

Biol. 300
SURVEY of BIOCHEMISTRY
Fall 2020

Instructor: Dr. Paul Rowley
Course time/location: 11:00am-12:15pm / **RENFREW HALL 125 or ZOOM (see below for details)**
Credits: 3
Course email: biol300@uidaho.edu
Office hours: **By appointment** (email to schedule)

CLASS SCHEDULE

Lecture	Date	Day	Topic	Assignment	Assignment due
1	25-Aug	T	Introduction		
2	27-Aug	R	H ₂ O		
3	1-Sep	T	pH and buffers		
4	3-Sep	R	Energy	1	
5	8-Sep	T	Amino acids/peptides		
6	10-Sep	R	Protein structure	2	1
7	15-Sep	T	Myoglobin and Hemoglobin		
8	17-Sep	R	Enzymes I	3	2
9	22-Sep	T	Carbohydrates		
	24-Sep	R	EXAM 1		
10	29-Sep	T	Welcome to metabolism!		
11	1-Oct	R	Glycolysis	4	3
12	6-Oct	T	Gluconeogenesis		
13	8-Oct	R	Pentose phosphate pathway	5	4
14	13-Oct	T	Tricarboxylic acid cycle		
15	15-Oct	R	Electron transport chain	6	5
16	20-Oct	T	Oxidative phosphorylation		
17	22-Oct	R	Lipids	7	6
18	27-Oct	T	Lipid metabolism		
	29-Oct	R	EXAM 2		
19	3-Nov	T	Fructose metabolism		
20	5-Nov	R	Amino acid metabolism	8	7
21	10-Nov	T	Integration of metabolism		
22	12-Nov	R	Disruption of metabolism	9	8
23	17-Nov	T	Photosynthesis		
24	19-Nov	R	Enzymes II	10	9
	24-Nov	T	FALL RECESS		
	26-Nov	R	FALL RECESS		
25	1-Dec	T	Techniques of Biochemistry		
	3-Dec	R	EXAM 3		10
26	8-Dec	T	Nucleic acids (will be part of the final)		
27	10-Dec	R	Course review		

Considerations due to COVID-19:

1. In order to ensure the safest environment possible, only registered students who are deemed eligible may attend in person Moscow classes. (This is also in accordance to Catalog regulation B-2). You will receive an email if you are ineligible for class.
2. Abide by the Healthy Vandal pledge (see below).

Healthy Vandal Pledge

POLICIES FOR HEALTHY VANDALS

It is a longstanding tradition that Vandals take care of Vandals, and we all do our best to look out for the Vandal Family. The simple precautions listed below go a long way in reducing the impact of coronavirus on our campuses and in our communities. With everyone engaging in these small actions, we can continue to participate in our vibrant campus culture where we are able to learn, live, and grow. Visit U of I's COVID-19 page often for updated information. Questions related to U of I's coronavirus response can be sent to covid19questions@uidaho.edu.

IN-PERSON CLASS ATTENDANCE

Refrain from attending class in-person if you are ill, if you are experiencing any of the known symptoms of coronavirus, or if you have tested positive for COVID-19 or been potentially exposed to someone with COVID-19.

If you display symptoms and/or test positive, you should quarantine following the CDC's recommendations. Do not return to class until you meet the CDC's requirements.

If you have been exposed but are asymptomatic, you should stay home for 14 days from the last exposure if you remain asymptomatic, adhering to the CDC's requirements.

Documentation (a doctor's note) for medical excuses is not required; instead, email me to make arrangements to submit any missed work and make plans to use Zoom and/or online course materials to stay current with the course schedule.

FACE COVERING REQUIREMENTS

All faculty, staff, students and visitors across all U of I locations must use face coverings over the nose and mouth whenever in any U of I buildings. Thus, you are required to wear a face covering in this classroom at all times.

If you have a medical condition that affects your ability to comply with the face covering policy, please contact the Center for Disability Access and Resources (CDAR) to request a reasonable accommodation.

If you have other reasons you believe make you exempt from wearing face coverings, please contact the COVID-19 Coordinator.

Failure to wear a face covering over your nose and mouth will require you to leave the classroom immediately. If a disruption to the learning experience occurs due to repeated offence and/or egregious behavior, you will be reported to the Dean of Students Office for a potential code violation.

Course Description:

This is an introductory course to the fascinating and deep subject of biochemistry. We will study the general biomolecules and metabolic reactions that are important for life on the planet earth. You will get a broad overview of the basics of metabolism and energy production in living systems, and how we can study these dynamic systems in the laboratory.

Instructor: Dr. Paul Rowley
Office: Gibb 132
email: biol300@uidaho.edu
Office hours: **By appointment.**

Class time: Tue & Thu 11:00 am - 12:15 pm
Location: RENFREW HALL 125 or ZOOM (see below for details)

ZOOM:

Class will be broadcast over zoom to allow students that are not comfortable gathering in large groups or who have medical reasons for not attending class.

Join Zoom Meeting

<https://uidaho.zoom.us/j/4254729566?pwd=Y2YveEx4SXB4U3NrQ1Vmc0dLQWhHUT09>

Meeting ID: 425 472 9566
Passcode: 12345!

To join by zoom by phone, find your local number: <https://uidaho.zoom.us/u/ae9rJtpo9>

Textbook:

BIOCHEMISTRY FREE FOR ALL 1.3 - Dr. Kevin Ahern and Dr. Indira Rajagopal

Download here:

<http://biochem.science.oregonstate.edu/content/biochemistry-free-and-easy>

A textbook is not required for this course, but I urge students to buy 1-2 biochemistry textbooks to help with this course. They DO NOT need to be the latest additions as most biochemistry principles have remained the same over the past 10 years. Cheap old edition biochemistry textbooks are widely available on Amazon.com. **The important thing is to have a diverse but reliable source of reference material to help you with this course – some textbooks explain concepts better than others.**

Required Software/instructional aids:

iCLICKER Reef (\$14.99 6/mo)

Watch this short video for a brief into on how to get setup:

<https://youtu.be/DRdwwsxZ6xE>

Then follow this link for full setup details

<https://macmillan.force.com/iclicker/s/article/Checklist-Getting-Started-with-iClicker-Reef>

bbLearn:

Lecture notes, notices, supplemental materials as well as your grades will be posted there.

Homework assignments will also be posted there.

Prior organic chemistry knowledge

This course requires that students have previously taken a course in organic chemistry. Therefore, I assume a certain level of organic chemistry knowledge, I cannot be re-teaching organic chemistry while at the same time teaching biochemistry. Please, if you feel uncomfortable with organic chemistry, I **strongly** recommend that you review your notes and materials from prior courses and **come and talk with me**.

Class organization

Each class will start with a short (approximately 3-4 questions) based on the assigned reading material and the previous lectures material, these quizzes are graded (for correctness). The structure of the class will be a mixture of lecture and group discussion and problem solving **that expands on the pre-lecture material**. It is **imperative** that you complete the required reading **before** class or you will struggle with the in-class quizzes and discussions.

Attendance will be taken at some unspecified point during each class and will form part of your grade. In addition to presenting lecture materials I will also require your periodic feedback and participation, so be prepared to engage with me and your fellow classmates.

- **Questions?** If you have questions, you can ask me in class or e-mail them to me (biol300@uidaho.edu).
- **Class activities:** Please do not be shy! Participate! Make new friends! Students that participate in class and collaborate with their peers during the course are found to have much greater success. Some of the class and homework activities are based on your understanding of the material and your ability to apply your knowledge to a new problem. Studies have shown that students understand material better and retain the information longer if they construct their own knowledge, so I will not always be giving the answers to the questions in the activity, but rather asking questions to help you find the answers and verifying that you have reached the “correct” conclusions.

Deadlines

Assignments will be due at **5pm** on the Thursday of the deadline (see class schedule above). Assignments that are received after this deadline will NOT be graded – **no exceptions**.

Learning outcomes:

The learning outcomes for this course are in line with the general University learning outcomes. Upon successful completion of the course you should be able to:

- Identify the molecular structure of proteins, nucleic acids, carbohydrates, and lipids and distinguish between different modes of visualization.
- Identify function of biological molecules and how structure relates to their function.
- Explain the effect of the environment (e.g., pH, temperature, inhibitors, drugs, etc.) on biological processes and enzyme activity.
- Describe how enzymes work at the molecular level, kinetics and catalysis.
- Read, construct, and interpret graphic representations of biological processes.
- Describe the major metabolic pathways and how they are regulated in the context of the physiological state of the cell and the whole organism.
- Demonstrate an understanding of the central role of biochemical processes in nutrition, agriculture and how physiological responses relate to environmental change.

- Explain why living organisms need energy and describe the how they obtain energy and biomass.
- Apply basic biochemical principles to solve future problems.
- Use the language of biochemistry and explain biochemical concepts to others.
- Work cooperatively in groups and learn from your peers.
- Learn in a self-directed and independent manner.
- Apply your knowledge to new problems.

Expectations:

You are responsible for the material discussed during class, thus you need to be able to depend on your own notes that you take during class, not just the lecture notes that I post. Please, **DO NOT** check email, facebook, twitter etc. during class, it will not help you master the course and will be distracting for those behind you. The world will not end if you are “unplugged” for 1h 15min twice a week. Attend each lecture well rested, alert and ready to engage, this is how you will succeed and have the most fun with this course.

Absenteeism:

Without a valid reason, absenteeism will not be judged favorably and will almost certainly harm your grades without intense effort. Make-up **examinations** will be given only for a valid reason (illness or family emergency) or by **prior arrangement** because of necessary obligations and responsibilities to the University of Idaho (field trips or attendance at professional meetings).

Missing class **for any reason** (valid or otherwise) will result in 0 points for attendance, in class participation, and in class quizzes.

Tardiness:

On-time attendance of class is very important. Late arrival disrupts the class and the learning environment (and you will miss points for attendance and quizzes). **Please** arrive on time to the lecture.

CENTER FOR DISABILITY ACCESS AND RESOURCES REASONABLE ACCOMMODATIONS STATEMENT:

- Reasonable accommodations are available for students who have documented temporary or permanent disabilities. Students with disabilities needing accommodations to fully participate in this class should contact Center for Disability Access and Resources (CDAR). All accommodations must be approved through CDAR prior to being implemented. To learn more about the accommodation process, visit CDAR's website at www.uidaho.edu/cdar or call 208-885-6307.

Academic Integrity:

Exams will be proctored by the instructor(s). Do not wear a hat on exam day. Any cases of cheating, giving or receiving assistance during an exam, plagiarism, falsification of records, or similar behavior will be handled in *strict* accordance to the Student Code of Conduct, Article II-Academic Honesty (p4, 2007) - [here](#).

University of Idaho Classroom Learning Civility Clause:

In any environment in which people gather to learn, it is essential that all members feel as free and safe as possible in their participation. To this end, it is expected that everyone in this course will be treated with mutual respect and civility, with an understanding that all of us (students, instructors, professors, guests, and teaching assistants) will be respectful and civil to one another in discussion, in action, in

teaching, and in learning. Should you feel our classroom interactions do not reflect an environment of civility and respect, you are encouraged to meet with your instructor during office hours to discuss your concern. Additional resources for expression of concern or requesting support include the Dean of Students office and staff (5-6757), the UI Counseling & Testing Center's confidential services (5- 6716), or the UI Office of Human Rights, Access, & Inclusion (5-4285). The University of Idaho bans firearms from its property with only limited exceptions. One exception applies to persons who hold a valid Idaho enhanced concealed carry license, provided those firearms remain concealed at all times. If an enhanced concealed carry license holder's firearm is displayed, other than in necessary self-defense, it is a violation of University policy. Please contact local law enforcement (call 911) to report firearms on University property."

Drop and withdraw dates: See the registrar's website [here](#)

Grading:

Approximately 25% of your grade will come from 10 assignments and the remaining from examinations and in class activities. The breakdown of points will be approximately**:

Exams:	150 pts each	450 pts
Final exam (optional)*	150 pts*	150 pts*
In class quizzes and activities	3 pts per class	75 pts
Attendance	1 pt per class	25 pts
Assignments	20 pt per homework	200 pts
TOTAL		750 pts

*The comprehensive final exam is optional but can be used to replace the lowest score in one of the prior exams.

**The instructor reserves the right to change the points system without notice, however, please use this table as a general guide to the approximate value of each assignment.

“No 0%” policy:

During these challenging times I appreciate that there might be situations that prevent the on-time submission of assignments. For that reason, all students will automatically receive a minimum grade of 50% for a maximum of two assignments. This policy prevents life circumstances from doing undue harm to your overall grade. Note: this does not apply to exams.

Online exams:

This year all exams will be taken online using BBlearn. They will be scheduled during regular class hours.

You will need to earn 60% or more to pass the class with a D. The grade breakdown is as follows:

Grade	Percentage
A	Equal to or greater than 90%
B	Equal to or greater than 80%
C	Equal to or greater than 70%
D	Equal to or greater than 60%
F	Less than 60%

