Chemistry 351 - Spring 2020
Biochemistry Metabolism
3 Credits

Instructor:	Dr. S. Ryan Oliver	Lecture Period:	MWF 11:45am-12:45pm
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Email:	sroliver@alaska.edu	Office Hours:	M 9 am-11 am or by Appointment
Phone:	474-5621		

Course materials

The following materials are *required* for the course and can be purchased in the UAF bookstore or elsewhere:

- *Principles of Biochemistry*, 7th edition. Authors: David L. Nelson and Michael M. Cox
  ISBN 978-1-4641-2611-6 (Hardcover)

- A subscription to Packback, an online classroom discussion platform.
  Email sent with your login information.

- TurningPoint Technologies Response – See Blackboard for registration instructions

- A University of Alaska email address is required for all communication in the class. This also provides access to the Blackboard system for individual scores and grades.

Important Dates

Monday, Jan. 20	Alaska Civil Rights Day (No Class)
Friday, Jan. 24	Last day for student and faculty initiated drops (100% refund)
Mon, Feb. 17	Exam 1
M-F, Mar 9-13	Spring Break
Fri, Mar. 27	Exam 2
Fri, Mar. 27	Last day for student and faculty initiated withdrawals (W on Transcript)
Wed, April 29	Final Exam

Course Information

Biochemistry of metabolism. Topics include: chemistry of amino acids and its implication, protein structure-function, enzyme catalysis, glucose and glycogen metabolism and regulation, bioenergetics, lipid metabolism and biomembranes, amino acid metabolism and regulation of metabolism. Biomedical relevance and contemporary techniques will be addressed if appropriate.
Prerequisites: CHEM F321. Recommended: CHEM 331

Course expectations and outcomes

Students are expected to attend class; attendance will be monitored from in class responses. Each day *before* class the student should read and digest the portion of the textbook appropriate as per the class schedule, including example questions. *Active learning* involves the student using their sensory motor cortex (sight, smell, sound, taste and touch) in addition to their intelligence, to solidify through practice a concept the student has just read or heard about. Supplementing the course catalog, the

course goals are to continue build the student's skills solving biochemical problems, reading critically, formulating questions, and communicating information assimilated throughout the course by completing exams. Class conduct should be professional as well as respectful of the rights other students to constructive learning experience.

Grading
Grades will be posted to blackboard, which can be accessed from the UAF homepage. Class grades may be adjusted (curved) from the following schedule only in the students' favor.

	Points
Examination 1	100
Examination 2	100
Final Exam	150
Discussion Board	60
Quizzes	90
Mini Projects	100
Total	600

Grade	Letter Grade	Points
100 - 90%	A	540-600
89 - 80%	B	480-539
79 - 70%	C	420-479
69 - 60%	D	360-419
59% or	F	< 360

The instructor reserves the right to drop any student from class if that student has missed an exam without an excused absence, not participated in the online discussion, appears to be failing as of Friday, January 24, 2020, or has many zeros for class participation grades. Students will be notified once via email before the drop; if the student corrects the deficiency, the student may remain in this class. Progress reports for freshman students are due to the Registrars Office by Monday, Feb. 24, 2020. The grade reported at that time will include the student's scores on the first exam, homework and the in-class participation grade. The last day for instructor initiated withdrawal is Friday, March 27, 2020 (W grade appears on academic record). An incomplete grade will only be assigned if a student misses the final exam for an outstanding reason, such as a medical problem, a death in the family, etc.

Discussion Board Participation

PackBack interactive discussion (10% of total grade)

Being in an online course can feel like an isolating experience. The goal of this interactive component of the course allows students to link the digital world and real world with concepts covered in this course. PackBack is a moderated discussion board that is student-driven. The goal is for you to develop a better understanding of the topics and to spark your curiosity of events in the world.

In order to receive your points per week, you must **post at least 2 Answers** *relevant to our class subject matter* per week. By answering questions, the goal is to build some level of engaged community and collaborative learning driven by student interests. Your question and answers for each module are due by 11:59 PM on the respective due data provided in class.

Before you start posting, be sure to read the Community Guidelines found in the tutorial on Packback. If your post doesn't follow the Packback Community Guidelines, there is a chance it will be removed and you won't receive points for that post.

Quizzes
Each student must obtain a radio frequency clicker (see above) or download the Turning Technologies app, which is used in lecture to answer questions projected on the overhead. Either option can be used but students must purchase a Cloud registration code if not obtaining a combo from the bookstore. Clicker numbers *must* be registered online in the Blackboard system to receive grades, as responses are recorded electronically by the TurningPoint receiver and software. No answers on paper will be accepted unless specified; any student found using any clicker other than their own will be in violation of the UAF honor code (see below). The quiz questions are likely to be similar to assigned homework problems and are designed to help prepare for exams. Students should come prepared to class with any materials needed for the quizzes, as the quiz may be open book or open note. However, sharing of class materials will not be permitted. A total of 10 quizzes will be given throughout the semester and the highest 9 scores will be tabulated (dropping lowest score).

*If a student misses an in-class quiz and is concerned about losing points, then that student should see Dr. Oliver about making up the quiz. Dr. Oliver will assign textbook problems similar to the quiz problems to the student and the student must solve the problem immediately on a sheet of paper and turn in the answer. The student will receive points if and only if the answers are correct.

Exams
The student is responsible for all information from text, lecture, discussion, quizzes and assigned study questions. Any of these sources will be used to construct exam questions. No use of a cell phone, pda, graphing calculator or otherwise will be allowed during the exam. Two one-hour exams and a cumulative final exam will be given as per the course schedule. **All students are required to take the final exam in order to pass the course.**

Absences
Make up examinations will be allowed for legitimate absences only, an unexplained absence from an exam results in a zero. If the student anticipates an absence (intercollegiate sports, travel for military or university business) talk to the professor *before* the exam. If the absence is unexpected (illness, family or personal calamity), contact the professor at the earliest possible opportunity. Please note that makeup exams require the student to have *no* knowledge of the original exam. No extensions or makeup will be accepted otherwise.

Ethical considerations
The Chemistry and Biochemistry Department *Policy on Cheating* states:
Any student caught cheating will be assigned a course grade of F. The students academic advisor will be notified of this failing grade and the student will not be allowed to drop the course.

Examples of cheating include, but are not limited to:
- Copying another student's answer while taking a quiz or exam
- Using another student's clicker for any reason
- Using another student's work while writing lab reports

Students must also adhere to UAF policies, the student code of conduct as well as the University of Alaska *Honor Code,* which states:
Students will not collaborate on any quizzes, in-class exams, or take-home exams that will contribute to their grade in a course, unless permission is granted by the instructor of the course. Only those materials permitted by the instructor may be used to assist in quizzes and examinations. Students will

not represent the work of others as their own. A student will attribute the source of information not original with himself or herself (direct quotes or paraphrases) in compositions, theses, and other reports. No work submitted for one course may be submitted for credit in another course with- out the explicit approval of both instructors. Violations of the Honor Code will result in a failing grade for the assignment and, ordinarily, for the course in which the violation occurred. Moreover, violation of the Honor Code may result in suspension or expulsion.

Student protections and services statement
Every qualified student is welcome in my classroom. As needed, I am happy to work with you, disability services, veterans' services, rural student services, etc to find reasonable accommodations. Students at this university are protected against sexual harassment and discrimination (Title IX), and minors have additional protections. As required, if I notice or am informed of certain types of misconduct, then I am required to report it to the appropriate authorities. For more information on your rights as a student and the resources available to you to resolve problems, please go the following site: www.uaf.edu/handbook/

Student success
There are a large number of resources to help students who would like to perform at their best. The student may make an appointment to see the instructor for help. (The instructor will attempt to reply to email questions within 24 hours during the school week.) The Chemistry and Biochemistry Department has established the Chemistry Learning Center (CLC), which offers student led instruction. Students may also see a tutor for additional assistance.

Disabilities
Students with a physical or learning disability are required to identify themselves to the Disability Services office, 474-7043, located in the Center for Health and Counseling. The student must provide documentation of the disability. Disability Services will then notify the instructor of special arrangements for taking tests, working homework assignments, and doing lab work.

UAF CHEM F351 Syllabus
Spring 2020
Oliver

Tentative course outline and calendar

Week	Date	Ch.		Topic
1	Jan 13 Jan 15 Jan 17	7 7 7		*Overview of Metabolism / Carbohydrates and Glycobiology*
2	Jan 20 Jan 22 Jan 24	- 13 13		*Principles of Bioenergetics*
3	Jan 27 Jan 29 Jan 31	14 14 14		Glycolysis and Gluconeogenesis
4	Feb 3 Feb 5 Feb 7	14 14 15		Glycolysis and Gluconeogenesis
5	Feb 10 Feb 12 Feb 14	15 15 15		Regulation of Glucose and Glycogen
6	Feb 17 Feb 19 Feb 21	- 16 16	**Exam 1**	***Exam 1*** *Citric Acid Cycle*
7	Feb 24 Feb 26 Feb 28	16 16 17		*Citric Acid Cycle* *Fatty Acid Catabolism*
8	Mar 2 Mar 4 Mar 6	17 18 18		*Amino Acid Oxidation / Urea Cycle*
9	Mar 9 -13	-		*Spring Break*
10	Mar 16 Mar 18 Mar 20	18 19 19		*Oxidative and Photo phosphorylation*
11	Mar 23 Mar 25 Mar 27	19 19 -	 **Exam 2**	*Oxidative and Photo phosphorylation* ***Exam 2***
12	Mar 30 Apr 1 Apr 3	13 20 20		Redox / Carbohydrate Biosynthesis
13	Apr 6 Apr 8 Apr 10	20 21 21		*Carb Biosynthesis Cont'd / Lipid Biosynthesis*
14	Apr 13 Apr 15 Apr 17	22 22 22		*Synthesis and degradation of Nucleotides*
15	Apr 20 Apr 22 Apr 24	23 23 -		*Hormonal Regulation/Integration of Metabolism* *Measuring Metabolic parameters - Application and Analysis*
	Apr 29	-	Final Exam	***FINAL EXAM*** ***May 1: 10:15 am - 12:15 pm***