



DEPARTMENT OF BIOLOGY
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Dear Members of the Summer Student Selection Committee,

I'm delighted to write this letter in support of the application of **Iris Fang** – she is a wonderful young biologist who has a powerful combination of a very bright mind, creativity, curiosity and a willingness to work very hard. I first came to know Iris at the end of our introductory biology course (Organismal and Population Biology) in the spring of 2012. The course has over 100 students in it and I usually only know the students in my lab section and students who have difficulties or who are outstanding. Iris is one of the latter. When I graded exams I found myself curious as to the identity of the person who consistently wrote not only correct but interesting answers to my questions on organismal diversity and evolution. When I turned over the exam I noted the name, “Iris Fang”, but hadn't yet connected it to a person. On the last day of class we play “Buzzword Bingo” – a sort of celebration of the course where the students and the teaching staff act out various terms or concepts and the rest of the class has to guess what is being demonstrated. Watching this fun spectacle I was quite astounded with a couple of very spirited efforts that showed “clone-wars” (aggression in clonal sea anemones) and “penis-fencing” – it turned out that demonstrator was Iris Fang. At last I had a face to connect to those smart responses on the quizzes.

In the fall of 2012 Iris joined my Invertebrate Biology Course and through it I came to know her much better. She scored very well on weekly class and lab quizzes and especially excelled on the final paper – a critical literature review of a topic selected by the student. Iris selected the defense mechanisms of sponges and in both her talk and the written paper did a great job of first making the case about why sponges would need a number of different defense mechanisms (e.g. a sessile organism that by its nature is intimately exposed to an unending stream of bacteria-laden water and which has no “active” way to threaten predators). She then went on to look at sponge defenses (chemical, anti-microbial, skeletal) that are targeted at different kinds of threats. What was most impressive to me was her ability to take on a broad range of literature written from both ecological and physiological perspectives and amalgamate it into a cogent view that had the whole class impressed with the dynamic abilities of sponges! In the lab, which is largely observational, I appreciated the careful way she made observations and the good questions that she asked. She was appropriately patient when she needed to be and at the same time efficient.

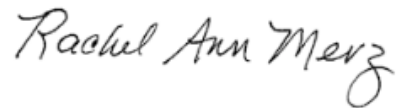
As part of the class I offered an optional trip to the Duke Marine Lab over fall break. Iris was amongst the first to sign up and her eagerness to experience events and learn more about the organisms was infectious. She was reliable, prompt and

uncomplaining in an adventure that had its trying moments (up before dawn, in the van for many hours, a schedule dictated by the tides and the boat captain, rocky seas).

Because Iris was not only smart but good at interactions with other students, I invited her to be my TA for Marine Biology in the fall of 2013. She was great! She did a beautiful job with group discussions of the primary literature and she was very helpful with the practical aspects of running fieldtrips. I would have been very happy to have Iris work in my lab in the summer of 2014, but because I was on sabbatical she instead found a position as a research intern at the Smithsonian Environmental Research Center in the Chesapeake Bay where she was part of a project monitoring both physical and biological conditions. This experience reinforced her interest in Marine Biology – especially when it combines fieldwork and interesting technical challenges.

Through all my experiences with Iris I have been continually impressed at her almost “fierce” enthusiasm for marine biology and invertebrates and her eagerness and success in taking on new technologies. It isn’t a scary fierceness, just a deep well of curiosity and enthusiasm that bubbles over with great questions, eager participation, and a kind of quiet joy. I think that if she were part of the MBARI program that you would find her a wonderful and capable participant and that the experience would be an extremely valuable experience that would influence her choice of career path. I give Iris Fang my highest recommendation.

With best wishes for a great summer season, sincerely,

A handwritten signature in cursive script that reads "Rachel Ann Merz". The ink is dark and the handwriting is fluid, with a large, stylized 'M' at the end.

Rachel Ann Merz
Walter Kemp Professor of Natural Sciences