# Score for Drabeck, Danielle

# Intellectual Merit Criterion

## Overall Assessment of Intellectual Merit

Excellent

## Explanation to Applicant

The applicant has an excellent academic record. The applicant has had a variety of research experiences that have demonstrated the applicants excellent ability to plan and conduct research. The applicant has contributed to two papers, one published paper where she is a co-author and a second that is in review. The applicant has proposed an excellent project to tackle the question of coevolution using snake venoms and their resistant predator opossum species. The applicant has had a strong interest in the evolution of toxins and this project shows that she can integrate research from a number of disciplines. In this case, the applicant has enlisted a protein biochemist to help develop assays for venom toxicity. This demonstrates a strong ability to creatively develop a new model system using the resources of her current university.

# Broader Impacts Criterion

## Overall Assessment of Broader Impacts

Very Good

## Explanation to Applicant

The applicant has shown a very good ability to integrate research and education through participation in a variety of outreach programs. The applicant plans to continue these activities, but the activities are not as well developed than other more competitive applications. The proposed research on the coevolution of snake venom and opossum blood proteins has potential to be a very good to excellent model system for the study of the coevolutionary arms race.

# Score for Drabeck, Danielle

# Intellectual Merit Criterion

## Overall Assessment of Intellectual Merit

Very Good

## Explanation to Applicant

The applicant has an impressive undergraduate record having achieved a high GPA and a non-thesis Masters degree. The student also has significant past experience as a TA, curatorial assistant, field ecology research technician. In addition, they have been a wildlife education instructor, and an instructor for multiple courses. In addition, the applicant has been awarded multiple accolades, and has a decent amount of scholarly output. The research project seeks to investigate the coevolutionary dynamics of venom and resistance between vipers and a mammal. This is a very interesting project that was well written. The biochemical assays appear feasible and this will make for an interesting study.

# Broader Impacts Criterion

## Overall Assessment of Broader Impacts

Very Good

## Explanation to Applicant

The applicant became involved in citizen science through the 2010 Gulf Oil Spill and has performed a series of leadership activities (e.g., teaching horseback riding to disabled). They have also carrie out wildlife education at elementary and middle schools and has been a lecturer at the Intl School of Louisiana. In addition, the student has mentored multiple UG fellows and is interested to recruit UGs for trips to the Lesser Antilles to aid in research. The student is currently coordinating an extension of TeachSMART for local outreach. The student's heavy involvement in BI render this a fairly impressive BI portion of the application.

# Score for Drabeck, Danielle

# Intellectual Merit Criterion

## Overall Assessment of Intellectual Merit

Excellent

## Explanation to Applicant

The applicant has a very good academic record in science. According to the references, the applicant is a highly talented individual who is able to work independently or as a member of a team. The prior research experience of the applicant shows that the applicant can complete the proposed research. The applicant has the ability of the applicant to interpret and communicate research findings since the applicant has several application. The applicant has a research plan with clearly defined, testable hypotheses examining the coevolutionary dynamics of mammalian resistance to snake venom. The choice of an institution by the applicant to conduct the research is very good.

# Broader Impacts Criterion

## Overall Assessment of Broader Impacts

Very Good

## Explanation to Applicant

It is clear that the applicant can effectively integrate research and education considering the previous outreach activities of the applicant. The personal statement of the applicant does demonstrate that the applicant would encourage diversity and broaden the participation of underrepresented groups in science and research. The proposed research will enhance science and technical understanding by providing new knowledge about the evolutionary biology of mammalian resistance to snake venom. It was not clear how the proposed project will benefit society.