

Statement of Academic and Career Objectives

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I am writing about my interest in pursuing a Master of Arts in Interdisciplinary Studies at Oregon State University. I have a passion for academia and research and hope to become a professor at a leading research university. I have been working as a Software Engineer at Cambia Health Solutions and am interested in developing a program that will allow me to build on my existing skills while gaining new ones.

Discuss the three areas of study you are proposing:

The interdisciplinary program I am proposing combines Oceanography, Computer Science and Statistics. I am currently speaking with faculty in both the Physical Oceanography and Ocean Ecology and Biogeochemistry specializations. In Computer Science I am planning to pursue a focus on Artificial Intelligence and have begun speaking with faculty in the EECS Department. I chose statistics as my third area of study since I think it will be useful working as a researcher and also because of the applications of statistics in the field of artificial intelligence.

How they fit together to lend themselves to interdisciplinary study:

I think one of the main ways these fields fit together for interdisciplinary study is the merging of disciplines that allows for ecological based research questions built on a computational and statistical foundation. Utilizing computers in research currently exists but my personal view is that these fields can be merged in a far more comprehensive manner. This type of interdisciplinary research is being seen more often including here at Oregon State University. For example, Professor Hutchinson is utilizing machine learning and statistical modeling to research ecological based questions. She holds an appointment in both the College of Electrical Engineering and Computer Science and also the Department of Fisheries and Wildlife. Her research in ecology has uncovered new challenges and research questions that are being brought back to the field of computer science. Another example is Professor Nash who is a Professor in the College of Earth Ocean and Atmospheric Sciences. He is working with the Robotics Department to develop autonomous vehicles for physical oceanography research.

I have two areas that I am currently exploring to help develop a thesis. The first is utilizing principles of artificial intelligence to solve challenging research questions in oceanography. One example of this might be utilizing principles of computer vision to allow us to process large amounts of captured visual data. Another example might be utilizing principles of natural language processing to synthesize past research. The second is I have a passion for working with and understanding large data sets. Earth systems are inherently complex and tied together in ways that make isolating and understanding them difficult. I feel that advances in cloud computing, big data and machine learning could open up many new and fascinating research possibilities.

The rationale justifying why an interdisciplinary degree is being sought, as opposed to a degree based in a single discipline:

I felt strongly that an interdisciplinary degree is the perfect choice for me at this point as opposed to a degree in a single discipline. The primary reason for this is that it will allow me to be heavily engaged in both the College of Earth Ocean and Atmospheric Sciences and the College of Electrical Engineering and Computer Science. My time in the MAIS Program will allow me to solidify my research interests and determine if they align more with a PhD in a Computer Science

Department or in a more Ecological based department like the College of Earth Ocean Atmospheric Sciences. The other reason I think it is a good fit is it will allow me to strengthen a lot of the skills that will be useful as a researcher throughout my career. Finally, it will allow me to really engage across disciplines and create a network that I feel will help me move into a doctoral program with a background aligned with research at the universities I plan to apply at.

Discuss how your proposed academic objectives will help you meet your career goals:

I have a number of career related goals that are focused on my desire of becoming a tenure track professor. As a professor I really want to work with and help students and also be engaged in research that is meaningful and helps to improve the lives of people. Sometimes it is difficult to see the impact that our environment has on us but the ocean ecosystem is intimately interwoven with our own quality of life. It is a fragile ecosystem and it is important that we work on developing solutions that protect and preserve it.

I feel strongly that the MAIS Program would be the ideal bridge for me to begin working towards these goals. It will allow me the ability to immerse myself in research and curriculum from multiple disciplines. It will also give me the ability to narrow my interests so that I am able to confidently apply for a PhD in a single discipline. Besides my long term goals I also have a number of goals for the time I am in the MAIS Program. I hope that through faculty interaction, coursework, seminars and research I am able to develop a meaningful thesis that aligns with research being conducted by faculty who I am interested in pursuing doctoral level work with. I also am interested in attending at least one conference and working towards a publication. Finally, I hope to get to know the other students and faculty in the MAIS Program to develop friendships and find others to study and work with over the course of my degree.