



OUT OF THE LAB AND INTO THE WORLD

UNCW'S NEW COASTAL AND OCEAN SCIENCES DOCTORAL DEGREE
INTEGRATES ENTREPRENEURSHIP WITH THE AQUATIC ECOSYSTEM

by Venita Jenkins

UNC Wilmington's new Ph.D. in Applied Coastal and Ocean Sciences builds on the university's 50-year history of marine sciences research and education by providing students with a robust marine science degree alongside additional learning and training and opportunities to develop dynamic entrepreneurship and technology development skills.

The new doctoral program, set to begin in fall 2022, leverages UNCW's unique coastal location and has the potential to contribute to the regional and national blue economy. The blue economy encompasses a broad range of economic and sustainable uses and benefits of the ocean, including fisheries, aquaculture, biotechnology, maritime transport, tourism and recreation, energy and mineral resources, waste management and impacts of climate change. The Organization for Economic Cooperation and Development

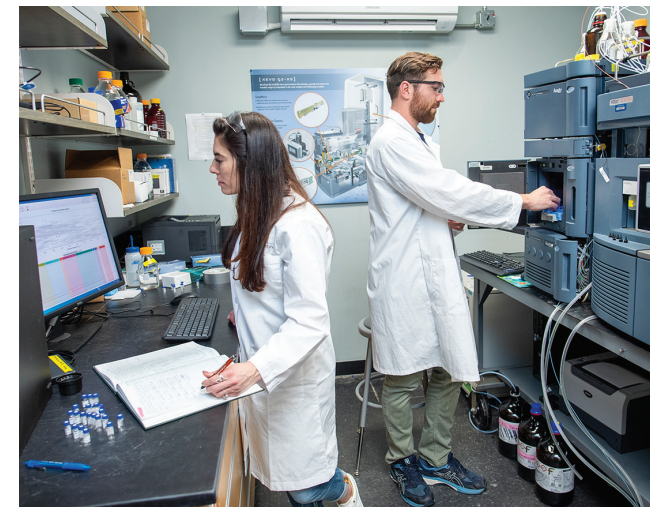
estimates that oceans contribute \$1.5 trillion annually to the global economy.

"The Applied Coastal and Ocean Sciences program formally integrates entrepreneurship topics to help students envision new applications for their ideas in business, policymaking, and other areas of targeted problem solving," said Dr. Steve Skrabal, graduate program director and chemistry and biochemistry professor. "Our graduates will not only be prepared for the academic job market but also well-qualified to enter the workforce in the private and policy sectors or as entrepreneurs starting their businesses."

UNCW has deep experience in marine natural products chemistry and drug discovery through its Marine Biotechnology in North Carolina (MARBIONC) program, a research and development program located at the university's

Center for Marine Science. Dr. Jennifer McCall, assistant professor in the Clinical Research Program, and her husband, Sam McCall, founded SeaTox Research Inc., which focuses on drug discovery and developing natural products into new bio-actives, as well as developing faster, easier-to-use testing for toxins that might contaminate commercial seafood. SeaTox Research is one of a number of commercial tenants in MARBIONC. Science also meets innovation in the development of an instrument to measure coral health indicators called CISME, "Coral In Situ Metabolism," by Dr. Alina Szmant, coral reef ecologist and former marine biology professor, and Dr. Rob Whitehead, a Center for Marine Science research specialist.

"With the ACOS degree, we will educate and train scientists who can think about how to get their discoveries out of the laboratory and into the world, making a positive impact," said Dr. Stuart Borrett, associate provost for research. "UNCW has a strong history of preparing stellar scientists skilled at working on basic, curiosity-driven research questions. With this program, we will position them to collaborate effectively with entrepreneurs or become professional innovators themselves. Most importantly, we will encourage them to ask research questions and pursue discoveries that seek solutions to critical problems and address the needs of society."



The blue economy is critical for North Carolina, which possesses the seventh-longest coastline in the U.S. – the longest along the Atlantic seaboard, and the second-largest East Coast estuary, Skrabal said.

"Given growing societal dependence on coastal and marine systems in the face of daunting marine environmental challenges, partnerships between communities, businesses, non-governmental organizations, and UNCW – as the state's coastal university – are critical for building deep understanding in marine sciences," said CMS Executive Director Ken Halanych.

Research at CMS encompasses 108 faculty members from within all UNCW colleges. CMS researchers work around the world to address societal issues and understand environmental change. Such research includes:

- Development and deployment of the Seahawk-1 nano-satellite for remote sensing of ocean properties from space
- Development of potential pharmaceuticals from marine organisms
- Development of coral protection and spawning techniques
- Development and application of ocean sensors, including one for monitoring carbon dioxide in the ocean
- Maintenance and study of marine algae species, including those involved in harmful blooms
- Studies of perfluorinated compounds, including Gen-X and other contaminants in surface waters, rainwater and groundwater in the Cape Fear region
- Marine aquaculture of economically important fish and shellfish species
- Studies of sea-level rise and shoreline changes
- Coastal Ocean Research and Monitoring Program (CORMP) provides data for improving maritime safety, weather and ocean conditions, climate change forecasting, and underwater autonomous vehicles for ocean sensing

"Our faculty expertise related to emerging coastal issues, our excellent infrastructure with a growing entrepreneurial emphasis, coastal location, and connections with coastal constituents create a synergy that allows Ph.D. students a distinctive opportunity for understanding and pursuing applied research relevant to coastal communities in the state and across the globe," said Skrabal.

For more details, visit uncw.edu/cms



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