The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

1	Course title	**Clinical Biochemistry I**
2	Course number	**1203411**
3	**Credit hours (theory, practical)**	**2(theory)**
	Contact hours (theory, practical)	**32 (theory)**
4	Prerequisites/corequisites	**Prerequisite: Pathophysiology for pharmacy (1203301) + Biochemistry II (1203253)**
5	Program title	**PharmD**
6	Program code	
7	Awarding institution	**The University of Jordan**
8	Faculty	**Pharmacy**
9	Department	**Biopharmaceutics & Clinical Pharmacy**
10	Level of course	**undergraduate**
11	Year of study and semester (s)	**First semester of the 4th year**
12	Final Qualification	**PharmD**
13	Other department (s) involved in teaching the course	**NA**
14	Language of Instruction	**English**
15	Date of production/revision	**1 September 2015**

16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.
Prof. Yasser Bustanji
E-mail: bustanji@ju.edu.jo
Office No.: 218
Office hours to be announced

17. Other instructors:

18. Course Description:

This course describes the changes to the body's chemistry when affected by diseases. The course includes specimen collection and processing, water and electrolytes balance, hydrogen ion homoeostasis and blood gases, the kidneys, plasma proteins, clinical enzymology

19. Course aims and outcomes:

Program Competencies Achieved:

2.3 Identify pathophysiological basis of major human diseases and their effect on body fluid composition
2.4 Assess symptoms and diagnostic tests and correlate with associated disease.
2.17 Advise patients and other health professionals
2.20 Able to interpret patient biochemical laboratory results

A- Aims:

At the end of this course, the student will be introduced to:

1. The principles of laboratory tests and their use in diagnosis.
2. The normal water and electrolytes balance in our body and the effect of diseases on this balance. Main concepts of acid base hemostasis
3. The effect of the different diseases on renal function, calcium metabolism, lipid metabolism, amino acids and proteins, liver function.

B- Course Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to …

A. Knowledge and understanding:

1. Samples collection and processing and sampling errors
2. Physiological factors affecting the interpretation of clinical lab results.
3. Laboratory tests used in the diagnosis of diseases.
4. Disorders in water hemostasis
5. Disorders Sodium, Potassium, acid base hemostasis
6. Calcium metabolism and major disesers that involve calcium disoreders
7. Biochemical markers involved in assessment of kidney function.
8. Biochemical markers involved in assessment of Liver function
9. How diseases affect the metabolism of different analytes, for example, electrolytes, calcium, lipids, amino acids, plasma proteins and glucose.

B. Intellectual skills:

1. Explain molecular basis of diseases.
2. Correlate the signs and symptoms to the molecular basis of diseases.
3. Correlate the changes in water and electrolytes balance, hydrogen ion homoeostasis and blood gases to diseases.
4. To interpret the changes in calcium metabolism to renal and bone diseases.
5. Correlate the changes in liver function tests to liver diseases.
6. Correlate the changes in the plasma proteins, lipids and lipoproteins, electrolytes to diseases.

C. Subject-specific skills:

✓ Interpret laboratory findings preformed in clinical practice.

D. Transferable skills:

✓ Communicate effectively with the medical team concerning the use of laboratory tests in the diagnosis of diseases.

✓ Develop the skills of information management.

Teaching Methods

✓ Lectures, Assignments, discussion of clinical cases

20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
1. Introduction	**1**	Dr. Yasser Bustanji			
2. Specimen collection and sampling errors	**1-2**	Dr. Yasser Bustanji	A, B, C, D	Exams, Quizes	Specified in each lecture. General references provided below
3. Factors affecting interpretation of the results	**2-3**	Dr. Yasser Bustanji	A, B, C, D	Exams, Quizes	Specified in each lecture. General references provided below
4. Reference values	**3-4**	Dr. Yasser Bustanji	A, B, C, D	Exams, Quizes	Specified in each lecture. General references provided below
5. Water hemostasis	**5**	Dr. Yasser Bustanji	A, B, C, D	Exams, Quizes	Specified in each lecture. General references provided below
6. Electrolytes hemostasis (Sodium and potassium balance	**5-6**	Yasser Bustanji	A, B, C, D	Exams, Quizes	Specified in each lecture. General references provided below
7. Acid-base disturbances Buffers, metabolic and respiratory acidosis and alkalosis.	**7-8**	Dr. Yasser Bustanji	A, B, C, D	Exams, Quizes	Specified in each lecture. General references provided below
8. Calcium metabolism (Calcium regulation, hypo- and hypercalcemia)	**9**	Dr. Yasser Bustanji	A, B, C, D	Exams, Quizes	Specified in each lecture. General references provided below
9. Investigation of renal function (Acute and chronic	**10-11**	Dr. Yasser Bustanji	A, B, C, D	Exams, Quizes	Specified in each lecture. General references

renal failure, renal calculi)					provided below
10. Amino acids metabolism disorders	**12**	Dr. Yasser Bustanji	A, B, C, D	Exams, Quizes	Specified in each lecture. General references provided below
11. The use of enzymes as clinical markers	**12-13**	Dr. Yasser Bustanji	A, B, C, D	Exams, Quizes	Specified in each lecture. General references provided below
12. Plasma proteins as clinical markers (Total plasma protein test, Albumin, acute phase reactants, non acute phase reactants. Immunoglobulins)	**13-14**	Dr. Yasser Bustanji	A, B, C, D	Exams, Quizes	Specified in each lecture. General references provided below
13. Liver function and diseases (Liver function tests and their relations to liver diseases)	**15**	Dr. Yasser Bustanji	A, B, C, D	Exams, Quizes	Specified in each lecture. General references provided below
14. **Final Exam**	**16**				

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

ILO/s	Learning Methods	Evaluation Methods
	Lectures	Exams, Quizzes
	Assignments	Homework
	Discussions	

Learning skills:

1. **Critical thinking**
2. **Digital literacy**
3. **Problem-solving skills**
4. **Communication skills**

22. Evaluation Methods and Course Requirements:

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

1. **Exams**
2. **Quizzes**
3. **Students reports on assignments**

23. Course Policies:

A- Attendance policies:

Attendance: Mandatory.

University regulations will be applied

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

University regulations will be applied

C- Health and safety procedures:

NA

D- Honesty policy regarding cheating, plagiarism, misbehavior:

The participation, the commitment of cheating will lead to applying all following penalties together

1) Failing the subject he/she cheated at

2) Failing the other subjects taken in the same course

3) Not allowed to register for the next semester. The summer semester is not considered as a semester

E- Grading policy:

Exams and Quizzes.

Mid Exam:	40 points
Quizz:	5 points
Assignments	5 points
Final Exam:	50 points
Total	100 points

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

Classrooms, internet classes

24. Required equipment:

Datashow and internet connection

25. References:

A- Required book (s), assigned reading and audio-visuals:

1. An Illustrated Colour Text in Clinical Biochemistry 3rd edition, Gaw A et al. (ISBN 978-0443072697)
2. Tietz Fundamental of Clinical Chemistry. 5th edition, edited by Burtis C.A. and Ashwood E.R., 2001. (ISBN 9780721601892)
3. Clinical Chemistry in Diagnosis and Treatment. 6th edition, Mayne P.D., 1998 (ISBN 978-0340576472)
4. Clinical Chemistry. 5th edition, Marshall W.J., 2004. (ISBN 978-0723434559)
5. Textbook of Biochemistry with Clinical Correlations. T.M. Devlin Editor, Wiley-Liss, John Wiley & Sons, Inc. 7th Edition 2010 (ISBN5-60152-470-0-978)

26. Additional information:

Name of Course Coordinator: Yasser Bustanji -Signature: ---------- Date: Jan, 31, 2016

Head of curriculum committee/Department: ---------- Signature: ----------

Head of Department: Nailya Bulatova Signature: ----------

Head of curriculum committee/Faculty: ---------- Signature: ----------

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

Copy to:
Head of Department
Assistant Dean for Quality Assurance
Course File