CHEMISTRY 430 ADVANCED BIOCHEMISTRY

Spring, 2014-15 **MTThF 6th hour in G220**

INSTRUCTOR: Mark Brandt, Ph.D. E-mail: brandt@rose-hulman.edu
Office: FL-109 Tel: Ext. 8406
Website: http://www.rose-hulman.edu/~brandt/Chem430/

TEXTBOOK: *Lehninger Principles of Biochemistry,* 6th edition, David L. Nelson and Michael M. Cox, Freeman & Co., 2013

EXAMS: At least one of the exams in this course will be take-home. Guidelines for taking the take-home exams will be included on the exams.

HOMEWORK: there will be frequent homework and in-class assignments. While these cannot be performed late, ***excused*** missed assignments will not count against your grade.

Grade Breakdown:		
	Exams	60%
	Presentations	20%
	Problem Sets/Quizzes	15%
	Participation	5%
	Total Points	100%

COMMENTS AND POLICIES: Large portions of the class sessions will be devoted to discussions and problem solving related to the reading assignments. If you do not do the reading, you will find it much harder to follow the class discussions and to work on the problems discussed in class.

Biochemistry is highly integrated, and many of the concepts covered in one class will be used extensively in subsequent classes. A large part of understanding biochemistry involves integrating concepts discussed at different times. Studying for the course should be an ongoing process; if you only study while working on a take-home exam, you are unlikely to do well. One additional advantage inherent in keeping up is that you will know what it is you do not understand; this allows you to ask questions in class (which everyone will find useful).

The homework and in-class problem sets are intended to help you understand the material. Working together on these problem sets is encouraged; remember, however, that ***each individual is responsible for turning in their own work***. **Copying the work of others without proper attribution is both unethical and a form of Academic Misconduct**; in addition, if you allow others to do your work for you, you will find yourself at a severe disadvantage on the exams. This means that you should understand the answers you write on your problems sets, and not merely copy answers from your friends or from other sources.

CHEM 430 LIST OF POSSIBLE TOPICS

Topic Survey Results

Topic	Mean	Number of 5
Protein purification	**2.55**	**1**
Protein structure determination and analysis	2.55	0
Protein folding and structure/function relationships	2.91	1
Xenobiotic metabolism	3.70	3
Data analysis, experiment design, and project design	2.18	0
Nuclear receptor biochemistry	3.18	1
DNA and gene transcriptional manipulation	3.27	0
RNA interference	2.73	0
Molecular mechanisms of intoxication and anesthesia	**4.10**	**3**
Molecular mechanisms of infectious disease		
Malaria	3.82	3
Influenza	**3.91**	**5**
Ebola	**3.91**	4
Cholera	**3.55**	4
HIV	**4.27**	**5**
Sleeping sickness	5.00	1
Tuberculosis	5.00	1
Measles	5.00	1
Molecular mechanisms of genetic disorders	3.73	2
Molecular mechanisms of cancer	3.64	3
Endocrine physiology	3.45	2
Nutrition	3.55	4
Molecular mechanisms of protein transport/targeting	2.73	0
Biochemical issues related to stem cells	**4.09**	**5**
Gene therapy	3.64	4
Performance enhancing drugs	3.73	4
Write-ins		
Mind-altering substances	5.00	1
Esterase-mediated drug catalysis	4.00	
Molecular mechanisms of death and decay	4.00	
Brain and/or muscle biochemistry	4.00	
New discoveries in biochemistry	5.00	1
Immune system mechanisms and regulation	5.00	1
Human Microbiome	5.00	1
Computational methods	4.00	