CHEM 3510: BIOCHEMISTRY

COURSE AND INSTRUCTOR INFORMATION

Professor: Dr. Chavonda Mills	
Email: chavonda.mills@gcsu.edu	**Phone:** (478) 445-0819
Office: Herty Hall 311 or A&S 2-50	**Office Hours:** M, W: 10am-12pm; R, 2pm-4pm
Lecture: T, R 11:00 AM – 12:15 PM	**Lecture Room:** Herty Hall 313

COURSE DESCRIPTION

CHEM 3510 will provide an in-depth study of selected topics in biochemistry. The course will be taught by lecture/discussion and guided activities covering (but not limited to) the following topics: fundamental building blocks of biomolecules, amino acids & proteins, lipids & membranes, kinetics and mechanisms of biological catalysts, carbohydrates & polysaccharides, bioenergetics, metabolic cycles: glycolysis, gluconeogenesis, krebs cycle, oxidative phosphorylation, and fatty acid catabolism.

PRE-REQUISITES

Pre-Requisite: CHEM 3361 and 3361L

COURSE MATERIALS

Required Resources

1. Access to Course Website : http://libguides.gcsu.edu/millsbiochem
2. Aher and Rajagopal, *Biochemistry Free for All*
   http://biochem.science.oregonstate.edu/content/biochemistry-free-and-easy
3. Access to GeorgiaVIEW D2L https://gcsu.view.usg.edu/

Student Learning Outcomes

Student learning outcomes for the course reflect the many components involved in developing the skills, abilities and dispositions necessary for proficiency in biochemical science. Students will (i) develop a broad understanding of the fundamental biochemical concepts of living organism, (ii) apply biochemistry concepts to human health and disease, (iii) communicate scientific information/data in both written and oral format, and (iv) enrich his/her quantitative, qualitative, and critical thinking skills.

CHEM 3510 and CHEM 3711: Biochemistry

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Week	Topic	Activity	Notes
1	Introduction; Biomolecules in Water		http://libguides.gcsu.edu/c.php?g=609762&p=4233137 http://libguides.gcsu.edu/c.php?g=609762&p=4233138
2	Amino Acids, Peptides, Proteins		http://libguides.gcsu.edu/c.php?g=609762&p=4233139
3	Protein Structure & Function		http://libguides.gcsu.edu/c.php?g=609762&p=4233140
4	Protein Structure & Function		http://libguides.gcsu.edu/c.php?g=609762&p=4233140
5	Properties of Enzymes	Exam 1 (R)	http://libguides.gcsu.edu/c.php?g=609762&p=4233141
6	Properties and Mechanisms of Enzymes		http://libguides.gcsu.edu/c.php?g=609762&p=4233142
7	Carbohydrates		http://libguides.gcsu.edu/c.php?g=609762&p=4233143
8	Carbohydrates; Lipids & Membranes		http://libguides.gcsu.edu/c.php?g=609762&p=4233144
9	Lipids & Membranes	Exam 2 (R)	http://libguides.gcsu.edu/c.php?g=609762&p=4233144
10	Biosignaling; Bioenergetics		http://libguides.gcsu.edu/c.php?g=609762&p=4233145 http://libguides.gcsu.edu/c.php?g=609762&p=4233146
11	Spring Break (M-F)		
12	Glycolysis		http://libguides.gcsu.edu/c.php?g=609762&p=4233147
13	Gluconeogenesis	Exam 3 (R)	http://libguides.gcsu.edu/c.php?g=609762&p=4269635
14	Krebs Cycle		http://libguides.gcsu.edu/c.php?g=609762&p=4233151
15	Fatty Acid Catabolism		http://libguides.gcsu.edu/c.php?g=609762&p=4233153
16	Oxidative Phosphorylation	Exam 4 (R)	http://libguides.gcsu.edu/c.php?g=609762&p=4233154
17	Final Exam (F 10:30-12:45)		