Principles of Biochemistry and Molecular Biology
PHAR 7401
Fall Semester 2020

Course Description
Qualitative and quantitative understanding and application of biochemistry focusing on the cellular pathways as it would pertain to pharmacy.

Additional Course Information
This course provides the theoretical building blocks necessary to understand the biochemistry pathways of the cell. The interrelationship between biochemical pathways and physicochemical drug properties influencing drug metabolism and pharmacologic response.

Course Credit
4 credit hours

Pre-Requisites
N/A

Co-Requisites
N/A

Fundamental Knowledge
1. Biology.
2. Chemistry / organic chemistry fundamentals, including pH and pKa
3. Human anatomy and physiology

Class Meeting Days, Time & Location
Tuesday and Thursday, 10 am – 12pm; W.T. Brookshire Hall 137 (P1 classroom)

Course Coordinator
David Pearson, Ph.D.
W.T. Brookshire Hall Room 363
Phone number: 903.566.6109
Email: dpearson@uttyler.edu
Office hours: 9-10 AM Tuesday/Thursday and Lunchtime
Preferred method of contact: Email

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Classes will be recorded and posted to canvas.

Fisch College of Pharmacy (FCOP) and UT Tyler Policies
This is part 1 of the syllabus. Part 2 contains UT Tyler and the FCOP course policies and procedures. These are available as a PDF https://www.uttyler.edu/pharmacy/academic-affairs/. For. For experiential courses (i.e., IPPE and/or APPE), the Experiential Manual contains additional policies and instructions that supplement the Syllabus Part 1 and 2. Please note, the experiential manual may contain policies with different deadlines and/or instructions. The manual should be followed in these cases.

Disability/Accessibility Services:
The University of Texas at Tyler has a continuing commitment to providing reasonable accommodations for students with documented disabilities. Like so many things this Fall, the need for accommodations and the

process for arranging them may be altered by the COVID-19 changes we are experiencing and the safety protocols currently in place. Students with disabilities who may need accommodation(s) in order to fully participate in this class are urged to contact the Student Accessibility and Resources Office (SAR) as soon as possible, to explore what arrangements need to be made to ensure access. During the Fall 2020 semester, SAR will be conducting all appointments via ZOOM. If you have a disability, you are encouraged to visithttps://hood.accessiblelearning.com/UTTyler and fill out the New Student Application. For more information, please visit the SAR webpage athttp://www.uttyler.edu/disabilityservices or call 903.566.7079.

Important Covid-19 Information for Classrooms and Laboratories

Students are required to wear face masks covering their nose and mouth, and follow social distancing guidelines, at all times in public settings (including classrooms and laboratories), as specified by Procedures for Fall 2020 Return to Normal Operations. The UT Tyler community of Patriots views adoption of these practices consistent with its Honor Code and a sign of good citizenship and respectful care of fellow classmates, faculty, and staff.

Students who are feeling ill or experiencing symptoms such as sneezing, coughing, or a higher than normal temperature will be excused from class and should stay at home and may join the class remotely. Students who have difficulty adhering to the Covid-19 safety policies for health reasons are also encouraged to join the class remotely. Students needing additional accommodations may contact the Office of Student Accessibility and Resources at University Center 3150, or call (903) 566-7079 or email saroffice@uttyler.edu.

Recording of Class Sessions

Class sessions may be recorded by the instructor for use by students enrolled in this course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in this course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recordings should not be shared outside of the course in any form without express permission.

Required Materials

Most course required materials are available through the Robert R. Muntz Library. These materials are available either online* (http://library.uttyler.edu/) or through Acess Pharmacy (http://accesspharmacy.mhmedical.com/) or on reserve.

1. Integrative Medical Biochemistry Examination and Board Review; Michael W. King, Ed by LANGE
2. Harper's Illustrated Biochemistry, 30e, Victor W. Rodwell, David A. Bender, Kathleen M. Botham, Peter J. Kennelly, P. Anthony Weil, Ed by LANGE
3. **Other required materials will be posted on the classes' Canvas site. The site address is: uttyler.edu/canvas.**

Additional Resources

1. Other texts will be available on Access Pharmacy (http://accesspharmacy.mhmedical.com/)

Course Format

The course may include, but are not limited to, the following activities:

1. Independent study of selected readings
2. Individual readiness assessment tests (iRATs)
3. Team-based learning, active learning strategies:
    a. Team readiness assessment tests (tRATs)
    b. Team application of content and concepts

Course Learning Outcomes (CLOs)

CLOs	PLO(s) Assessed for this CLO (1-15)	EPAs (1.1-6.1)	Assessment Methods	Grading Method	PPCP Skill(s) Assessed (1-5)	ACPE Std. 11 & 12 (1-4)
1.Understand and predict what would be the outcome of manipulating specific biochemical pathway.	1,7	N/A	MCQ, Fill in, open ended	ES	N/A	1
2. Describe how changes in normal physiology or disease affect a specific biochemical pathway.	1,7	N/A	MCQ, Fill in, open ended	ES	N/A	1
3. Summarize the role of biochemistry in drug metabolism.	1,7	N/A	MCQ, Fill in, open ended	ES	N/A	1
4.						
5.						
6.						

Course Assessment Methods

	Assessment Method	Description *Please provide a brief description of each summative assessment that you plan to use in this course to allow us to identify which ACPE standards are being assessed*
1	Final Exam Multiple Choice or Multiple Selection Question(s)	*Standard MCQ and Select All that apply questions.*
2	Comprehensive Final Exam	*Standard MCQ and Select All that apply questions and* Open Ended Question(s)

Grading Policy & Grade Calculation

Grades will be determined based on evaluation of individual and team readiness assessment tests (iRATs, tRATs), individual and team cumulative assessment tests (iCATs, tCATs), midterm examinations, final written examinations, skills assessments, graded application assignments, participation in team-based projects, peer evaluations and other assessment methods that may include, but not limited to, Objective Structured Clinical Examinations (OSCE). Examinations, RATs and CATs may consist of, but not limited to, multiple-choice, true/false, fill in the blank, short-answer, essay, and problem-based questions.

During the time the course is in progress, students whose cumulative course percentage falls below 70.0% may receive an academic alert and be subject to periodic course content review in special sessions with the course instructor(s). The student's faculty advisor may receive an academic alert to act upon on the student's behalf.

All examinations, tests, and assignments, including the final examination, may be **cumulative.** Students are responsible for material presented during the prior courses. The grading scale for all graded material is below. The final course grade will be assigned according to the calculated percentage and the percentages will not be rounded upward or downward. For additional information, see examination/assessment policy below.

Standard Grade Calculation*

Individual Component	**95%**
iRAT	10%
2 Midterm Assessments	45%
Compressive Final	40%
Team Component	**5%**
tRAT	3%
Team Application(s)	2%

** Expect an iRAT/tRAT for every class unless otherwise told.*

Standard Grade Calculation*	**100%**

The final course letter grade will be determined according to the following grading scheme:

A	90 - 100 %
B	80 - 89.999 %
C	70 - 79.999 %
D	65.0 - 69.999 %
F	< 65.0 %

Top 200 Rx & Top 100 OTC Medications (LINK): The medications discussed in this course are indicated in the course schedule, first column (i.e. Week). Check here if this section does not apply: ☐

Principles of Biochemistry and Molecular Biology (PHAR 7401)

WEEK	DAY	DATE	TOPIC	Instructor	CLO[1]	WSOP Category[7]
1	*T	8/25	Biochemistry: Course Introduction/Introduction to cell structure and function	Pearson	1, 2, 3	S19.01
	*Th	8/27	Biological Molecules	Pearson	1, 2, 3	S19.01
2	*T	9/1	Biochemistry: Cellular membranes and membrane transport	Pearson	1, 2, 3	S19.01
	*Th	9/3	Biochemistry: Intracellular transport, cell movement, extracellular	Pearson	1, 2, 3	S19.01
3	*T	9/8	Protein Structure and Function	Pearson	1, 2, 3	S16.06
	*Th	9/10	Biochemistry: Signal transduction and regulation	Pearson	1, 2, 3	S16.06
4	*T	9/15	Biochemistry: Regulation of Cell Cycle	Pearson	1, 2, 3	S16.06, S7.05
	*Th	9/17	Biochemistry: Regulation of apoptosis	Pearson	1, 2, 3	S19.01
5	*T	9/22	Biochemistry: Biochemistry of Nitric Oxide (NO)	Pearson	1, 2, 3	S19.01
	*Th	9/24	Biochemistry: Introduction to metabolism	Deba	1, 2, 3	S19.01
6	T	9/29	EXAM 1	Pearson		
	*Th	10/1	Biochemistry: Biochemistry of enzymes (Kinetics)	Abdelaziz	1, 2, 3	S07.03 S01.08,
7	*T	10/6	Biochemistry: Carbohydrate metabolism	Pearson	1, 2, 3	S17.03
	*Th	10/8	Biochemistry: Energy Production	Pearson	1, 2, 3	S01.08, S17.03
8	*T	10/13	Biochemistry: Lipid metabolism and dyslipidemia	Pearson	1, 2, 3	S17.03
	*Th	10/15	Biochemistry: Protein metabolism	Pearson	1, 2, 3	S16.06

9	*T *Th	10/20 10/22	Biochemistry: Nucleotide metabolism Biochemistry: Arachidonic acid metabolism/ Fever	Pearson Pearson	1, 2, 3 1, 2, 3	S05.07 S01.06
10	*T *Th	10/27 10/29	Biochemistry: Thrombosis: Biochemistry: Biochemistry of RBC and oxygen carrying	Pearson Pearson	1, 2, 3 1,2,3	S14.01 S16.06
11	T *Th	11/3 11/5	EXAM2 Biochemistry: Chromosomal abnormalities	Pearson Pearson	 1, 2, 3	 S16.06
12	*T *Th	11/10 11/12	Biochemistry: DNA damage and repair Biochemistry: Gene expression and regulation	Pearson Pearson	1, 2, 3 1, 2, 3	S19.0, 15.05 S19.0, 15.05
13	*T *Th	11/17 11/19	Biochemistry: Molecular biology of a virus/Flu Biochemistry: Biotechnology/molecular biology/genetics	Glavy Glavy	1, 2, 3 1, 2, 3	S19.01 S19.01
14	M-F	11/23 /28	**Thanksgiving Break**	RELAX		
15	*T *Th	12/1 12/3	Translation (On-Line) Open – Review (On-Line)	Glavy	1, 2, 3	S19.01
16		12/9 12-3pm	**Comprehensive Final Exam (On-Line)**			