Abstract 1209
Development of a Bioinformatics Tool for Exploring Protein-Metal Interactions via Circular Dichroism Spectroscopy

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In the 21st century, it has become increasing important for biochemists and molecular biologists to develop computational skills that complement their experimental work. This is the result of new technologies and scientific methods that have caused exponential growth and complexity in the collection of experimental data, especially in the fields of genomics and proteomics. Fortunately, numerous computational approaches have been developed to help process and make sense of this experimental data including bioinformatics methods. Here, I describe the development of a bioinformatics database and analysis tool for studying protein-metal interactions via circular dichroism (CD) spectroscopy. Through a collaboration with computer science students to develop this online tool and testing its functionality in introductory biochemistry laboratory courses, a novel platform was created to analyze CD spectra for protein structure information. This bioinformatics tool provides interactive graphical visualizations of datasets, and it can be used for instructional purposes to help students learn about biomolecular structure and function.

Abstract 1227
Journal Club: A Sustainable Model for Accessible Science Education and Transferability

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Journal Clubs are powerful tools to foster and encourage learning around scientific discovery. However, the limited group size, high assumed background knowledge, and professional environment often make learning inaccessible and daunting; there is a need for implementable, accessible, and sustainable Journal Clubs models. Here we present a new training and presenting model that creates a self-sustaining practice of scientific discourse. The model creates high-quality presentations and presenter trainers. With a single faculty member and three student leads, our model has trained 24 presenters a year and 10 presenter trainers. At an institution of 550 people, 50–75 non-lab members voluntarily attend our talks. Furthermore, our model is highly scalable and reproducible. Our model achieves sustainability in three ways: protocolization, focusing on outward-facing elements, and effective metrics to evaluate our success. We have developed procedures for all processes, including onboarding new members, training presenters, and dissecting scientific literature. This makes sustaining the team easy, as the protocols allow for self-propagation and also provides the opportunity to implement our system in other institutions. In our adapted model, we shifted from an inward-facing group discussion to an outward-facing group that produces weekly presentations to the broader community. This leads to a community that understands and supports our mission. Finally, we evaluate our team with a multitude of metrics. This allows us to establish feedback loops that are vital to a Journal Club's sustainability. Past literature suggests that although powerful training tools, Journal Clubs are difficult to start and their effectiveness is challenging to assess. We solve both of these issues in our model. Successful implementation of our Journal Club at the high school level indicates the potential for benefit at all levels of scientific literacy. Further, our protocols have the potential to facilitate straightforward transfer to another institution. We will assess effectiveness through audience engagement feedback, as well as through the feedback we already receive from the team. Ultimately, our results indicate that our model of Journal Club is engaging and beneficial for all students involved.