

Course syllabus of Clinical Chemistry 2

Faculty: Medicine and Health Sciences

Department: Health Sciences

Program: Bachelor in Medical Laboratory

I. General information about the course instructor:

| | | | | | | | |
|-------------------------|----------------------|--------------|-----|-----|-----|-----|-----|
| Name | Dr. Waled Al-Dubai | Office Hours | | | | | |
| Location & phone number | Sana'a 733872358 | Sat | Sun | Mon | Tue | Wed | Thu |
| Email | Walidw2001@yahoo.com | - | 1 | 1 | 1 | - | - |

II. General information about the course:

| | | | | | | |
|---|---|------------------|-----------|----------|-------|--|
| 1. Course Title: | Clinical Chemistry 2 | | | | | |
| 2. Course Code and Number : | BML361 | | | | | |
| 3. Credit Hours : | Lecture | Seminar/Tutorial | Practical | Training | Total | |
| | 2 | - | 1 | - | 3 | |
| 4. Study Level and Semester: | 3 rd year /2 nd semester | | | | | |
| 5. Pre-requisites: | BML235 & BML245 | | | | | |
| 6. Co-requisites: | None | | | | | |
| 7. Program in which the course is offered | Bachelor in Medical Laboratory | | | | | |
| 8. Teaching Language: | English | | | | | |
| 9. Instruction location: | University of Science and Technology, Sana'a ,Yemen | | | | | |

III. Course Description

This course focuses on clinical enzymology, endocrine glands, hormonal function and tumor markers. These involve the knowledge of the basic concepts and principles of their metabolism, laboratory analyses and their diagnostic utility. The course also deals with instrumentation and evaluation of the accuracy and precision of the procedures using analytical techniques. The course is based on lectures as well as seminars, group discussion, lab experiments, Log book, group works, collaborative learning, and Case study. The students will be evaluated through written exam, problems, practical exam, lab report and evaluation of log book. Biochemistry 1 and Biochemistry 2 courses are the prerequisite courses.

عميد الكلية:
د. عبد الله المخلافي

رئيس القسم:
د. عبد الحبيب القباطي

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المراجع:
أ.د. علي الحاج
د. حمود الحبابي

جامعة العلوم والتكنولوجيا
إدارة ضمان الجودة والاعتماد
مستند
APPROVED

الموافق:
أ.د. ولاء الدبعي

IV. Course Aims: This course is aimed to:

1. Make the students able to understand the principles of clinical biochemistry related to health and disease.
2. Provide students with an advanced knowledge about enzymes, hormones, tumor markers and their diagnostic values for different diseases.
3. Develop the practical skills of students in measurement of enzymes, hormones, and tumor markers by different techniques and diagnosis of various clinical conditions.
4. Improve the skills of the students on the modern methods of diagnosis in clinical chemistry.
5. Enable the students to perform and interpret routine clinical testing and describe the levels of enzymes, hormones and tumor markers.

V. Course Intended Learning Outcomes (CILOs):

1. Recognize enzymes of each organ, mechanism of hormone action and hormones of each gland and tumor markers with their diagnostic values.
2. Describe laboratory tests performed to diagnose diseases of endocrine gland, organs and cancer.
3. Integrate and explain laboratory results.
4. Develop competence in problem solving and in using diagnostic techniques to get reliable results.
5. Use the skills in performing lab tests, identify lab errors and record results.
6. Perform calibration for lab instruments, laboratory techniques and equipment to get more accurate result and execute safely lab tests.
7. Work effectively in a group in a lab or during preparation of seminars and respects the role of staff and co-staff members regardless of degree or occupation.



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المراجع :
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د. حمود الحبابي

الموصف :
أ.د. وليد الدبعي

| VI. Course Contents: | | | | |
|--|--|---|------------------------------------|---------------|
| First: Theoretical Aspects | | | | |
| No | Course Topics/Units | Sub-topics | Week due | Contact Hours |
| 1 | Clinical Enzymology | - Myocardial infarction, and cardiac markers: troponin, CK, LDH, AST and Myoglobin. - Pancreatic enzymes , lipase, and amylase - Prostatic enzyme ACP | 1 st – 3 rd | 6 |
| 2 | Introduction to hormones | - Definition and classification - Mechanism of action | 4 th , 5 th | 4 |
| 3 | Endocrine glands and hormone function | - Hormones of hypothalamus, pituitary gland and common disorders. | 6 th , 7 th | 4 |
| 4 | Med-term exam | | 8 th | 2 |
| 5 | Endocrine glands and hormone function | - Hormones of adrenal, thyroid, parathyroid, gonads, pancreas and common disorders. | 9 th – 13 th | 10 |
| 6 | Tumor markers | - Definition, features - Classification - Application | 14 th | 2 |
| 7 | Final term exam | | 15 th | 2 |
| Total number of weeks and hours | | | 15 | 30 |

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| Second: Practical/Tutorial/Clinical Aspects | | | | |
|---|--|-----------------------------------|---------------|--|
| No | Practical | Week due | Contact Hours | |
| 1 | - Markers for myocardial infarction, troponin, CK, LDH, AST and Myoglobin. - Abnormalities and measurements | 2 nd – 4 th | 6 | |
| 2 | - Pancreatic enzymes , lipase, and amylase - Abnormalities and measurements | 5 th , 6 th | 4 | |
| 3 | - Prostatic enzyme ACP - Abnormalities and measurements | 7 th | 2 | |
| 4 | Introduction for measurement of hormones: - Sample collection - Source of errors in collecting hormonal sample - Hormones units and reference ranges - Principle of closed system for hormonal measurement | 8 th | 2 | |
| 5 | - Methods for the determination of hormones in blood: - ELIZA, RIA, HPLC, IFA, ECL, and chromatography | 9 th | 2 | |
| 6 | - Determination of pituitary hormones: growth hormone, TSH, Prolactin, FSH, LH...etc. | 10 th | 2 | |

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|--|---|------------------|----|
| 7 | - Determination of thyroid and parathyroid hormones: T3, T4 and PTH. | 11 th | 2 |
| 8 | - Determination of sex hormones: E2, progesterone, DEHA, Testosterone,...etc. | 12 th | 2 |
| 9 | Practical Final exam | 13 th | 2 |
| Total number of weeks and hours | | 12 | 24 |

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