



Apr 10th, 9:00 AM - 10:00 AM

## Development of a Discovery Laboratory to Observe and Quantify Protein Denaturation and Coagulation in Egg White Albumin

Elizabeth Ave Maria  
*Illinois Wesleyan University*

Melinda Baur, Faculty Advisor  
*Illinois Wesleyan University*

Follow this and additional works at: <https://digitalcommons.iwu.edu/jwprc>



Part of the [Chemistry Commons](#)

---

Maria, Elizabeth Ave and Baur, Faculty Advisor, Melinda, "Development of a Discovery Laboratory to Observe and Quantify Protein Denaturation and Coagulation in Egg White Albumin" (2010). *John Wesley Powell Student Research Conference*. 6.  
<https://digitalcommons.iwu.edu/jwprc/2010/posters/6>

This Event is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at Illinois Wesleyan University. For more information, please contact [digitalcommons@iwu.edu](mailto:digitalcommons@iwu.edu).

©Copyright is owned by the author of this document.

Poster Presentation P3

**DEVELOPMENT OF A DISCOVERY LABORATORY TO OBSERVE AND QUANTIFY  
PROTEIN DENATURATION AND COAGULATION IN EGG WHITE ALBUMIN**

Elizabeth Ave Maria and Melinda Baur\*  
Chemistry Department, Illinois Wesleyan University

Protein denaturation and coagulation are complex processes that occur in biological systems. Protein denaturation is the process by which the tertiary structure of a protein is disrupted and the molecule becomes “unfolded,” and protein coagulation is the process by which these denatured proteins bind together in an unorganized way. The goal of this project was to develop an experimental procedure to allow students to observe and quantify the denaturation and coagulation processes in egg white albumin. Egg whites were diluted and then heated to force protein denaturation and coagulation. Differences in the extent to which the egg white protein coagulation occurred were observed and quantified over a time course at four different temperatures. The use of b-mercaptoethanol, a compound that reduces disulfide linkages essential to protein structure, was also introduced into the albumin solution to examine its effects on the amount of denatured and coagulated protein. Gravimetric analysis and SDS-polyacrylamide gel electrophoresis were used for quantitative analysis of the coagulated protein. No significant difference in coagulation was detected over the time course. Significant differences in coagulation were detected at different temperatures and when b-mercaptoethanol was added to samples.