

## Structural Biochemistry (CHM 4350, CHM 6351)

**Number of credit hours: 3**

Time: Tuesday/Thursday, 2:00 PM – 3:20

Location: PS-334

Instructor: Dr. Maciej Stawikowski  
Department of Chemistry and Biochemistry  
PS-310  
Office Phone 561-297-4871  
E-mail: mstawikowski@fau.edu

Office Hours: Wednesdays, 2PM-3PM

Texts:

- 1.! Introduction to protein structure ; 2<sup>th</sup> edition, C. Branden & J. Tooze. ISBN-10: 0815323050. Recommended.
- 2.! Introduction to Proteins: Structure, Function, and Motion; A. Kessel & N. Ben-Tal. ISBN-10: 1439810710. Recommended.
- 3.! Lehninger Principles of Biochemistry; 4<sup>th</sup> edition, D. L. Nelson & M.M. Cox. ISBN-10: 0716743396. Recommended.
- 4.! UCSF Chimera User's Guide.  
<https://www.cgl.ucsf.edu/chimera/docs/UsersGuide/>  
Recommended.
- 5.! All online e-books freely available to FAU students and recommended by the instructor.

Prerequisites: CHM 2210, minimum grade of C and BCH 3033, minimum grade of C

### Course description:

This course is an introduction to structural biochemistry with an emphasis on computer-based approach, hands-on experience to develop essential skills for understanding of relationships between structure and function of biomolecules. A workshop format (introductory lecture followed by hands-on practice) will be carried out throughout all sessions. Classes will be held in computer lab s. Each session will be composed of approximately 45 min. of lecture and 45 min. of hands-on training.

### Course objectives / learning outcomes :

We will use state-of-the-art software that will allow for visualization, manipulation and simulation of various biomolecules including proteins, nucleic acids, lipid membranes and their interactions. Students will learn how to identify and describe molecular interactions at different levels. We will work with different biological databases to obtain different data: from sequence to 3-dimensional structures. Participants will learn how use various computer programs to manipulate 3D structures, create publication-quality molecular images to be incorporated in scientific presentations and literature reports. State-of-the-

! "\$%\$#&'()\*+%, - . \* /"#0(1234(5678)(234(: 67; <

!#\$%\$#&'()\*+%, -. \*/#0(1234(5678)(234(: 67; <

! "\$%\$#&'()\*+%, -. \*/"#0(1234(5678)(234(: 67; <

community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001 at

!"#\$%&'()\*+,-./:01234(56789(234(:67; <

<i>Introduction to 3D printing of biomolecules</i>
--