



Graduate Program in Underwater Archaeology

Underwater archaeology is the study of the remains of past human activity through the exploration of a variety of submerged sites, from shipwrecks in saltwater to freshwater caves and springs. Archaeology makes history tangible. It provides a completely different portal through which to view the past. Perhaps most importantly, archaeology can make a difference. Archaeology has numerous benefits to us as a society. Archaeological sites and artifacts can play a large role in education, community cohesion, national identity, economic development, sustainable tourism, conservation, and, of course, entertainment among others. The material culture of our shared heritage and past provides cultural continuity, perspective, and a tangible link to those who preceded us. Shipwrecks and submerged sites have long fascinated humankind, perhaps never more so than in modern day, and given climate change and rising water temperatures worldwide, it is becoming even more important to document, study, manage, and find innovative ways to preserve what remains of our past. The MPS Underwater Archaeology track (UARCH) is a two-year program that focuses on the theory, field techniques, and management practices necessary to work within the field of archaeology and the broader general field of marine sciences. Coursework integrates topics such as site mapping and documentation, interpretation of shipwrecks and submerged sites, best management practices, marine protected areas, and marine survey technology. Students will have opportunities to work side-by-side with professional archaeologists through internships and field projects with private, public, or non-governmental agencies, both nationally and internationally, and conduct relevant fieldwork.

MPS Degree Schedule

Prerequisites:

- BA/BS in Anthropology, History, or related field
- Meet minimum RSMAS diving standards as outlined by the RSMAS Dive Office
 - Minimum open water scuba certification with a minimum of 10 logged dives
 - Ability to complete the required swimming test:
 - 400 yard swim in 12 minutes
 - 25 yard underwater swim on 1 breath (no push off)
 - 15 minute float and/or tread
 - 400 yard swim with mask/snorkel/fins in 8 minutes (no arms/hands)
 - Free dive to 15 feet to retrieve 5 pound weight
 - Certified divers with more than 50 logged dives, especially those with prior scientific diving training, may qualify for the Experienced Diver Checkout and not be required to take RSM 600

Recommended:

- Participation in an archaeological field school prior to commencing UARCH program

Fall Semester Year 1:

MES 632 Theory and Method in Underwater and Maritime Archaeology (3)
MES 626 Submerged Cultural Resource Management (3)
RSM 600 Research Diving Techniques (3)
MES 667 Motorboat Operator Certificate Course (1-2)

*Recommended attendance at the Annual Conference on Historical and Underwater Archaeology by the Society for Historical Archaeology in January for education and networking.

Spring Semester Year 1:

MES 614 Underwater Archaeology Field Techniques (3)
MES 615 Marine Archaeological Survey and Technology (3)
MES 660/661 Introduction to Marine GIS (3)
MES 672 The Archaeology of Seafaring (3)

Summer Semester A-B Year 1:

MES 691 Maritime Archaeology Field Study (3)
MES 692 Archaeological Study of Submerged Pre-Contact Sites (3) (optional)
MES XXX Maritime Archaeology and the Conquest of Mexico (3) (optional)(awaiting course number)
MES 805 Internship (3-6)

Fall Semester Year 2:

MES 805 Internship (if continued from summer)
Elective Course(s)
Final MPS Study (writing, no credit hours)

*Recommended attendance at the Annual Conference on Historical and Underwater Archaeology by the Society for Historical Archaeology in January for education and networking.

Spring Semester Year 2:

Elective Course(s)
Final MPS Study (writing, no credit hours)

Examples of elective courses:

ANTH 617 Archaeometry: The Science of Material Culture
MES 665 Exploration Technology and Media
MES 618 Coastal Zone Management
MES 616 Ocean Policy and Development and Analysis
MES 720 Coastal Law and Policy
MES 674 From Gold to Glory: The Evolving History and Ethics of Exploration
MES 664 Citizen Participatory Science
MES 606 Advanced Fieldwork in Coastal Cultures
OCE 642 Physics of Remote Sensing I: Passive Systems
OCE 643 Physics of Remote Sensing II: Active Systems
MBE 716 Bayesian Statistics for Marine Scientists

Note:

MES 691 and 692 can take place in a number of locations including, but not limited to, Biscayne National Park, Florida Keys National Marine Sanctuary, Dry Tortugas National Park, Little Salt Spring, or in conjunction with international projects in Mexico, Puerto Rico, Panama, Colombia, or elsewhere in Latin America and the Caribbean.

Deliverables Necessary for Graduation:

Final MPS Study: minimum of 75 pages, maximum of 120, not including bibliography
Final MPS Presentation: 30 minutes with additional time for Q&A

RSMAS Underwater Archaeology Track Required Course Descriptions

MES 680 Theory and Method in Underwater and Maritime Archaeology

This course covers archaeological theory and methodologies used to interpret underwater and maritime sites in both prehistoric and historic contexts. The interconnection of theoretical constructs with submerged archaeological remains is emphasized, providing a broad toolset that can be used to better understand and explain the archaeological assemblage and associated data sets acquired from the investigation of these sites and their association with human behavior and activity.

MES 626 Submerged Cultural Resource Management

This course discusses various aspects and details of managing underwater cultural heritage/submerged cultural resources. Topics will include ethics, policies and procedures, marine protected areas, and federal, state, and international laws governing management of submerged archaeological sites. Specific focus is placed on examining the variety of management concepts and frameworks utilized both in the U.S. and internationally. Finally, the role and value of public archaeology in management is also presented and discussed.

MES 614 Underwater Archaeology Field Techniques

This course is designed to provide students the practical and scientific tools necessary to conduct archaeological investigations in underwater contexts. Critical skills such as baseline mapping, trilateration, artifact illustration, photography, and others are discussed, practiced, and ultimately applied during the dive portions of the course. Dive training will take place on shipwrecks in Biscayne National Park and nearby Virginia Key. This course will also place an emphasis on post-fieldwork efforts and professional report writing. Please note that there is a significant amount of diving to complete this course. Prerequisite: RSM 600.

MES 615 Marine Archaeological Survey and Technology

This course is designed to provide students with an introduction to current technologies and marine remote sensing tools utilized in archaeological survey. Instruction in the use of technology such as the magnetometer, sidescan sonar, sector scan sonar, scanning lasers, and other tools are covered. The use of data acquisition software and the post processing of data are also key elements of this course. There is a significant component of this course utilizing boats and also a smaller diving component. Prerequisites: RSM 600 and RSM 667.

MES 672 The Archaeology of Seafaring

Ships and seafarers have had considerable influences on civilization throughout history. The ship typically represents the pinnacle of a society's understanding of many disciplines: astronomy, geography, metallurgy, physics, and warfare among others. No other process similarly spread the delights and devastation of the world so effectively. This course will study man's evolutionary relationship with the sea from early civilization through the 20th century. Emphasis will be on archaeological and ethnographical investigations concerning shipwrecks and maritime epicenters supporting maritime culture. This course will also cover shipwreck interpretation and provide an understanding of technological change and adaptation of various vessels throughout time.

MES 691 Maritime Archaeology Field Study

This course will allow graduate students the opportunity to work professionally as archaeologists on a maritime archaeological project and put into practice the knowledge and skills they have acquired in the first year of their MPS courses under guided supervision. This course will be completely field-based and may be conducted in a number of locations, including the Florida Keys National Marine Sanctuary, Dry Tortugas National Park, Biscayne National Park, Emerald Bay State Park (CA), or on field projects in Panama, Colombia, or the Caribbean. Taking part in this class will allow students to work as underwater

archaeologists with guided supervision, which will serve to better prepare them to function in a more independent role in their MPS internships and future professional careers.

MES 692 Archaeological Study of Submerged Pre-Contact Sites

This graduate course will allow students to take part in a prehistoric underwater archaeological field project and put into practice the knowledge and skills they have acquired in the first year of their MPS courses under guided supervision. This course will be based both in the field and laboratory and skills such as mapping, excavation, in-field conservation of water-logged artifacts, artifact cataloging, etc. Taking part in this class will allow students to be exposed to a broader array of site types within the field of underwater archaeology and acquire a broader skillset that is applicable to general archaeological sites and not just to shipwrecks and maritime sites. This course may take place at any number of submerged prehistoric sites including, but not limited to, Florida, Puerto Rico, the Dominican Republic, and Cuba. This will also serve to better prepare them to function in a more independent role in their MPS internships and future professional careers.

MES XXX Maritime Archaeology and the Conquest of Mexico (course number not yet assigned)

This course will allow students to experience firsthand the archaeological and historical sites associated with the conquest of Mexico and to participate in international archaeological fieldwork investigating maritime archaeological sites associated with this seminal historic event. Site-based learning experiences will include world-renowned museums and very significant archaeological sites, both prehistoric and historic, which will provide perspective on cultural transition and conflict over time within the prehistoric societies in Mesoamerica and the eventual collision of cultures and civilizations at the height of the Aztec empire and the advent of Spanish colonialism. Sites that will be visited include the National Museum of Anthropology, the National Museum of History, and the archaeological sites of Tenochtitlan, Cholula, Cempoala, Quiahuiztlan, the town site of Antigua, and the fortifications of San Juan de Ulúa. The fieldwork portion of the course will take place in the town of Villa Rica de la Vera Cruz and will be conducted from a borderlands/landscape lens, incorporating both terrestrial and underwater efforts. Students will participate in the archaeological study of and search for shipwrecks associated with the conquest. The fieldwork portion of the course will be conducted in collaboration with professional archaeologists and students and under permit from Mexico's Instituto Nacional de Antropología e Historia (INAH) and the team will base out of the town of Villa Rica de la Vera Cruz.

RSM 600 Research Diving Techniques

This course is designed to introduce students to the practices and policies of scientific diving. The object is to prepare students to use SCUBA as a research tool for the marine sciences. The course content will qualify students as RESEARCH DIVERS under the UM/RSMAS Scientific Diving Program and will meet the standards set by the American Academy of Underwater Sciences (AAUS).

RSM 567 Motorboat Operator Certificate Course

The MOCC course was developed and formalized by the United States Department of the Interior in the early 1990's. The course is designed to give students broad academic knowledge and practical training running small boats (Boats 26' in length or shorter). In addition to the relevant theory, students will get hands on training trailering small boats, launching and loading at boat ramps, slow and high speed maneuvering, Marline Spike (knot trying), as well as in water emergency training and the use of flares and pyrotechnics. The MOCC certification is the training standard for occupational small boating and used by government organizations, public and private research organizations, public aquaria, etc. The certification is a marketable skill for students moving ahead in their careers in marine science.

MES 660 Introduction to Marine Geographic Information Systems

Marine Geographic Information Systems are emerging as a distinct subset of GIS, due to fundamental differences between terrestrial and underwater spatial information (2-D vs. 3-D, multiresolution, synoptic data collection, time depth (4-D) modeling). Approximately the first half of this course is a brief review of basic GIS, and the second half concentrates on aspects of marine data acquisition and manipulation in the GIS context.

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