## BB496 Biochemistry Laboratory: Molecular Modeling

### Instructor
Dr. Victor Hsu  
2143 Ag. Life Sci. Bldg. (ALS)  
(541) 737–4398  
hsuv@onid.orst.edu

### Credits, Day, Time and Location
- **Course Credits:** 1  
- **Date & Time:** Thursdays, 4:00 – 4:50 pm  
- **Location:** TBA  
- **Office Hours:** TBA

### Course Objectives
This course is a hands-on, laboratory course designed to introduce students from biochemistry and related fields to the fundamentals of computer-based protein structure and sequence analysis, and homology modeling. There will also be a short introduction to visualizing biomolecular structures.

### Learning Resources
Primary readings will be assigned articles from the literature.  
**Recommended Reading:**  
*MacVector Manual*

### Course Policies
- **Prerequisites/Corequisites:** BB 494  
- **Incompletes:** Take this course only if you plan to finish it in a timely manner (during this term). An "Incomplete" will only be given when there is a strong and compelling case for doing so (e.g., health reasons, military commitment).

### Learner Outcomes
When confronted with a protein sequence of interest, students should be able to examine, analyze and model the protein and effectively communicate the results.  
Students should be able to:  
- Develop conceptual frameworks to analyze protein sequences by identifying the key principles and constraints underlying a multi-sequence alignment.
Demonstrate an appropriate level of competence in the ability to apply, modify and/or create and contrast computational algorithms designed to qualitatively and/or quantitatively analyze protein sequences, and to evaluate the relative advantages and disadvantages of the different computational algorithms.

Intelligently generate phylogenetic trees and appraise the soundness of the findings obtained.

Understand the underlying concepts of homology modeling and generate a model of the protein sequence of interest, and appraise the soundness of the findings obtained.

Choose and use the appropriate method for data analysis (e.g., graphing, curvefitting, statistical analysis, Fourier analysis, etc.).

Demonstrate the ability to produce quality critical analysis.

Learner Expectations
First and foremost, I expect everyone to respect one another. Among other things, this means that only one person speaks at a time, no cell phone usage in class, and that each of you put forth an honest effort in class. Arrive to class on time every day, prepared and with all necessary materials.

I hope that this class will be very active and expect each of you to participate as much as possible. Don’t be afraid to ask questions or make mistakes — both are key in helping you understand and master the subject material. This course will require you to spend time each week reading the assigned papers and participating in classroom discussions.

Course Evaluation
Fulfillment of the student learning outcomes will be assessed through classroom participation and two written assignments, as follows:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Due Date</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein Sequence Analysis writeup</td>
<td>Thursday, February 4&lt;sup&gt;th&lt;/sup&gt;</td>
<td>50%</td>
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<tr>
<td>Homology Modeling writeup</td>
<td>Thursday, March 3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>50%</td>
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<tr>
<td>Statement Regarding Students with Disabilities</td>
<td>Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 541-737-4098.</td>
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| Statement Regarding Student Conduct | The University statement on Student Conduct and Community Standards can be found at: [http://studentlife.oregonstate.edu/studentconduct/offenses-0](http://studentlife.oregonstate.edu/studentconduct/offenses-0)

*Cheating or plagiarism by students is subject to the disciplinary process outlined in the Student Conduct Regulations.* Students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as an intentional act of deception in one of the following areas:

- Cheating-use or attempted use of unauthorized materials, information or study aids
- Fabrication-falsification or invention of any information
- Assisting-helping another commit an act of academic dishonesty
- Tampering-altering or interfering with evaluation instruments and documents
- Plagiarism-representing the words or ideas of another person as one’s own

Behaviors disruptive to the learning environment will not be tolerated and will be referred to the Office of Student Conduct for disciplinary action.

“The goal of Oregon State University is to provide students with the knowledge, skill and wisdom they need to contribute to society. Our rules are formulated to guarantee each student’s freedom to learn and to protect the fundamental rights of others. People must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to teaching and learning will not be tolerated, and will be referred to the Student Conduct Program for disciplinary action. Behaviors that create a hostile, offensive or intimidating environment based on gender, race, ethnicity, color, religion, age, disability, marital status or sexual orientation will be referred to the Affirmative Action Office.”