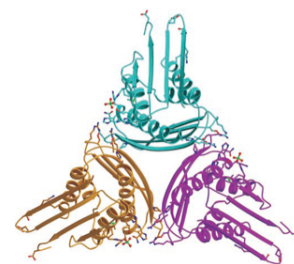


K-12 PROFESSIONAL DEVELOPMENT FOR TEACHERS  
**BIOMOLECULAR STRUCTURE**  
BIOC 600 – 3 credits



**Instructors:** Dr. Sangita Sinha and  
Dr. Christopher Colbert

**Grading:** Letter

**Dates:** Monday, June 13, 2018 - Friday, June 29, 2018

The course requires attendance at the NDSU campus June 18 – 21, with an optional question/discussion session on June 22; and a completion date of June 30, 2017.

**Location:** Ladd 203, Molecular Modeling Studio, NDSU Campus, Fargo, ND

**Academic Level:** K-12 Professional Development

**NDSU Credit Fee:** \$150 (*The course is FREE, as tuition will be reimbursed upon completion of the course, and housing (4 nights) and meals are covered. In addition, participants will be paid a stipend and provided a molecular modeling kit for their classrooms.*)

**To Register:** <http://www.ndsu.edu/dce/k-12/info/16760>

**Please note, enrollment is limited to 10 participants, so register early.**

### COURSE DESCRIPTION:

The target audiences for this course are current or future science schoolteachers in the mid-west. BIOC 600 is a graduate-level course that will promote an understanding of the atomic structure of biomolecules like proteins, nucleic acids and their complex macromolecular assemblies and will also provide teachers with tools and resources to teach their students. This is an opportunity for professional development of school science teachers, allowing them to incorporate items listed in the National Science Education Standards in their instruction. The course will especially assist teachers in preparing their students for the Protein Modeling competition of the Science Olympiad.

### OBJECTIVES:

To ensure that teachers are:

- well-versed in the principles of biomolecular structure;
- introduce and provide them with pedagogical tools and resources to disseminate this information to their students;
- the expected long-term outcome is to instill a better understanding in high school students of molecules that execute the biochemistry of life, leading to a better performance in competitions such as the National Science Olympiad on protein/DNA modeling and preparing them better for science-related programs.

(please see over)

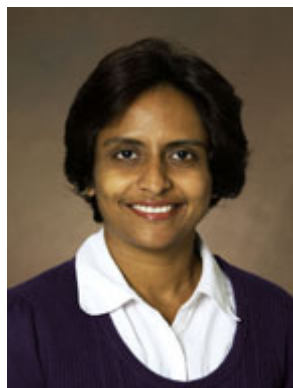
## TEXT:

All essential materials, including a molecular modeling kit, will be provided.  
Optional Text: Principles of biochemistry (Lehninger) by David Nelson and Michael Cox, 5th Edition, WH Freeman and Co. (2008)

## REQUIRED STUDENT RESOURCES:

Students are not required to bring any resources, although an internet-enabled Laptop would be useful.

## ABOUT THE INSTRUCTORS



[Sangita Sinha \(Sangita.Sinha@ndsu.edu\)](mailto:Sangita.Sinha@ndsu.edu)

Sangita earned her Ph.D. from Purdue University, her M.S. from University of Poona & her B.S. from Delhi University. Dr. Sinha is currently a Professor of Chemistry & Biochemistry at NDSU.

[Christopher Colbert \(Christopher.Colbert@ndsu.edu\)](mailto:Christopher.Colbert@ndsu.edu)

Chris earned his Ph.D. from Purdue University & his B.S. from Penn State. Dr. Colbert is currently an Associate Professor of Chemistry & Biochemistry at NDSU.

## EVALUATION COMMENTS FROM PAST ATTENDEES

“All was excellent: handouts, modeling activities, tour. Model kits were excellent! Facilities and food were an added bonus. Small group setting is needed and liked.”

“Excellent mix of informative presentations and hands-on model building. Really appreciate premise of course – by increasing teacher knowledge of content area our students benefit.”

“The instructors were so knowledgeable, interesting and caring, and so patient as we worked through the model making.”