Interdisciplinary Education in Astrobiology
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INTRODUCTION

Astrobiology is a grand challenge that requires significant levels of collaboration and interdisciplinary cooperation [1], [2], [3], [4], [5]. Interdisciplinary research requires scholars who are trained accordingly [6], [7]. "Training the next generation of astrobiology researchers" so that they can operate in an interdisciplinary and collaborative fashion is indeed one of the mission statements of the NASA Astrobiology Institute (NAI) [8]. This study investigates interdisciplinary education in astrobiology, barriers and facilitators the astrobiology students and the professors experience, and NAI’s support to early career people.

METHODS

One hundred and fifty NAI researchers at all levels (from graduate students to principal investigators) were interviewed in their own institutions, labs, and offices about interdisciplinary education and research, the role of mentoring, and job prospects. The interviews were verbatim transcribed and analyzed by QDA software.

RESULTS

Astrobiology community is a young community that is receptive to training. The main barriers for interdisciplinary research careers were identified as job prospects, too many things to learn about, different terminology in different domains, and communication barriers by the interviewees.

"Out of 550 researchers, half of them received their Ph.D.s after 2000."

EXPOSURE

"Facilitators of interdisciplinary research are the kinds of community building activities that get people together. Like, interdisciplinary seminars, and symposia, and allowing your graduate students to enroll in classes in other departments and other disciplines... because then the graduate student comes back and says, 'I just learned about this really cool thing' or 'I just met this professor, who's working on this other problem'" [9], Co-I

"Well, one of the nice things is we have very broad seminar series here. So, there's a lot of subjects they get exposed to!" [10], DB, Co-I

"In fact, one of our grad students, who's paid by our astrobiology stuff, who has an office up here 'cause she's an astronomer, suddenly said she wants to be in the water pool. I was hesitant because that would set a precedent and all the grad students would want to be in there and we don't have enough space. She goes, 'But I've been excited talking to various people down there.' She's now wanting to do some lab experiments in the geochemistry area and she says, "I need to be surrounded by those people in the different disciplines. So I've agreed." [11], PN

"...this Astrobiology Conference is a great place to meet all sorts of people and listen to all sorts of different things and kind of have the chance to think about your general questions from a different point of view. That's helpful!" [12], Grad student

ASTROBIOLOGY PhD PROGRAM

"NSF IGERT, whereby we were able to support astrobiology students for two or three years with united RA-ship... you could pursue whatever branch of science you like and be interdisciplinary and integrative and try things out and fail and move on, which was really good for, especially a young discipline like astrobiology... [we] allowed our students to do a research rotation outside their area of Ph.D. specialization, so an astronomer would go after microbiology for one or two quarters and do a microbiology research project." [13], Co-I

REFERENCES