

Spring 2-1-2019

# BCH 110.01: Intro Biology for Biochemists

Scott Samuels

*University of Montana, Missoula*, [scott.samuels@umontana.edu](mailto:scott.samuels@umontana.edu)

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## Intro Biology for Biochemists

BCH 110Spring 2019Forestry 305, MWF, 11:00 AM-11:50 AM

Scott Samuels Office: Clapp Building 207 Telephone: 243-6145 Email: [samuels@mso.umt.edu](mailto:samuels@mso.umt.edu) Office hours by appointment (arrange by email or phone).

**Text:** Campbell & Farrell, Biochemistry, 6th ed. (ISBN: 978-0-495-39041-1)

**Clicker:** i>Clicker (any model)

**Learning outcomes** are to understand the chemistry of life; to begin to think critically and solve scientific problems; and to appreciate the role molecular processes play in biology. This course will emphasize biochemical principles, scientific concepts, and information syntheses while fostering an appreciation of the structure and function of molecules in cells as well as the chemical reactions that together constitute life. Students will be able to:

- Understand the definition of science in the context of a way of knowing
- Appreciate the chemical nature of life
- Understand how polymeric macromolecules can encode information in the sequence of monomeric subunits
- Understand that cells are the basic unit of life
- Know that reaction rate and reaction direction are different thermodynamic properties
- Understand the mechanism of natural selection and its role in evolution
- Appreciate the remarkable properties of water
- Understand the structure, function, and properties of amino acids and the peptide bond
- Understand allosteric regulation
- Appreciate the diversity in the structure and function of lipids
- Know the structure of the lipid bilayer and understand its thermodynamic basis
- Understand the structures of carbohydrates and how to depict them
- Understand the function of DNA and how it is related to the structure of DNA
- Understand the function of RNA in gene expression
- Know the mechanisms of replication, transcription, and translation
- Appreciate the biological benefits of sexual reproduction

The **required course prerequisite** is CHMY 141N or equivalent and the **required course co-requisites** are CHMY 143N and BCH 111.

**Grading:** There are a total of 500 points to earn: Two midterm exams, 100 points each One final exam, cumulative, 100 points Five writing assignments, 10 points each Five quizzes, 10 points each Participation points, 100 points total

A 90% or higher will earn an A– or A, an 80% or higher will earn at least a B–, a 70% or higher will earn at least a C–, a 60% or higher will earn at least a D–, and lower than 60% is at risk of earning an F. Pluses (+) and minuses (–) will be used (A, A–, B+, B, B–, C+, C, C–, D+, D, and D–). A CR grade is equivalent to a D– or better and an NCR grade is equivalent to an F.

**Extra credit** will be available for students that volunteer to judge at the [Montana State Science Fair](#) on Monday, March 18.

**Make-ups** for missed exams are strongly discouraged, but requests with a compelling and verifiable excuse will be considered on a case-by-case basis. There are no make-ups for missed clicker questions.

**Exams and quizzes** will cover material from lecture and assigned reading. Midterm exams are during class (11:00 AM) on Wednesday, February 20 and Wednesday, April 3. The final exam will be at 10:10 AM on Thursday, May 2. All exams are closed book: no outside materials are allowed; electronic devices (including cell phones, translators, calculators, MP3 players, and others) are not allowed during exams without the explicit permission of the instructor.

If you would like to have an **exam re-graded**, you need to submit your comments in writing within two weeks of the return of the graded exam and your exam will be completely re-graded.

**Clickers** will be used for participation points. Students are required to purchase an i>Clicker remote or app and will be graded on i>Clicker use: 2 clicker points for responding to 75% of questions in one class, plus 1 clicker point for each answer and 1 additional clicker point for each correct answer. Clicker points will be scaled to 100 participation points depending on how many clicker points are offered (which is expected to be about 475, in which case ~5 clicker points will be equal to 1 participation point). The i>Clicker remote or app must be registered in class. Students will need to contact the instructor by the end of the first month of class if they cannot determine their remote ID or if there is another reason that their i>Clicker is not registered. i>Clickers will be used every day in class and students are responsible for bringing their remote daily (and perhaps extra batteries).

**Writing assignments** will be due about every other Friday; the top five scores from six assignments will be used. The assignments are to write a one-page essay; they are to be completed on a word processor and submitted as a PDF file on [Moodle](#). Each written assignment will be worth 10 points and will be graded for both content (8 points) and writing style (2 points). Late written assignments will be penalized one point per day.

PDF files of lectures and supplementary material will be available to **download** from [Moodle](#). These notes are best used as a *template* for taking notes in class. They are not a substitute for attending class or reading the assignments.

An official UM email address must be used for **email correspondence** with the instructor, according to University policy. Grades cannot be discussed by email, according to FERPA.

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). Please contact [DSS](#) if you think you may have a disability adversely affecting your academic performance. The course instructor will work with you and DSS to provide an appropriate **accommodation**.

**Dropping the course or changing grading status** will strictly follow the University policies and procedures, which are described in the catalog. Students should note that they cannot change to an audit after the 15th day of instruction. In addition, dropping the course or changing the grading status (to CR/NCR) are not automatically approved after the 45th day of the semester; these may be requested by petition, but the petition must be accompanied by documentation of extenuating circumstances.

**Academic misconduct** will be reported and handled as described in The University of Montana Student Conduct Code. *All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code.* The Student Conduct Code defines plagiarism as “representing another person’s words, ideas, data, or materials as one’s own.” Students are encouraged to work together in completing written assignments to solve problems, to share information or resources, and to test each other’s understanding: these are all acceptable forms of collaboration. However, the written work that each student turns in must be her or his own. Only in this way can individual understanding of concepts or information be judged. Students can work together up to the point of writing. At that stage, each student must work independently. In addition, once a student has written an out-of-class assignment, it must not be shown to another student in the course. Assignments from two or more students that have significant overlap as judged by the instructor will be regarded as a violation of the expectation that students turn in independent assignments. Direct copying of sentences from any published source, including the Internet, without proper citation is considered plagiarism: write the information in your own words; the instructor will check literary and online resources. Violations will be handled according to the Student Conduct Code.