law about occurrence, process, prognosis in diseases, which is a science laying particular stress on theory at some extent. Knowledge about normal configuration and function as well as metabolism in human body should be used in pathophysiology by comprehensive analysis to understand disease. So there exists a close relationship between pathophysiology and biology, genetics, anthropotomy, histology, physiology, biochemistry, biophysics, pathology, pharmacology, immunology, microbiology.

**MODULE INTENDED LEARNING OUTCOMES (ILOS)**

On completion of this learning module, students will be able to:

| | |
|---|---|
| M1. | Demonstrate understanding of how disordered physiology produces common diseases and syndromes. |
| M2. | Demonstrate understanding of general ideas about diseases. |
| M3. | Comprehend how and why the symptoms and signs of various disease states appear. |
| M4. | Describe the fundamental pathologic progresses or typical pathologic progresses. |
| M5. | Describe the pathophysiology about particular systems or organs. |

These ILOs aims to enable students to attain the following Programme Intended Learning Outcomes (PILOs):

The PILOs are aligned with the Dublin descriptors, including knowledge and understanding, acquisition, application, critical judgment, communication skills, and learning skills/ability.

| PILOs | M1 | M2 | M3 | M4 | M5 |
|---|---|---|---|---|---|
| P1. Demonstrate an understanding of the holistic nature of the clients' health status involving individual, family, and community aspects. | ✓ | ✓ | ✓ | ✓ | |
| P2. Demonstrate effective communication skills and the ability to establish and maintain a therapeutic relationship with clients. | | | | | ✓ |
| P3. Demonstrate acquisition,mastery and an application of knowledge and skills for nursing practice, including biological sciences, social sciences and humanities, by making appropriate clinical reasoning and performing safe and therapeutic practice. | ✓ | | ✓ | | ✓ |
| P4. Demonstrate the ability to maintain legal and ethical standards of nursing practice. | | | | | ✓ |
| P5. Demonstrate the ability to carry out relevant research and contribute to the health of the community. | | | ✓ | | ✓ |
| P6. Work effectively and efficiently alone or in teams. | | | | ✓ | ✓ |
| P7. Demonstrate the ability to identify and evaluate health care issues. | ✓ | ✓ | ✓ | ✓ | ✓ |
| P8. Demonstrate a critical judgment and apply the principles of evidence-based practice to the delivery of nursing care. | | | | | ✓ |

**MODULE SCHEDULE, COVERAGE AND STUDY LOAD**

**1A 1B 1C**

| Week | Content Coverage | Contact Hours |
|---|---|---|
| 1 | 1. Introduction (2 class hours)<br>1.1 Concept of disease<br>1.2 Disease etiology, pathogenesis and outcome<br>1.3 Prevention of disease | 2 |
| 2 | 2. Disorders of water and electrolyte metabolism (4 class hours)<br>2.1 Disorders of water and sodium metabolism<br>2.2 Disorders of Potassium metabolism<br>2.3 Disorders of magnesium metabolism<br>2.4 Disorders of Calcium and Phosphorus metabolism<br>2.5 Edema<br>2.6 Case analysis | 4 |

| | | |
|---|---|---|
| 3 | 3. Acid-base disturbances (4 class hours)<br>3.1 Generation of acids and bases<br>3.2 Regulation of pH<br>3.3 Simple acid-base disorders<br>3.4 Mixed acid-base disorders<br>3.5 Case analysis | 4 |
| 3 | 4. Hypoxia (3 class hours)<br>4.1 Parameters of blood oxygen<br>4.2 Classification, etiology and pathogenesis of hypoxia<br>4.3 Alterations of function and metabolism<br>4.4 Oxygen therapy and oxygen intoxication<br>4.5 Case analysis | 3 |
| 4 | 5. Fever (2 class hours)<br>5.1 Regulation of normal body temperature<br>5.2 Etiology and Pathogenesis<br>5.3 Alterations of function and metabolism<br>5.4 Pathophysiological basis of prevention and treatment<br>5.5 Case analysis | 2 |
| 4 | 6. Apoptosis and disease (2 class hours)<br>6.1 Inducer of apoptosis<br>6.2 Effectors and regulators of apoptosis<br>6.3 The biochemical pathways in apoptosis<br>6.4 Abnormal cell apoptosis in diseases<br>6.5 Case analysis | 2 |
| 5 | 7. Stress ( 2 class hours)<br>7.1 Terminology of stress<br>7.2 Stress responses<br>7.3 Functional and metabolic responses<br>7.4 Stress-related diseases<br>7.5 Pathophysiological basis of prevention and treatment for stress disorders<br>7.6 Case analysis | 2 |
| 5 | 8. Disseminated intravascular coagulation (2 class hours)<br>8.1 Etiology and Pathogenesis<br>8.2 Factors influencing the development of DIC<br>8.3 Clinical classification of DIC<br>8.4 Alterations of function and metabolism<br>8.5 Pathophysiological basis of prevention and treatment | 2 |
| 6 | 9. Ischemia-reperfusion injury (2 class hours)<br>9.1 Etiology and Pathogenesis<br>9.2 Alterations of function and metabolism during ischemia-reperfusion injury<br>9.3 Pathophysiological basis of prevention and treatment for ischemia-reperfusion injury<br>9.4 Case analysis | 2 |
| 7 | 10. Shock (3 class hours)<br>10.1 Etiology, pathogenesis and classification<br>10.2 Alterations of function and metabolism<br>10.3 Pathophysiological basis of shock prevention and treatment<br>10.4 Multiple organs dysfunction syndrome (MODS)<br>10.5 Case analysis | 3 |

| | | |
|---|---|---|
| 8 | 11. Respiratory insufficiency (3 class hours)<br>11.1 Etiology and pathogenesis<br>11.2 Acute respiratory failure and chronic respiratory failure<br>11.3 Alterations of function and metabolism<br>11.4 Pathophysiological basis of prevention and treatment<br>11.5 Case analysis | 3 |
| 9 | 12. Cardiac insufficiency (3 class hours)<br>12.1 Etiology<br>12.2 Classification and pathgenesis<br>12.3 Compensatory and adaptive response<br>12.4 Alterations of function and metabolism<br>12.5 Pathophysiological basis of prevention and treatment<br>12.6 Case analysis | 3 |
| 9 | 13. Hepatic insufficiency (2 class hours)<br>13.1 Etiology and pathogenesis for hepatic insufficiency<br>13.2 Hepatic encephalopathy<br>13.3 Hepatorenal syndrome<br>13.4 Case analysis | 2 |
| 10 | 14. Renal insufficiency (2 class hours)<br>14.1 Basic tache of pathogenesis for renal insufficiency<br>14.2 Acute and chronic renal failure<br>14.3 Uremia<br>14.4 Pathophysiological basis of prevention and treatment for CRF and uremia<br>14.5 Case analysis | 2 |
| 11 | 15. Review (3 class hours) | 3 |
| 12 | 16. Home work-Presentation (4 class hours) | 4 |
| 13 | 17. Examination (2 class hours) | 2 |
| | Total | 45Hours |

**TEACHING AND LEARNING ACTIVITIES**

In this learning module, students will work towards attaining the ILOs through the following teaching and learning activities:

| **Teaching and Learning Activities** | **M1** | **M2** | **M3** | **M4** | **M5** |
|---|---|---|---|---|---|
| T1. Lecture | ✓ | ✓ | ✓ | ✓ | |
| T2. Discussion | | ✓ | | ✓ | |
| T3. Patient case studies | | | | | ✓ |
| T4. Writing assignment | | | | ✓ | ✓ |
| T5. Multimedia resources (videos, podcasts, or online resources) | | ✓ | | ✓ | ✓ |
| T6. Oral Presentation | | | | | ✓ |

**ATTENDANCE**

Attendance requirements are governed by the Academic Regulations Governing Bachelor's Degree Programmes of the Macao Polytechnic University. Students who do not meet the attendance requirements for the learning module shall be awarded an 'F' grade.

**ASSESSMENT**

This learning module is graded on a 100-point scale, with 100 being the highest possible score and 50 being the passing score.

Any student from Faculty of Health Sciences and Sports (FCSD) scoring less than 35% of the total mark in the final examination will be given an "F" grade for the module even if the overall grade is 50% or higher.

In this learning module, students are required to complete the following assessment activities:

| **Assessment Activities** | **Weighting (%)** | **ILOs to be Assessed** |
|---|---|---|
| A1. Home work and presentation （Beijing teacher） | 25 | M1, M2, M4, M5 |
| A2. Final Examination<br>Beijing teacher35%，Zhang Xiaozhan 65% | 75 | M3, M4, M5 |

The assessment will be conducted following the University's Assessment Strategy (see www.mpu.edu.mo/teaching_learning/en/assessment_strategy.php). Passing this learning module indicates that students will have attained the ILOs of this learning module and thus acquired its credits.

**MARKING SCHEME**

High grades will be awarded to work that demonstrates exceptional understanding and mastery of the subject matter and consistently exceeding expectations. The followings are the general assessment criteria for the assessment activities.

| Assessment Activities | Assessment Criteria | Mark Ranges | | | | |
|---|---|---|---|---|---|---|
| | | 88-100<br>High | 73-87<br>Signification | 58-72<br>Moderate | 50-57<br>Basic | <50<br>Fail |
| A1. Home work and presentation | Describe clearly the background of the assignment;<br>Rational analysis and explanation;<br>Deep reflection;<br>Complete and clear data; | Excellent | Good/ Very Good | Satisfactory | Marginal Pass | Fail; not reaching marginal levels |
| A2. Final Examination | Demonstrate the ability to identify and apply appropriate concepts, methods, and techniques | Excellent | Good/ Very Good | Satisfactory | Marginal Pass | Fail; not reaching marginal levels |
| | | Excellent | Good/ Very Good | Satisfactory | Marginal Pass | Fail; not reaching marginal levels |

Please refer to the 'Essay Rubic.pdf' and 'Group Presentation Evaluation Form.pdf' for the grading criteria of the writing assignment and oral presentation.

1.Assessment Criteria:

| Group Work and Presentation | Weighting (%) |
|---|---|
| Contents: relevant to the chosen topic, with appropriate width and depth | 10 |
| Structure: well organized, clear | 10 |
| Source of information: authoritative, up-to-date, with sound evidence, well acknowledged | 10 |
| Fluency and comprehensibility of speech<br>- Use appropriate body language (10%)<br>- Speak fluently at normal speed and loud enough (10%)<br>- Have good timing (10%)<br>- Employ attractive presentation style (10%) | 40 |
| Effectiveness of classroom discussion：<br>-Ask questions actively (5%)<br>-Targeted questioning (5%)<br>-Answer accurately (5%)<br>-Answer logically (5%) | 20 |
| Teamwork：list the contributions of each member | 10 |
| Total | 100 |

**REQUIRED READINGS**

王建枝,錢睿哲（編）（2018）。*病理生理學*（第 9 版）。北京：人民衛生。

Wang Jianzhi, Jin Huiming（Chief Editors）（2005）*Pathophysiology*（First Edition）。Bejing：People's Medical Publishing House

**REFERENCES**

McPhee , S. J., Lingappa, V. R., & Ganong, W. F. (2004). *Pathophysiology of disease.*(3rd ed.). New York: McGraw-Hill.

Xie Keming，Wang Xiaochuan(2008). *Pathophysiology Review and Self-Assessment*. Bejing：People's Medical Publishing House

**STUDENT FEEDBACK**

At the end of every semester, students are invited to provide feedback on the learning module and the teaching arrangement through questionnaires. Your feedback is valuable for instructors to enhance the module and its delivery for future students. The instructor and programme coordinators will consider all feedback and respond with actions formally in the annual programme review.

**ACADEMIC INTEGRITY**

The Macao Polytechnic University requires students to have full commitment to academic integrity when engaging in research and academic activities. Violations of academic integrity, which include but are not limited to plagiarism, collusion, fabrication or falsification, repeated use of assignments and cheating in examinations, are considered as serious academic offenses and may lead to disciplinary actions. Students should read the relevant regulations and guidelines in the Student Handbook which is distributed upon the admission into the University, a copy of which can also be found at www.mpu.edu.mo/student_handbook/.