

# OCEAN SCIENCE AND ENGINEERING

## BACHELOR OF SCIENCE IN **MARINE SCIENCE** WITH HYDROGRAPHY EMPHASIS

### What Is Marine Hydrography?

As a natural source of raw materials, the seas and oceans of the world have never been so important. The oceans are a fragile environment whose exploitation must be carefully and considerably managed. It is the work of the hydrographer to chart this great frontier, and to provide the expertise for their exploration and for much of the engineering needed for their development. Traditionally, the hydrographer has been associated with making the nautical charts that allow ships to navigate the world in safety. This is still an important role, but as a science and profession, hydrographic surveying has evolved into an exciting, multidisciplinary and well-paying occupation. The hydrographer is involved with every aspect of the collection, analysis and management of oceanographic data that has applications for:

- Safety of Navigation from Inland Coastal Waters to the Depths of the Ocean Trenches
- Exploration for Oil and Gas
- Engineering, Construction or Maintenance of Ports, Waterways, Transoceanic Cables and Offshore Wind Farms
- Coastal Management and Inundation Studies
- Delineation of Maritime Boundaries
- Underwater Archeology
- Habitat mapping
- Naval warfare

### B.S. Marine Science (Hydrography) Degree Program

The BS in marine science with an emphasis in hydrography provides students with the knowledge and skills they need to collect, analyze, and manage oceanographic data and chart various dimensions of the world's oceans. Students take courses in many different scientific and computational disciplines to prepare for the work of being a hydrographer. Students may complete the freshman and sophomore

years of their program at either the Hattiesburg or Gulf Park campus. The junior and senior years of the program are delivered at Gulf Park exclusively, where students will have access to specialized classes that utilize laboratory facilities in Long Beach and the Gulfport Port Facility.

The Gulf Park campus is located in Long Beach, MS, near the Naval Oceanographic Office, Naval Research Laboratory-Stennis, Naval Construction Battalion Center Gulfport, Keesler Air Force Base, Gulfport Harbor, and commercial Blue Economy facilities. With recognized Navy and industry needs for an entry-level program in hydrographic science, a geographic proximity to Stennis Space Center with the largest concentration of oceanographic scientists in the world, a vibrant Blue Economy in the Gulf Coast region, and existing expertise with the Hydrographic Science graduate program, USM commenced this new STEM program, presently available nowhere else in the U.S.!



### COURSES

- Ocean Acoustics
- Electronic Charting and Navigation
- Waves and Tides
- 3-D Positioning
- Marine Geographic Information Systems (GIS)
- Nautical Science
- Remote Sensing for Hydrographers
- Hydrography Field Project