Course Name: General Biochemistry
Course Number: BB 451       Credits: 3
Instructor: Dr. Kate Shay, Department of Biochemistry and Biophysics; kate.shay@oregonstate.edu
TA: Tilo Chatterjee, Ph.D. Candidate, Dept. of Biochemistry and Biophysics; chattert@oregonstate.edu; Office Hours: Mondays, 8:00 – 9:00 AM Pacific via Zoom

Course Description
Biochemistry sequence course for students with a limited background in physical chemistry.

Prerequisites
BB450

Time Expectations
This course combines approximately 90 hours of instruction, online activities, and assignments for 3 credits.

Communication
For questions about the course content, please post your messages in the Q&A Discussion forum in the Canvas course site or visit the TA Office Hours. For personal matters, please email kate.shay@oregonstate.edu. I prefer direct email over the Canvas Inbox because my email goes to more devices and I won’t have to log in to Canvas to reply to you.
We will reply to course-related questions within 24 hours, except weekends and holidays. We will strive to return your assignments and grades for course activities to you within one week of the due date.

Course Materials

Canvas Learning Management System
You will access course content via Canvas, including the syllabus, class discussions, assignments, projects, and readings.

Course Format
BB451 offered via Ecampus is asynchronous, but it is not self-paced. While we will not have synchronous meetings, everyone will follow the same weekly schedule, including participating in group work. For each topic, you will start with readings from our textbook, then listen to the
short video lectures. You will also complete Knowledge Checks to help you self-assess whether you are meeting the learning goals of the course. Other formative assessments include working together with a small group to complete problem sets, and scientific paper analyses on your own. There will be two exams: a midterm and a final. The work you complete will help you prepare for the exams.

Proctorio Automated Exam Proctoring
This course uses an automated online proctoring system called Proctorio, where your midterm and final exam sessions are recorded for instructor review. You will not need to schedule proctoring appointments, and there is no cost to you to use Proctorio.

**OSU is currently contracting with Proctorio. I did not select it.**

***Many professional schools only accept Ecampus courses that have proctored exams.***

Please note that a functioning webcam and microphone are required for using Proctorio. If you do not have these, you will need to locate and submit an alternative proctor through the exams and proctoring form and pay for any associated proctoring fees.

Your security and privacy are important. You can read more about Proctorio’s privacy and data security policies on their website, and more information about using this tool can be found in the course site.

Technical Assistance
If you experience any errors or problems while in your online course, contact 24-7 Canvas Support through the Help link within Canvas. If you experience computer difficulties, need help downloading a browser or plug-in, or need assistance logging into a course, contact the IS Service Desk for assistance. You can call (541) 737-8787 or visit the IS Service Desk online.

Course Learning Goals
1. Acquire the technical language used to communicate biochemistry information and use that language to describe proteins, molecules, signaling pathways, catalysis, and metabolism.
2. Describe key elements of these biochemistry principles: metabolic pathways (including predicting directionality), molecule names and structures, enzyme/cellular control mechanisms, catalysis, and signaling pathways.
3. Perform analyses and basic calculations relating to solutions, energy, and catalysis as they relate to human health.
4. Communicate (through writing) key concepts of biochemistry.
5. Apply general concepts of biochemistry to relevant, specific problems.
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Assigned Reading*</th>
<th>Assessments</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Citric Acid Cycle</td>
<td>Ch. 17</td>
<td>Discussion: Introduce Yourself</td>
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<td></td>
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<td>Survey: Your learning expectations</td>
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<tr>
<td>2</td>
<td>Electron Transport Chain &amp; Oxidative Phosphorylation</td>
<td>Ch. 12 Ch. 13</td>
<td>Knowledge Check 1</td>
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<td>3</td>
<td>Lipids &amp; Membranes Membrane Transport</td>
<td>Ch. 18</td>
<td>Problem Set 1:</td>
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<td></td>
<td>• Individual Submission</td>
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<td></td>
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<td>• Group Discussion</td>
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<td>• Group Submission</td>
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<tr>
<td>4</td>
<td>Lipid &amp; Steroid Metabolism</td>
<td>Ch. 26</td>
<td>Knowledge Check 2</td>
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<tr>
<td>5</td>
<td>Fatty Acid Metabolism</td>
<td>Ch. 22</td>
<td>Exam: Midterm</td>
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<tr>
<td>6</td>
<td>Nucleotide Metabolism</td>
<td>Ch. 25</td>
<td>Knowledge Check 3</td>
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<tr>
<td>7</td>
<td>DNA Replication &amp; Repair</td>
<td>Ch. 27</td>
<td>Problem Set 2:</td>
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<td>• Individual Submission</td>
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<td>• Group Discussion</td>
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<td>• Group Submission</td>
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<tr>
<td>8</td>
<td>Transcription</td>
<td>Ch. 28, 31</td>
<td>Knowledge Check 4</td>
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<tr>
<td>9</td>
<td>Translation</td>
<td>Ch. 29</td>
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<td>Nitrogen Metabolism</td>
<td>Ch. 24</td>
<td>Knowledge Check 5</td>
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<td>Problem Set 3:</td>
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<td>• Individual Submission</td>
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<td>• Group Discussion</td>
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<td>Group Submission</td>
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<tr>
<td>Finals</td>
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<td>Exam: Final</td>
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*Page numbers vary based on the format of the free e-text.*
Evaluation of Student Performance

- Misc. activities as posted 25 points
- Paper analyses (2 @ 25 points each) 50 points
- Knowledge Checks (5 @ 25 points each) 125 points
- Group Problem Sets (3 @ 25 points each) 75 points
- Midterm Exam 100 points
- Final Exam 125 points
- **Total** 500 points

Letter Grade

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<tr>
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<td>A-</td>
<td>90-92</td>
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<td>B+</td>
<td>87-89</td>
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<tr>
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<td>80-82</td>
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<td>C+</td>
<td>77-79</td>
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<td>C</td>
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<tr>
<td>C-</td>
<td>70-72</td>
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<td>D+</td>
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<td>D-</td>
<td>60-62</td>
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<td>&lt;60</td>
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Course Activities

- **Miscellaneous activities**: We will have various short activities like a syllabus quiz, an introductions board, etc.

- **Knowledge Checks**: These are short, timed quizzes that can be attempted a total of three times. They are “open book” and will help you to prepare for the format of our exams, as well as to gauge how well you are comprehending the material. The week they are held, they open Mondays at 8:00 AM and close Saturdays at 11:59 PM Pacific. *The knowledge checks will not be reopened for any reason, and a key will not be posted.*

- **Group Problem Sets**: These are problems that you will work on individually and together with a small group via a discussion board. Each group will compile their agreed-upon answers and submit the assignment with all the group members’ names.
• **Paper Analyses:** You will read a scientific paper and respond to the questions posted.

• **Exams:** The midterm covers the first half of the course content and the final covers the second half, plus we will revisit the first half to a lesser extent (~20%).

**Learner Expectations**

- Keep up with the weekly learning materials.
- Submit all assignments on time.
- Participate fully and equally in group work.
- Recognize that mastering the complexities of biochemistry requires considerable time and effort.

**Course Policies**

**Late Work Policy**
Weekly knowledge checks are closed by Saturdays at 11:59 PM and **will not be reopened.**

No credit will be given for lateness on the individual portions of Group Problem Sets, because it effects the entire group. A late Group Problem Set will incur a 10% penalty per day and will not be accepted more than 5 days late.

**Makeup Exams**
Makeup exams will be given only for reasons approved by the instructor in advance of the exam or in documented emergency circumstances. Makeup exams will not be given for routine illness (colds, stomach aches, or other common ailments). Arrangements regarding a missed exam will generally not be made after the exam has occurred, except under very unusual circumstances.

Students are expected to do their own work and not look up answers during the exams. The use of cell phones or electronic devices are strictly forbidden during exams.

**Incompletes**
Incomplete (I) grades will be granted only in emergency cases (usually only for a death in the family, major illness or injury, or birth of your child), and if the student has turned in at least half of the course work and has a passing grade at the time of the request. If you are having any difficulty that might prevent you completing the coursework, please don’t wait until the end of the term; let me know right away.
Statement Regarding Religious Accommodation
Oregon State University is required to provide reasonable accommodations for employee and student sincerely held religious beliefs. It is incumbent on the student making the request to make the faculty member aware of the request as soon as possible prior to the need for the accommodation. See the Religious Accommodation Process for Students.

Guidelines for a Productive and Effective Online Classroom
(Adapted from Dr. Susan Shaw, Oregon State University)
Students are expected to conduct themselves in the course (e.g., on discussion boards, email) in compliance with the university’s regulations regarding civility. Civility is an essential ingredient for academic discourse. All communications for this course should be conducted constructively, civilly, and respectfully. Differences in beliefs, opinions, and approaches are to be expected. In all you say and do for this course, be professional. Please bring any communications you believe to be in violation of this class policy to the attention of your instructor.

Active interaction with peers and your instructor is essential to success in this online course, paying particular attention to the following:

- Unless indicated otherwise, please complete the readings and view other instructional materials for each week before participating in the discussion board.
- Read your posts carefully before submitting them.
- Be respectful of others and their opinions, valuing diversity in backgrounds, abilities, and experiences.
- Challenging the ideas held by others is an integral aspect of critical thinking and the academic process. Please word your responses carefully, and recognize that others are expected to challenge your ideas. A positive atmosphere of healthy debate is encouraged.

Expectations for Student Conduct
Student conduct is governed by the university’s policies, as explained in the Student Conduct Code (https://beav.es/codeofconduct). Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the university’s regulations regarding civility.

Academic Integrity
Integrity is a character-driven commitment to honesty, doing what is right, and guiding others to do what is right. Oregon State University Ecampus students and faculty have a responsibility
to act with integrity in all of our educational work, and that integrity enables this community of learners to interact in the spirit of trust, honesty, and fairness across the globe.

Academic misconduct, or violations of academic integrity, can fall into seven broad areas, including but not limited to: cheating; plagiarism; falsification; assisting; tampering; multiple submissions of work; and unauthorized recording and use.

It is important that you understand what student actions are defined as academic misconduct at Oregon State University. The OSU Libraries offer a [tutorial on academic misconduct](http://library.oregonstate.edu), and you can also refer to the [OSU Student Code of Conduct](http://library.oregonstate.edu), [the Office of Student Conduct and Community Standard’s website](http://library.oregonstate.edu) for more information. More importantly, if you are unsure if something will violate our academic integrity policy, ask your professors, GTAs, academic advisors, or academic integrity officers.

**Statement Regarding Students with Disabilities**
Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval, please contact DAS immediately at 541-737-4098 or at [http://ds.oregonstate.edu](http://ds.oregonstate.edu). DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

**Accessibility of Course Materials**
All materials used in this course are intended to be accessible. If you require accommodations, please contact [Disability Access Services (DAS)](http://ds.oregonstate.edu).

Additionally, Canvas, the learning management system through which this course is offered, provides a [vendor statement](http://library.oregonstate.edu) certifying how the platform is accessible to students with disabilities.

**Ecampus Reach Out for Success**
University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it’s important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about [resources that assist with wellness and academic success](http://library.oregonstate.edu).
Ecampus students are always encouraged to discuss issues that impact your academic success with the Ecampus Success Team. Email ecampus.success@oregonstate.edu to identify strategies and resources that can support you in your educational goals.

If you feel comfortable sharing how a hardship may impact your performance in this course, please reach out to me as your instructor.

- **For mental health:**
  Learn about counseling and psychological resources for Ecampus students. If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255).

- **For financial hardship:**
  Any student whose academic performance is impacted due to financial stress or the inability to afford groceries, housing, and other necessities for any reason is urged to contact the Director of Care for support (541-737-8748).

**Student Evaluation of Courses**

During Fall, Winter, and Spring term, the online Student Evaluation of Teaching system opens to students the Wednesday of week 8 and closes the Sunday before Finals Week. Students will receive notification, instructions and the link through their ONID email. They may also log into the system via Online Services. Course evaluation results are extremely important and used to help improve courses and the learning experience of future students. Responses are anonymous (unless a student chooses to “sign” their comments, agreeing to relinquish anonymity) and unavailable to instructors until after grades have been posted. The results of scaled questions and signed comments go to both the instructor and their unit head/supervisor. Anonymous (unsigned) comments go to the instructor only.