1999

Oceanographic Center Catalog 1999-2000

Nova Southeastern University

Follow this and additional works at: https://nsuworks.nova.edu/cnso_coursecatalogs

Part of the Oceanography and Atmospheric Sciences and Meteorology Commons

NSUWorks Citation
Nova Southeastern University, "Oceanographic Center Catalog 1999-2000" (1999). Halmos College of Natural Sciences and Oceanography Course Catalogs. 23.
https://nsuworks.nova.edu/cnso_coursecatalogs/23

This Bulletin is brought to you for free and open access by the NSU Course Catalogs and Course Descriptions at NSUWorks. It has been accepted for inclusion in Halmos College of Natural Sciences and Oceanography Course Catalogs by an authorized administrator of NSUWorks. For more information, please contact nsuworks@nova.edu.
Oceanographic Center

NOVA SOUTHEASTERN UNIVERSITY

1999-2000

NSU

Catalog 1999-2000
NOTICE OF NONDISCRIMINATION
Nova Southeastern University admits students of any race, color, sex, age, nondisqualifying disability, religion or creed, or national or ethnic origin to all the rights, privileges, programs, and activities generally accorded or made available to students at the school, and does not discriminate in administration of its educational policies, admissions policies, scholarship and loan programs, and athletic and other school-administered programs.

Nova Southeastern University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097; Telephone number 404-679-4501) to award bachelor's, master's, educational specialist, and doctoral degrees.
President's Message

Nova Southeastern University is Florida’s largest independent university based on enrollment and one of the top 20 independent institutions in the United States. As president of NSU, I invite you to become an ambassador of this remarkable educational showcase that is 34 years young.

In 1967, NSU served an entire student body of 17 from one building. Today, we have more than 16,000 students enrolled in 15 academic centers, with programs offered in 22 states and six foreign countries. The university boasts more than 58,000 alumni in 50 foreign countries.

The university’s sustained growth is due in large part to its exploration of alternative strategies in educating professionals, and its commitment to excellence in academics, clinical training, community service, and well-rounded opportunities for all students.

As you continue your studies at Nova Southeastern University, you grow as a member of a select group of educators and practitioners in your field. You will move forward in leadership roles and find innovative avenues to advance your communities. The essence of NSU is collaboration at all levels and with diverse partners.

We look forward to a lifelong partnership with you, our student. The entire NSU community is dedicated to providing service and academic excellence to you as you continue on the road to graduation and your leadership role in the new millennium.

Ray Ferrero, Jr., J.D.
President
# Table of Contents

1. OCEANOGRAPHIC CENTER OVERVIEW .................................. 1
   1.1. OCEANOGRAPHIC CENTER MISSION STATEMENT ................. 1
   1.2. GRADUATE RESEARCH ACTIVITIES .................................. 1
   1.3. ACADEMIC PROGRAMS: INSTITUTE OF MARINE AND COASTAL STUDIES ........................................... 1
       1.3.1. M.S. Marine Biology ........................................ 2
       1.3.2. M.S. Coastal Zone Management .................................... 2
       1.3.3. M.S. Marine Environmental Sciences ................. 3
       1.3.4. Joint M.S. Degrees ........................................... 3
       1.3.5. Ph.D. in Oceanography ......................................... 3
   1.4. FACILITIES .................................................................. 3
       1.4.1. Laboratories and Offices ..................................... 3
       1.4.2. Library Resources .................................................. 5
       1.4.3. Computer Services .................................................. 5
       1.4.4. National Coral Reef Institute .................................. 5
       1.4.5. South Florida Ocean Measurement Center .................. 5
       1.4.6. Aquaculture Research Center ................................... 5

2. FACULTY AND STAFF ......................................................... 5
   2.1. NOVA SOUTHEASTERN UNIVERSITY ADMINISTRATION .................. 5
   2.2. OCEANOGRAPHIC CENTER FACULTY .................................. 6
   2.3. OCEANOGRAPHIC CENTER STAFF .................................... 6
   2.4. OCEANOGRAPHIC CENTER ADJUNCT AND AFFILIATE TEACHING FACULTY ............................................. 6
   2.5. OCEANOGRAPHIC CENTER HONORARY ADJUNCT AND AFFILIATE FACULTY ............................................. 7
   2.6. OCEANOGRAPHIC CENTER BOARD OF GOVERNORS ................. 8

3. CURRENT RESEARCH ACTIVITIES ....................................... 8
   3.1. PHYSICAL OCEANOGRAPHY ........................................... 8
   3.2. FACULTY AND ASSOCIATES IN PHYSICAL OCEANOGRAPHY ................. 9
   3.3. MARINE BIOLOGY/GEOLOGY/ CHEMISTRY ........................................... 9
   3.4. FACULTY IN MARINE BIOLOGY/ GEOLOGY/CHEMISTRY .................. 11

4. GRADUATE EDUCATIONAL PROGRAMS ................................... 12
   4.1. ADMISSION .................................................................... 12
       4.1.1. Application ............................................................ 12
       4.1.2. Acceptance Status ................................................... 12
       4.1.3. Ph.D. and M.S. Acceptance Criteria ............................ 13
       4.1.4. M.S. and Ph.D. ..................................................... 13
       4.1.5. Dual B.S./M.S. Admission ........................................ 14
       4.1.6. Registration ............................................................ 14
       4.1.7. Transfer Credit Policy ............................................. 14
       4.1.8. Transferability of Credits ........................................ 14
   4.2. TIME LIMITS .................................................................. 14
   4.3. TUITION AND FEES ...................................................... 15
       4.3.1. Tuition and Fees: FALL 1999 .................................... 15
       4.3.2. Withdrawal and Refunds .......................................... 15
       4.3.3. Leaves of Absence .................................................... 17
   4.4. M.S. PROGRAM .......................................................... 17
       4.4.1. Capstone Review/Thesis .......................................... 17
       4.4.2. Credit-Hour Requirements ....................................... 17
       4.4.3. Program of Studies .................................................. 17
       4.4.4. Distance Education .................................................. 19
       4.4.5. Academic Activities and Approvals ............................ 19
       4.4.6. Capstone Review/Thesis Requirements ....................... 20
       4.4.7. Course Descriptions ................................................. 23
   4.5. Ph.D. PROGRAM .......................................................... 32
       4.5.1. General and Credit-Hour Requirements ....................... 32
       4.5.2. Academic Activities and Approvals ............................ 32
       4.5.3. Ph.D. Course Descriptions ....................................... 33
   4.6. OTHER INFORMATION .................................................. 35
       4.6.1. Office Space and Keys ............................................. 35
       4.6.2. Copying ............................................................... 35
       4.6.3. Supplemental Text Material ..................................... 35
       4.6.4. Computer Usage ...................................................... 35

5. GRADING ................................................................. 36
   5.1 GRADING SYSTEM ...................................................... 36
       5.1.1. Quality Points ....................................................... 36
       5.1.2. Grading Policies ..................................................... 36
       5.1.3. Examinations .......................................................... 36
       5.1.4. Student Grade Transmittal ...................................... 37
       5.1.5. Grade Appeal/Grievance Procedure ............................ 37
   5.2. ACADEMIC STANDING .............................................. 37
   5.3. STUDENT PROGRESS REPORTS .................................. 37

6. LONG-TERM ACADEMIC CALENDAR 1999-2001 ......................... 38

7. VA STUDENTS ............................................................... 38
   7.1. STANDARDS OF PROGRESS ........................................... 38
   7.2. STUDENT CONDUCT ..................................................... 38
   7.3. GRADE/PROGRESS REPORTS ........................................ 38
   7.4. VA CALENDAR .......................................................... 39

8. POLICIES GOVERNING STUDENT RELATIONS ......................... 42
   8.1. GENERAL ............................................................... 42
       8.1.1. Institutional and Academic Information ...................... 42
       8.1.2. Non-discrimination ............................................... 42
       8.1.3. Americans with Disabilities Act ............................... 42
   8.2. STUDENT RIGHTS AND RESPONSIBILITIES ....................... 42
       8.2.1. The Code of Student Conduct and Academic Responsibility .... 42
       8.2.2. Nova Southeastern University Statement of Academic Rights and Responsibilities ................... 42
   8.3. PROVISIONS ............................................................ 53

9. THE UNIVERSITY .......................................................... 54
   9.1. LIBRARY RESOURCES .................................................. 55
   9.2. CENTER FOR MEDIA AND TECHNOLOGY .......................... 55
   9.3. COMPUTING FACILITIES ............................................. 55
   9.4. TEXTBOOKS ............................................................ 56

10. NOVA SOUTHEASTERN UNIVERSITY DEGREE OFFERINGS ............ 57
1. Oceanographic Center Overview

1.1. OCEANOGRAPHIC CENTER MISSION STATEMENT

The mission of the Oceanographic Center is to carry out innovative, basic, and applied research and to provide high-quality graduate and undergraduate education in a broad range of marine-science and related disciplines.

The center also serves as a community resource for information, research, and education on oceanographic and environmental issues.

1.2. GRADUATE RESEARCH ACTIVITIES

The Oceanographic Center pursues studies and investigations in observational and theoretical oceanography. Research interests include modeling of large-scale ocean circulation, coastal dynamics, ocean-atmosphere coupling, surface gravity waves, biological oceanography, chemical oceanography, coral reef ecology, assessment, restoration, and monitoring, Pleistocene and Holocene sea level changes, benthic ecology, marine plankton, invertebrate systematics and phylogeny, calcification of invertebrates, cell ultrastructure, marine fisheries, molecular ecology and evolution, wetlands ecology, aquaculture, and nutrient dynamics.

Regions of interest include not only Florida's coastal waters and the continental shelf/slope waters of the southeastern United States, but also the waters of the Caribbean Sea, the Gulf of Mexico, and the Antarctic, Atlantic, Indian, and Pacific Oceans.

1.3. ACADEMIC PROGRAMS: INSTITUTE OF MARINE AND COASTAL STUDIES

Programs and majors:

Individual M.S. degree programs in:
- Marine Biology
- Coastal Zone Management
- Marine Environmental Sciences

Joint M.S. degree programs in
- Marine Biology and Coastal Zone Management
- Marine Biology and Marine Environmental Sciences
- Coastal Zone Management & Marine Environmental Sciences

- Dual B.S. (Ocean Studies)/M.S. (Marine Biology) Program. The dual program is designed for potential Nova Southeastern University incoming and transfer undergraduate students. Graduation and other requirements for the M.S. portion of the dual program are the same as for the marine biology major described herein.
- Ph.D. in Oceanography

The Oceanographic Center offers the Ph.D. degree in oceanography and the M.S. degree in marine biology, coastal zone management, and marine environmental sciences. The joint M.S. degree can be obtained in marine...
biology and coastal zone management; marine biology and marine environmental sciences; and coastal zone management and marine environmental sciences. The B.S. degree is offered in conjunction with the Farquhar Center for Undergraduate Studies through the Joint Science Program. Four undergraduate majors are available: ocean studies, life sciences, science and the law, and science and business environment. (For details on these undergraduate programs, see the Farquhar Center catalog.)

This catalog provides guidelines and rules to assist the student in fulfilling the academic requirements of the M.S. and Ph.D. degrees. M.S. majors and the Ph.D. course of study contain a common core of five courses (Concepts of Physical Oceanography, Marine Ecosystems, Marine Geology, Marine Chemistry, Biostatistics) that provides an overview and foundation in the ocean sciences. Specialty and tutorial courses provide depth in each program. The Oceanographic Center operates on a quarter-term system with 12-week courses.

Graduate students are responsible for requirements set forth in the most recent edition of this catalog, unless exceptions are specifically (and individually) approved by the program administration. Updates may be issued at the Oceanographic Center between catalog publications. Copies of the catalog and updates are available upon request.

For the M.S. program each class meets typically one evening per week in a three-hour session. Thesis and capstone review tracks are offered for marine biology, for coastal zone management, and for joint programs. The marine environmental sciences program offers the capstone review track only.

For dual-track programs, all students enter the program in the capstone review paper track. Carrying out a thesis is possible only after agreement with a major professor and completion by the student of an approved thesis proposal. The capstone review paper track requires a minimum of 42 credits, including 13 three-credit courses and a three-credit capstone review paper, consisting of an extended literature review of an approved subject. The completed capstone paper is defended before the student's advisory committee. The thesis track requires a minimum of 39 credits, including 10 three-credit courses and at least nine credits of master's thesis research. The number of thesis research credits above the minimum is dependent upon the length of time needed to complete the thesis research, which may be more than a minimum of three terms. The final thesis is formally defended before the committee. The joint specialization M.S. degrees require a minimum of 42 course credits (14 courses) or 48 course credits (16 courses) (for thesis or capstone review paper respectively) and nine credits minimum thesis research or the three credits for the capstone review paper. The total minimum requirement is 48 to 51 credits for the thesis or capstone review paper track, respectively. For the joint programs, students take approximately equal numbers of courses within each of the two specialties.

The Ph.D. degree requires a minimum of 90 credits beyond the baccalaureate. At least 48 credits must consist of dissertation research. At least 42 credits must be in upper-level course work, which usually consists of tutorial studies with the major professor. The student also must successfully complete the Ph.D. comprehensive examination and defend the completed dissertation before the committee. The Oceanographic Center faculty has the final approval of the dissertation. The student's Ph.D. committee consists of at least four people, three of whom must be center faculty members and one of whom must be from outside the Oceanographic Center. The committee monitors all phases of the candidate's progress. Students are expected to complete the program in nine years or less, a minimum of three years of which must be in residence.

1.3.1. M.S. Marine Biology

This course of study is designed to equip students with a substantial understanding of the nature and ecology of marine life and a grounding in the other overlapping areas of marine science. Program flexibility provides preparation for further graduate study, secondary education career enhancement, or employment in technical research institutions, government agencies, or environmental consulting firms. Applicants should hold a bachelor's degree in biology, oceanography, or a closely related field, including science education.

1.3.2. M.S. Coastal Zone Management

This program leads to a multidisciplinary professional M.S. degree, intended for employees of government and industry seeking career enhancement, as well as for recent college graduates seeking careers in planning and management with governmental agencies, industries, and other activities depending on or affecting the coastal zone or its resources. The program also can be of value for enhancement of careers in education. It focuses on contemporary problems and conflicts arising from increased use of coastal areas and emphasizes the evaluation of alternative policy management solutions. Coastal studies combine elements of ecology, geology, physics, engineering, economics, law, the social sciences, and management.
Because of this diversity, applicants with any undergraduate major will be considered for admission. A science major is most useful. A science background is essential.

1.3.3. M.S. Marine Environmental Sciences

This master's degree program results from the need to educate professionals beyond the bachelor's in a synthesis of diverse disciplines, each of which views the marine environment in disparate ways. We anticipate that students who complete the M.E.S. Program will enter, or re-enter, the work force directly. This professional degree program is designed to serve working professionals in Florida and across the nation with training and education beyond the bachelor's degree. The M.E.S. is not designed as an intermediate degree for the Ph.D., although some M.E.S. graduate will be well prepared for, and may later apply to, a Ph.D. program either at the Oceanographic Center or elsewhere. The program is of value for prospective or actual employees of government and industry seeking careers in areas of marine science. Because of this diversity, applicants with any undergraduate major will be considered for admission. However, a science major is most useful and a science background is essential. It is important to differentiate the Marine Environmental Sciences M.S. Program from the Coastal Zone Management M.S. Program. We view the M.E.S. as a more broadly based degree without the management emphasis of C.Z.M. The potential M.E.S. curriculum contains some, but does not accentuate, management elements.

1.3.4. Joint M.S. Degrees

The joint M.S. degrees are combinations of essential elements of the separate majors: marine biology/coastal zone management, marine biology/marine environmental sciences, or coastal zone management/marine environmental sciences.

1.3.5. Ph.D. in Oceanography

The Ph.D. degree consists of a program of upper-level course work and original research on a selected topic of importance in the ocean sciences. Courses consist of required general core courses as well as tutorial studies with the major professor. Ph.D. programs are informally divided into physical oceanography and marine biology.

1.4. FACILITIES

1.4.1. Laboratories and Offices

The Oceanographic Center is located on a 10-acre site on the ocean side of Port Everglades, adjacent to the port's entrance. The center has a one-acre boat basin. Its location affords immediate access to the Gulf Stream, the Florida Straits, and the Bahama Banks.

The center is composed of three buildings, two modulars, and a houseboat. The main two-story building houses seven laboratories, conference rooms, workroom, and 13 offices. A second building contains a large two-story warehouse and staging area, classroom, biology laboratory, electron microscopy laboratory, darkroom, machine shop,
carpentry shop, electronics laboratory, the library, student computer lab, computing center, and 15 offices. A one-story building contains a wetlab/classroom, coral workshop, and an X-ray facility. A modular laboratory is used for aquaculture studies. A two-story houseboat provides a union area, a conference room, and student/faculty/staff offices. A modular containing several offices also is available for use.

1.4.2. Library Resources

The Center's William Springer Richardson Library contains 2,700 books, as well as 88 active and 34 inactive periodicals. Audiovisual equipment and computer-assisted data searches are available. CD-ROM and Internet database searches are also available.

On the main campus in Davie, Nova Southeastern University maintains the Einstein Library and the Law Library. Both libraries offer computer-assisted data searches, along with an interlibrary loan service that makes available books and copies of articles from other libraries around the country. The Health Professions Library also located on the main campus, contains card and computerized catalogs of holdings consisting of more than 11,000 book titles, 783 active journals, and 800 audiotapes and videotapes.

1.4.3. Computer Services

The computer center operates a multimode open VMS cluster consisting of DEC AXP workstations, with high-resolution color monitors, DAT tape drives and CD-ROM readers. Also available are two networked HP 4SiMX PostScript printers, a networked Tektronix Phaser 550 color laser printer, a color flatbed scanner, and imaging hardware and software. The center also operates a LAN consisting of approximately 40 PCs for use by faculty members, staff, and students. The LAN is connected to the Internet via a T-1 link. The center's Web site is located at http://www.nova.edu/ocean.

1.4.4 National Coral Reef Institute

The Oceanographic Center is home to the National Coral Reef Institute. The broad purposes of the institute are to engage in hypothesis-based, research-related activities to understand, protect, monitor, and restore coral reefs. The institute mission is to conduct rigorous scientific research, education, and community service in ecology, monitoring, methods, restoration, and management of coral reefs, including those damaged or destroyed by natural or man-induced events. At the same time, NCRI cooperates with graduate and undergraduate academic programs to provide education and training to marine scientists, engineers, managers, and educators about the diverse problems and issues surrounding coral reef ecosystems.

1.4.5 South Florida Ocean Measurement Center

The Oceanographic Center is involved in the South Florida Ocean Measurement Center, a joint effort involving government and educational agencies that includes the following:

- University of South Florida
- Florida Atlantic University
- Harbor Branch Oceanographic Institution, Inc.
- University of Miami: RSMAS
- NOAA: AOML
- Naval Surface Warfare Center
- University of South Florida: Department of Marine Science

A Congressional grant, along with a combination of other federal and state money, is being used to construct this exciting new facility, which includes an extensive natural in-water laboratory being built with the guidance of the Office of Naval Research (ONR). This comprehensive in-water installation is located offshore in Dania, just south of Fort Lauderdale, Florida, in an area with a wide variety of environmental conditions. It also includes living reefs, and is located where the continental shelf break is only three miles from shore.

1.4.6 Aquaculture Research Center

The purpose of the ARC is to foster research and education in the field of aquaculture. The center is testing methods for maximizing production in order to facilitate research and education. The culture facility is comprised of eight 70,000-gallon tanks and four 30,000-gallon tanks. All eight tanks are now in production. Start-up production in the tanks is between 7,000 and 10,000 lbs. per tank, with increases to almost twice that possible in later years. The smaller tanks are being used as biofilters to remove nitrogen wastes. Wetland plants are being grown to remove nitrogen as well, and these are being sold for wetland mitigation projects. The Aquaculture Research Center is located in Fort Lauderdale, near Nova Southeastern University's main campus.

2. Faculty and Staff

2.1 NOVA SOUTHEASTERN UNIVERSITY ADMINISTRATION

Ray Ferrero, Jr., J.D., President
Joel S. Berman, J.D., Associate Vice President, Legal Affairs
Douglas G. Buck, D.P.A., Associate Vice President for Human Resources
Ronald Chenail, Ph.D., Assistant to the President for Academic Affairs
George Hanbury, M.S., Executive Vice President for Administration
Marilyn Johnson, M.S., Vice President, Institutional Advancement
Joseph B. Lakovitch, J.D., Vice President for Student Affairs
Frederick Lippman, R.Ph., Executive Vice Chancellor and Provost, Health Professions Division
John Losak, Ph.D., Vice President for Research and Planning
Virginia McLain, Acting Associate Vice President for Information Technologies
Donald E. Riggs, Ed.D., Vice President for Information Sciences and University Librarian
John J. Santulli II, M.B.A., Associate Vice President for Administration
Jeffrey Schneider, C.P.A., M.B.A., Vice President for Finance
Morton Terry, D.O., Chancellor, Health Professions Division

2.2. OCEANOGRAPHIC CENTER FACULTY

Bart Baca, Director Aquaculture
Ph.D., Texas A&M University

Patricia Blackwelder, Associate Professor
Ph.D., University of South Carolina

Curtis Burney, Associate Professor
Coordinator, Ocean Studies Major
Ph.D., University of Rhode Island

Richard E. Dodge, Dean
Professor
Ph.D., Yale University

Veljko Dragojlovic, Assistant Professor
Ph.D., University of British Columbia

Joshua Feingold, Assistant Professor
Ph.D., University of Miami

Edward O. Keith, Associate Professor
Ph.D., University of California, Santa Cruz

Barry Klinger, Assistant Professor
Ph.D., Massachusetts Institute of Technology

Charles Messing, Associate Professor
Ph.D., RSMAS, University of Miami

Andrew Rogerson, Professor
Director, Institute of Marine and Coastal Studies
Ph.D., University of Stirling

Mahmood Shivji, Assistant Professor
Ph.D., University of Washington

Russel L. Snyder, Professor Emeritus
Ph.D., University of California at San Diego

Alexander Soloviev, Associate Professor
Ph.D., P.P. Shirshov Institute of Oceanology

Richard Spieler, Professor
Coordinator, Life Sciences Major
Ph.D., Louisiana State University

James D. Thomas, Associate Professor
Ph.D., Florida Institute of Technology

Alexander Yankovsky, Assistant Professor
Ph.D., Marine Hydrophysical Institute

2.3. OCEANOGRAPHIC CENTER STAFF

Melissa L. Dore, Administrative Coordinator
Institute of Marine and Coastal Studies
B.A., Wells College

Carol Fretwell, NCRI Operations Coordinator
B.S., Florida Southern College

David Gilliam, Research Scientist
Ph.D., Nova Southeastern University

Kevin E. Kohler, Senior Programmer/Coordinator
M.S., University of Miami

Ruth Lazarus, Administrative Officer
B.A., Newark State College

William Margolis, Project Manager
M.S., Nova Southeastern University

Kathleen Maxson, Research Assistant
B.S., Nova Southeastern University

Laszlo Nemeth, Research Associate

Dorothy Ellen Renegar, Administrative Assistant
B.S., Florida Institute of Technology

Pat Quinn, PC Technical Support
M.S., Nova Southeastern University

Karen Towry, Clerical

Deborah Weissman-Berman, Research Scientist
D.Sc., Eurotechnical Research University

2.4. OCEANOGRAPHIC CENTER ADJUNCT AND AFFILIATE TEACHING FACULTY

Robert Baer, Associate Professor, Nova Southeastern University, D.P.A., Nova Southeastern University

Nancy J. Gassman, Broward County Department of Natural Resource Protection, Ph.D., University of Miami
Mark Farber, National Oceanic and Atmospheric Administration National Marine Fisheries Service, Ph.D., University of Miami

Gary Hitchcock, Ph.D., University of Miami

Gary S. Kleppel, University of South Carolina, Ph.D., Fordham University

Donald McCorquodale, Spectrum Laboratories, Inc., Fort Lauderdale, Florida, Ph.D., Nova University

Julian P. McCreary, University of Hawaii, Ph.D., University of California at San Diego

Peter Moeller, University of South Carolina, Ph.D., University of California at San Diego

Stacy Myers, South Florida Water Management District, Lake Worth, Florida, M.S., Nova University

Keith Ronald, University of Guelph, Canada, Ph.D., McGill University

Scott Shatz, O.D., Ph.D., Professor, HPD, College of Optometry, Nova Southeastern University

Alan Sosnow, Environmental Coordinator, Port Everglades Authority, Fort Lauderdale, Florida, M.S., Long Island University

William Venezia, U.S. Navy, South Florida Testing Facility, Fort Lauderdale, Florida, Ph.D., Clemson University

Thomas Thompson, Associate Professor, Nova Southeastern University, Fischler Graduate School of Education and Human Services, Ph.D., University of Rhode Island

2.5. OCEANOGRAPHIC CENTER HONORARY ADJUNCT AND AFFILIATE FACULTY

James Bohnsack, Ph.D.
NOAA/National Marine Fisheries Service
Miami, Florida

Elizabeth Clark, Ph.D.
RSMAS, University of Miami

Alan Craig, Ph.D.
Florida Atlantic University
Boca Raton, Florida

Guy Harvey, Ph.D.
University of the West Indies

Stephen Hess, Ph.D.
E.R.M. South, Inc.
Miami, Florida

Anthony Knap, Ph.D., Bermuda Biological Station

Robert B. Long, Ph.D., retired from NOAA/AOML
Miami, Florida

Dennis W. Moore, Ph.D., NOAA/PMEL
Seattle, Washington

Jeffrey Proehl, Ph.D., Dartmouth College

Thomas Sleeter, Ph.D., Bermuda Government

Steven Somerville, M.P.A.
Broward County Office of Natural Resource Protection

Carmello Tomas, Ph.D., University of Rhode Island
2.6. OCEANOGRAPHIC CENTER BOARD OF GOVERNORS

Betty Blaisdell Berry, New York, N.Y., and Fort Lauderdale, Florida
Patricia Carr, Carr Communications
Will Connelly, Marine Consultant
Richard Donato, Esq., England and Donato
Charles Forman (emeritus), D.V.M (retired)
Mary Anne Grey, HYDatemarine, Inc.
Denise A. Johnston, Mar, Inc.
Marshall Lytle II, Investment Management and Research

3. Current Research Activities
3.1. PHYSICAL OCEANOGRAPHY

Effects of Salinity in the Indian Ocean

Researchers are using a numerical model to study the effects of salinity variations on circulations throughout the Indian Ocean. Influences caused by precipitation, river outflow (like the Ganges River), the Indonesian Throughflow, and the generation of salty Persian Gulf and Red Sea waters are studied.

Ecosystem Modeling

The annual cycle of biological activity in the Arabian Sea is under study. Modelers are attempting to illustrate some of the fundamental interactions between biology and the physical environment in the region. In particular, the effect of mixed-layer diurnal variability on biological activity is being assessed.

The Tsuchiya Jets (TJs)

A numerical model is being developed to study the TJs, two subsurface currents located about 500 km on either side of the equator at depths ranging from 200 to 500 km. The source waters of the TJs appear to be the South Pacific Ocean, but it is not known where they eventually go. The goal of this project is to simulate the TJs in a numerical solution, to diagnose their causes in the solution, and to understand their role in the Pacific general circulation.

Pacific Circulation and Interannual Variability

Previous work on links between the Equatorial Undercurrent (EUC) and subtropical circulation is being exploited to investigate interdecadal modulation of El Niño.

El Niño Southern Oscillation (ENSO) and other circulation studies

Relatively new and emerging ideas about the stability of dynamical systems are being used to examine the onset and development of ENSO episodes in the tropical Pacific Ocean, using coupled ocean-atmosphere models. These same ideas are being used to understand the predictability of ENSO phenomena. Work along these same lines is underway to investigate the factors that limit the predictability of ocean currents, such as the Gulf Stream. Other areas of interest include modeling of stochastically driven recirculating flows in the coastal zone.
Dynamics of Three-Dimensional Thermohaline Circulations

The dynamics and parameter sensitivity of the steady-state thermohaline circulation and meridional heat transport in rotating basins of water, such as the Atlantic Ocean, are being investigated. Understanding steady-state circulation is a prerequisite for predicting future ocean-atmosphere equilibrium states that result from changes in parameters such as atmospheric carbon dioxide concentration, as well as insight into oscillating departures from equilibrium.

Sea State Response to Wind Forcing

Wave research focuses on developing techniques for studying the evolution of sea state (temperature, flow rate, direction) in response to forcing by wind. The techniques include a computer model of these evolving states, and telemetering instrumentation to monitor the wave and wind fields over a semi-enclosed region of the Bahama Banks.

3.2. FACULTY AND ASSOCIATES IN PHYSICAL OCEANOGRAPHY

Faculty members at the Oceanographic Center who are involved in active research on the above topics include:

Barry Klinger, Assistant Professor: Pursues numerical, analytical, and laboratory modeling of geophysical fluid dynamics processes relevant to ocean general circulation and climate dynamics.

Russell Snyder, Professor Emeritus: Studies the physical processes that affect sea state. Emphasis is on development of instrumentation for remote monitoring of the wave field and a computer program to predict its evolution.

Alexander Soloviev, Associate Professor: Primary interests are in research of turbulence in the wave-enhanced surface layer of the ocean, spatial anisotropy of wind stress effects in the warm pool area, and parameterization of the air-sea gas exchange.

Alexander Yankovsky, Assistant Professor: Studies wind- and buoyancy-driven currents on the continental shelf and slope, their meso-scale variability and adjustment to realistic shelf topography. He addresses these problems both in terms of numerical modeling and observational data analysis.

Deborah Weissman-Berman, Research Scientist: Works on engineering applications of sandwich composite materials, elastic and inelastic response.

3.3. MARINE BIOLOGY/GEOLGY/ CHEMISTRY

Marine Chemistry/Biochemical Oceanography

Method development and applications are currently being studied on the dynamics of dissolved carbohydrates in the sea and their relationship with the microbial plankton in local waters and the open ocean. Marine bacteria are an extremely important, but little understood group. Valuable baseline data are being collected to improve understanding of the oceanic ecosystem. Techniques for determining primary production by the oxygen method also are being investigated.

Chemistry

Studies address the design and development of chemical instrumentation and methodologies employed in the measurement of industrial and environmental samples. The major emphasis is on methods employing spectroscopic techniques. This includes the development of software and determination of physical constants associated with the chemical analyses. Currently the emphasis is on the spectroscopic measurement of oceanic pH. Other constituents are also being investigated that can be tied into the same instrumentation package.

Aquaculture

This program focuses primarily on research and training in the culture of marine shrimp and tilapia. A series of seminars and short courses, as well as literature reviews, identify research needs in the field, which are then addressed by organized expansion of the facilities.

Coral Reef Assessment and Restoration

Method development and applications are currently being studied to better describe, assess, and restore coral reefs. Many of these important geological structures are currently under severe stress from natural and man-induced perturbations. Pollution investigations include evaluation of the effects of ship groundings, oil spills, and beach renourishment dredging. These studies have implications for the protection and restoration of coral reefs.

Coral Growth Rate

The growth rate of corals is preserved in the form of annual growth bands (visible by X-radiography) in the coral skeleton. Corals can grow to large size and reach ages
greater than 100 years. Applications of a long chronology of coral growth rings include reconstruction of past climate changes or of environmental factors that have influenced reef health over long periods.

**Systematics and Ecology of Crinoidea**

Crinoids have a long fossil record and remain important components of many deep and shallow marine environments. Current studies use stalked crinoids, or sea lilies, as models for better understanding the ecology and taphonomy of their ancient counterparts. Systematic investigations of both sea lilies and unstalked crinoids, or feather stars, attempt to better understand both their phylogeny and the relationship between form and environmental conditions.

**Macrobenthic Community Ecology**

Current studies examine the effects of dredging and beach renourishment on estuarine and coastal soft-bottom communities of marine invertebrates, and provide a baseline for understanding spatial and long-term temporal variations in community composition and diversity.

**Marine Mammals**

Annotated referenced marine mammal projects will be accepted for capstone paper credit. This includes a full survey of all relevant literature on the management, physiology, functional anatomy, and intra- and interspecific interactions of cetaceans, pinnipeds, sirenids, and polar bears.

**Marine Microbial Ecology**

Studies focus on the ecology of the eukaryotic microbes (the protists) that play a major role in the cycling of carbon and nutrients in coastal waters. One group in particular, the amoeboid protozoa, are being investigated because these inconspicuous protists are often overlooked in ecological studies. Current research areas include the design of effective enumeration methods for amoebae, elucidation of their ecological role, and the identification of novel isolates.

**Molecular Marine Biology**

Molecular techniques are being applied to study the ecology, conservation, population biology, evolution, and management of aquatic organisms. The structure and function of specific genes in marine organisms, and their molecular-level adaptations to environmental conditions, are being investigated.

**Fishes**

Diverse research studies on fishes are currently underway, including natural history, functional morphology, larval fish recruitment, artificial reef functions, stress response in elasmobranchs, and aquaculture. This research is both applied and basic in nature.

**Paleoceanography**

Studies are related to biomineralization, fossil microfauna, and paleoclimate reconstruction. Bomineralization studies utilizing electron microscopy are related to calcification in marine invertebrates. Examination of marine microfauna in the Gulf of Mexico and Florida Bay are current focuses. Paleoclimate studies utilizing floral and faunal assemblages have included reconstruction on time scales from the Pleistocene to the last century.

**The Role of Man in the Environment**

Studies are underway to deal with the potential impacts of human population growth in the coastal southeastern United States. Research includes restoration ecology, fisheries, impact abatement in estuaries, aquaculture, and the linking of science, policy, and management.

**Sea Turtle Conservation**

The Broward County sea turtle project provides for the conservation and improved understanding of endangered and threatened loggerhead, green, and leatherback sea turtles. During the nesting season, beaches are surveyed, and most nests are carefully excavated and moved to designated relocation sites, primarily in order to prevent hatchling loss due to their disorientation by coastal lights on highly urbanized beaches.

**Wetlands**

Wetlands research centers around mitigation, a process of creating or restoring wetlands to compensate for losses due to rock mining or various types of development. Researchers study freshwater and estuarine wetlands to evaluate the productivity and ecology of natural versus created or restored habitats. Results of this research continue to be important to understanding the proper use and management of our wetlands.

**Tropical Marine Biodiversity**

Amphipod crustaceans are the dominant mesobenthic component in reef systems worldwide. Their poorly known
taxonomic status constrains their use in more sophisticated ecological investigations. Amphipods are important micrograzers and converters of organic material and are a primary prey source for fish. The interaction of the mesobenthic community regulates a number of trophodynamic processes in reefs, the exact mechanisms of which are poorly understood. This research module is intended to advance the level of knowledge in amphipod taxonomy and systematics and to explore the processes and dynamics of the mesobenthic coral reef community.

3.4. FACULTY IN MARINE BIOLOGY/ GEOLOGY/CHEMISTRY

Faculty members at the Oceanographic Center currently involved in active research on the above topics include:

Patricia Blackwelder, Associate Professor: A marine biogeologist studying calcification and distribution of marine microfauna that are important in marine food chains and also provide a historical record of past climate changes through their shell incorporation into marine sediments.

Curtis Burney, Associate Professor: A marine ecologist studying the relationship of dissolved nutrients and marine microbes, especially bacteria, on which marine food chains ultimately depend.

Veljko Dragolovic, Assistant Professor: A chemist studying natural products (isolation, characterization and synthesis of natural products); synthetic organic chemistry, in particular in the development of new synthetic methodology and application of photochemistry to organic synthesis; organic geochemistry (structure elucidation of insoluble organic materials).

<table>
<thead>
<tr>
<th>Acceptance Category</th>
<th>Full</th>
<th>Provisional</th>
</tr>
</thead>
<tbody>
<tr>
<td>for Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate Biology Major for Marine Biology Ph.D.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Undergraduate Science Major</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for Physical Oceanography Ph.D.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>M.S. in Field for Marine Biology Ph.D.</td>
<td>preferred</td>
<td>preferred</td>
</tr>
<tr>
<td>for M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biology Major for Marine Biology M.S.</td>
<td>YES</td>
<td>preferred</td>
</tr>
<tr>
<td>A Science Major or Concentration for CZM M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Science Major or Concentration for MES M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for Both Ph.D. and M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letters of Recommendation</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Statement of Career Goals</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>GRE Scores - Verbal, Quantitative, Analytical</td>
<td>55%, 55%, 55%</td>
<td>40%, 40%, 40%</td>
</tr>
<tr>
<td>(The Graduate Record Examination (GRE) is administered by the Educational Testing Service, P.O. Box 955, Princeton, NJ 08542.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Official Undergraduate and Graduate Transcripts</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Undergraduate GPA Major</td>
<td>3.0</td>
<td>2.75</td>
</tr>
<tr>
<td>Undergraduate GPA Overall</td>
<td>2.9</td>
<td>2.5</td>
</tr>
<tr>
<td>Provisions (varies with individual, typically ( \geq 3.0 ) in first four graduate courses)</td>
<td>none</td>
<td>YES</td>
</tr>
<tr>
<td>TOEFL (foreign only)</td>
<td>600</td>
<td>550</td>
</tr>
<tr>
<td>(Scores from the Test of English as a Foreign Language (TOEFL) are required. Certification may also be submitted from other institutions' intensive English programs.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Richard E. Dodge, Professor: A marine biogeologist concentrating on coral reefs and constituent reef-building corals to understand and assess the effects of pollution and climatic change.

Joshua Feingold, Assistant Professor: A marine ecologist concentrating on effects of disease on coral populations, impact and recovery of coral populations in the Galapagos Islands following disturbances associated with the El Niño-Southern Oscillation, and comparisons of coral populations on natural and artificial substrata in coastal waters.

Edward Keith, Associate Professor: A marine mammalogist whose research is in the structure, function, and evolution of milk and tear proteins; physiological ecology of terrestrial and marine mammals; molecular phylogenetics and evolution of marine mammals; and the mathematical and computer modeling of complex biological systems.

Charles Messing, Associate Professor: A zoologist specializing in invertebrates, he is studying the ecology and systematics of crinoids as well as macroinvertebrate communities.

Andrew Rogerson, Professor: A biologist studying the ecology of the eukaryotic microbes (the protists) in the cycling of carbon and nutrients in coastal water, particularly the amoeboid protozoa.

Mahmood Shivji, Assistant Professor: A marine biologist using molecular genetic techniques to investigate various aspects of fish and marine mammal biology. Areas of research interest include conservation biology, biodiversity, evolution, molecular ecology, and population biology.

Richard Spieler, Professor: An ichthyologist studying fish chronobiology, artificial reefs, and habitat assessment.

James Thomas, Associate Professor: A marine invertebrate taxonomist studying the systematics, distributional ecology, and ecology of coral reef amphipods. Especially interested in evolutionary scenarios of marine invertebrates as they relate to identifying centers of evolutionary diversification in coral reef systems worldwide.

4. Graduate Educational Programs

4.1. ADMISSION

4.1.1. Application

Application forms for admission may be requested from the Nova Southeastern University Oceanographic Center, 8000 North Ocean Drive, Dania Beach, Florida 33004-3078 (phone: 954-262-3600). Applications must be completed and returned to the Oceanographic Center, along with a $50 nonrefundable application fee. Prospective students may apply at any time during the year. All correspondence pertaining to admission should be addressed to the Oceanographic Center. It is the responsibility of the applicant to obtain the supporting documents required for application.

For international students, the student I-20 visa may be issued only upon completion of all admission requirements. Therefore, international students are urged to be sensitive to requirements prior to applying to the program. For more information regarding procedures for obtaining a student visa, please contact the university registrar.

4.1.2. Acceptance Status

Students are accepted under one of three classifications: full, provisional, and special.

- Full acceptance is given upon satisfying all acceptance criteria (stated below).
- Provisional or conditional acceptance is given to students who have not satisfied all of the criteria, but who have given evidence that they may succeed in the degree program.
- Special student status is reserved for non-degree-seeking students. While this status may be preliminary to full acceptance, enrollment in, and satisfactory completion of, courses do not guarantee admission to any program.

When application is complete, students will be notified of the status under which they may register. For provisional acceptance, conditions for the student to convert to full status will be given. Once these provisions are met, the student should petition to change status from provisional to full in a written statement. This should be accomplished within one year of entry into the program.
4.1.3. Ph.D. and M.S. Acceptance Criteria

For Ph.D. applicants, previous degree(s) should be in the area of mathematics (for physical oceanography) or an appropriate area of the natural sciences (for marine biology). A master's degree in oceanography, biology or marine biology, or a related science is preferred, especially for the biological sciences Ph.D.

Ph.D. applicants should have obtained agreement from a faculty member to serve as major professor. For the biological sciences, Ph.D. applicants should have a completed draft dissertation proposal that is submitted with the application. The proposal content will be a major factor in acceptance.

Applicants for admission to degree programs leading to the M.S. degree must meet certain requirements. As a general rule, they must hold baccalaureate degrees from regionally accredited institutions.

The table on the previous page lists full and provisional admissions/acceptance criteria for the Ph.D. degree in oceanography and the M.S. programs in marine biology, coastal zone management, marine environmental sciences, and the joint M.S. programs.

Applicants may be fully or provisionally accepted only if they meet at least the minimum guidelines. For full acceptance, at least two of the three criteria (GPA, GRE, letters) must be met satisfactorily. If applicants do not make minimum provisional guidelines, the applications may be rejected out of hand and not circulated through the Admissions Committee.

4.1.4. M.S. and Ph.D.

All applicants accepted into the Oceanographic Center will receive a tuition deposit agreement. This non-refundable deposit will reserve a space in the applicant's starting term.
4.1.5. Dual B.S./M.S. Admission

The admission requirements for the dual B.S./M.S., in addition to the table above, are as follows:

- High school student: GPA=3.2 minimum;
- SAT=1050 minimum; letter of recommendation from science teacher.
- Transfer students: GPA=3.2 minimum; SAT=1050 minimum; college GPA=3.0 minimum; letter of recommendation from college professor.

All students must maintain an overall undergraduate 3.0 GPA in order to be guaranteed matriculation into the graduate part of the dual program.

4.1.6. Registration

It is the student’s responsibility to register prior to the beginning of class. This is done at the Oceanographic Center. Institute administrators must sign (or approve) the registration form. When registering at the Oceanographic Center, tuition and other charges must be paid in full by check, credit card, mail order, or financial aid. Cash is not accepted. Students requiring special financial arrangements must make such requests through the financial aid office.

M.S. students pay tuition each term for their courses, according to the number of credit hours taken.

4.1.6.1. M.S.

Capstone Review: Once the capstone review paper proposal has been approved, M.S. capstone review students register for the six-credit capstone review paper (OCMB-7000, CZMT-0701 or MEVS-5026). It is desirable that students should complete their capstone review paper during the first term of registration. If the capstone review paper is not finished after completion of the minimum number of required capstone review credits (3), the M.S. student continues registration for three additional credits in each subsequent term until the capstone review paper is finished. The capstone review paper is expected to be completed no later than the second term of registration. Permission for registration into the third term must be granted in writing from program administration.

Thesis: Once the thesis proposals have been approved, M.S. thesis students sequentially register for and complete a minimum of three thesis research credits (OCMB-6900 or CZMT-0681) in each succeeding term until the thesis is complete. It should be noted that while a minimum of nine thesis research credits are required, more than this number are usually necessary for the completion of M.S. research. Sequential registration continues until the thesis is finished.

If a M.S. thesis student fails to register for any given term without approval, missed credits must be made up before graduation, usually during the next term of registration.

4.1.6.2. Ph.D.

Ph.D. students pay full tuition while in active status, that is, taking courses, finalizing the proposal, performing research, and writing the dissertation. The minimum activity requirement is three years, but the typical activity requirement for a student with an in-field master’s degree is more than three years. Once Ph.D. activity has begun, registration is sequential each term. Ph.D. candidates must register for at least nine credits per term to qualify for active status. Full tuition for each term must be paid. Failure to register for a particular term without prior written approval is not permitted and may signal the student’s resignation from the degree program.

While refining and compiling the dissertation in final form after successful defense, the Ph.D. student pays tuition at only one half of the normal rate. Successful defense is defined as the passing of the thesis, with no revisions or only very minor revisions, by the dissertation committee and the Oceanographic Center faculty.

4.1.7. Transfer Credit Policy

M.S. students may transfer up to six credits of previous graduate course work. Course work must replicate Oceanographic Center offerings in the major field of interest or must clearly be closely related. Students should submit requests for transfer credits in writing, with documentation indicating the subject matter and that the transfer credits were of graduate level from accredited institutions.

Ph.D. students may transfer up to 30 graduate course credits from prior graduate programs in the same discipline as the Ph.D. degrees aspired to. Transfer courses must be either reasonable duplicates of courses offered at NSU or clearly in the applicable Ph.D. field of interest. Transfer acceptability will be decided by the director of the Institute of Marine and Coastal Studies, the students’ advisor, and the students’ dissertation committee (if formed at entrance).

4.1.8. Transferability of Credits

Credits earned at Nova Southeastern University are transferable only at the discretion of the receiving school.

4.2. TIME LIMITS

The time limit for completion of the M.S. program is five years. Students must petition the program office in writing for an extension of the time limit, which may be
granted only under extenuating circumstances.

Ph.D. students are expected to complete the program is nine years, a minimum of three years of which must be in residence. Students must petition the program office in writing for an extension of the time limit, which may be granted only under extenuating circumstances.

The NSU residency is defined as full-time enrollment for a period of at least one year. The university recognizes that individual programs require differing time limits for the completion of academic studies leading to a degree. Therefore, the time frame is a discretionary matter within each academic program.

4.3. TUITION AND FEES

4.3.1. Tuition and Fees: FALL 1999

| Application Fee | $ 50   |
| Tuition Deposit | $100   |
| Registration Fee (per term) | $ 25 |
| Degree Application Fee | $ 75 |
| Incomplete Fee | $ 10 |
| Late Registration Fee | $ 20 |
| M.S. Tuition Credit | $417/cr. hr. |
| M.S. Tuition Audit | $208.50/cr. hr. |
| Ph.D. Tuition | $10,940/yr. or $2,735/term |
| Ph.D. Continuation Fee | $1,370/term |

The late registration fee is charged when payment is received by the school beyond the closing date for registration. This closing date is after the first evening of class in a particular term. The incomplete fee is charged when a student receives an "incomplete" grade for a particular course (regular or thesis/capstone review credits). To avoid receiving an automatic "incomplete" (I) for thesis/capstone review credits, all students must submit progress reports prior to the last date of the term.

4.3.2. Withdrawal and Refunds

M.S. students may withdraw from a course at any time before the fourth class meeting and receive a partial refund. A request for tuition refund must be made in writing at the time of withdrawal. Refunds will be made solely at the option of the university and will be based on the legitimacy of the reason for withdrawal. If granted, refunds are adjusted as follows:

- Before the second class meeting: 75%
- Before the third class meeting: 60%
- Before the fourth class meeting: 50%
- Thereafter: 0%

Refunds are not granted to Ph.D. students upon withdrawal.

Students have three working days from the date of signing an enrollment contract or financial agreement with the university to cancel the contract and receive a full refund of any tuition and registration fees paid. Further, a student shall receive a full refund of tuition and registration fees paid by the student prior to the commencement of instruction if the student submits a written request to the
# REQUIREMENTS

For either Marine Biology, Coastal Zone Management, or Marine Environmental Sciences:

<table>
<thead>
<tr>
<th>Capstone Review</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core courses: 5 courses</td>
<td>15 cr.</td>
</tr>
<tr>
<td>Specialty courses: 8 courses</td>
<td>24 cr.</td>
</tr>
<tr>
<td>D.I.S.* for developing proposal (OCMB-0796; CZMT-0775; MEVS-5025)</td>
<td>1-3 cr./term possible</td>
</tr>
<tr>
<td>Capstone review paper (OCMB-7000; CZMT-0701; MEVS-5026)</td>
<td>6 cr. minimum</td>
</tr>
<tr>
<td>Extra capstone review continuation credits may be needed</td>
<td></td>
</tr>
<tr>
<td>Extra continuation credits (OCMB-7010; CZMT-0702; MEVS-5027)</td>
<td>3 cr./term as necessary</td>
</tr>
<tr>
<td>Total capstone review</td>
<td>45 cr. minimum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thesis**</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core courses: 5 courses</td>
<td>15 cr.</td>
</tr>
<tr>
<td>Specialty courses: 5 courses</td>
<td>15 cr.</td>
</tr>
<tr>
<td>D.I.S. for developing proposal (OCMB-0796; CZMT-0775)</td>
<td>1-3 cr./term possible</td>
</tr>
<tr>
<td>Extra thesis credits</td>
<td>1-3 cr./term as necessary</td>
</tr>
<tr>
<td>Thesis credits (OCMB-7010; CZMT-0702; MEVS-5026)</td>
<td>9 cr. minimum</td>
</tr>
<tr>
<td>Total thesis</td>
<td>39 cr. minimum</td>
</tr>
</tbody>
</table>

For the Joint M.S. Program in Marine Biology and Coastal Zone Management, Marine Biology and Marine Environmental Science, or Coastal Zone Management and Marine Environmental Sciences

<table>
<thead>
<tr>
<th>Joint - Capstone Review</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core courses: 5 courses</td>
<td>15 cr.</td>
</tr>
<tr>
<td>Specialty courses (12) chosen from two of the three specialities: Marine Biology, Coastal Zone Management, Marine Environmental Science</td>
<td>36 cr.</td>
</tr>
<tr>
<td>D.I.S. for developing proposal (OCMB-0796; CZMT-0775; MEVS-5025)</td>
<td>1-3 cr./term possible</td>
</tr>
<tr>
<td>Capstone review paper (OCMB-7000; CZMT-0701; MEVS-5026)</td>
<td>6 cr. minimum</td>
</tr>
<tr>
<td>Extra capstone review continuation credits may be needed</td>
<td></td>
</tr>
<tr>
<td>Extra continuation credits (OCMB-7010; CZMT-0702; MEVS-5027)</td>
<td>3 cr./term as necessary</td>
</tr>
<tr>
<td>Total capstone review</td>
<td>57 cr. minimum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Joint-Thesis**</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core courses: 5 courses</td>
<td>15 cr.</td>
</tr>
<tr>
<td>Specialty courses (9) chosen from two of the three specialties: Marine Biology, Coastal Zone Management, Marine Environmental Science</td>
<td>27 cr.</td>
</tr>
<tr>
<td>D.I.S. for developing proposal (OCMB-0796; CZMT-0775)</td>
<td>1-3 cr./term possible</td>
</tr>
<tr>
<td>Thesis credits (OCMB-7010; CZMT-0702; MEVS-5025)</td>
<td>9 cr. minimum</td>
</tr>
<tr>
<td>Extra thesis credits</td>
<td>1-3 cr./term as necessary</td>
</tr>
<tr>
<td>Total thesis</td>
<td>51 cr. minimum</td>
</tr>
</tbody>
</table>

*D.I.S. = directed independent study course

**Note: For a thesis option the marine biology track, either alone or jointly with Marine Environmental Science or CZM, is recommended.
institution within three working days of the payment. Refund schedules for tuition and fees after the commencement of instruction may be found above.

4.3.3. Leaves of Absence

4.3.3.1. M.S. Program

Students do not have to register for course work sequentially in each subsequent term. If a student anticipates a hiatus of one term or longer between registrations for course work, the program office should be notified. Note, however, that once capstone review paper or thesis registration has begun, but has not been finished, continuous registration each term for a minimum of three credits is required. Failure to register for capstone or thesis credits during a given term without an approved leave of absence is not permitted and may signal a student’s withdrawal from the degree program.

A leave of absence for one or more terms may be granted if a student must interrupt thesis research or capstone review paper studies. In order to obtain a leave of absence, the student must request and justify the leave of absence in writing to the program administrator(s) and major professor well prior to the desired absence. Reentry into the M.S. program after a leave of absence should be requested in writing and is not guaranteed.

4.3.3.2. Ph.D. Program

Students are expected to register for course or thesis work sequentially in each subsequent term. A leave of absence for one or more terms may be granted if a student must interrupt his/her studies. In order to obtain a leave of absence, the student must request and justify the leave of absence in writing to the program administrator(s) and major professor. Reentry into the Ph.D. program after a leave of absence is not automatic or guaranteed.

4.4. M.S. PROGRAM

4.4.1. Capstone Review/Thesis

There are two tracks for M.S. students to follow: the capstone review paper track and the thesis track. All dual track students initially fall within the capstone review track (the marine environmental sciences degree only contains the capstone review paper track). The capstone review paper track requires formal course work and a paper (an extended literature review of an approved subject). The thesis track requires formal course work and a research thesis. The completed capstone paper or thesis is defended before the student’s advisory committee. Entrance into the thesis track is not automatic and can be made only after consultation with and approval by the student’s major professor, advisory committee, and program administration. Approval requires preparation of an acceptable thesis proposal.

4.4.2. Credit-Hour Requirements

Individual M.S. degrees (marine biology, coastal zone management, marine environmental sciences): The capstone review requires a minimum of 45 total credits, including 13 three-credit courses, a six-credit capstone review paper, and extra capstone review continuation credits as necessary. The thesis track requires a minimum of 39 total credits, including at least 10 three-credit courses, a minimum of nine credits of master's thesis research, and extra thesis research credits as necessary.

The joint marine biology and coastal zone management; marine biology and marine environmental sciences; and coastal zone management and marine environmental sciences major: The capstone review track requires a minimum of 57 total credits, consisting of five core (OCOR) courses, and six courses from each of two specialities chosen from the three available, and a six-credit capstone review paper. Additional capstone review paper credits are taken as necessary. The thesis track requires a minimum of 51 credits consisting of five core (OCOR) courses and nine specialty courses (four or five chosen from each specialty area). Additional thesis credits are taken as necessary. Note: A joint program incorporating marine biology is the most appropriate option for the research thesis track, rather than the environmental science/CZM option.

4.4.3. Program of Studies

Course lists and descriptions are given elsewhere in this section. An updated schedule of available courses for both the marine biology and coastal zone management majors is included in the catalog as an insert or may be obtained from the program office.

Five core courses are required in either major and for the joint major:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCOR-5601</td>
<td>Concepts in Physical Oceanography</td>
</tr>
<tr>
<td>OCOR-5602</td>
<td>Marine Ecosystems</td>
</tr>
<tr>
<td>OCOR-5604</td>
<td>Marine Geology</td>
</tr>
<tr>
<td>OCOR-5605</td>
<td>Marine Chemistry</td>
</tr>
<tr>
<td>OCOR-5606</td>
<td>Biostatistics</td>
</tr>
</tbody>
</table>
For the marine biology major, the normal courses include:

OCMB-5606  Methods in Plankton Ecology
OCMB-6055  Marine Microbiology
OCMB-6060  Marine Phytoplankton
OCMB-6065  Marine Zooplankton
OCMB-6070  Marine Botany (*)
OCMB-6085  Taxonomy of Marine Invertebrates
OCMB-6086  Invertebrate Zoology
OCMB-6120  Tropical Marine Fish Ecology (*) (+)
OCMB-6196  Biological Effects and Risks of Chemicals in the Aquatic Environment (*) (+)
OCMB-6200  Aquaculture (*) (+)
OCMB-6205  Aquaculture Systems (*) (+)
OCMB-6220  Functional Morphology and

OCMB-6230  Physiology of Fishes
OCMB-6310  Marine Ichthyology
OCMB-6320  Methods in Plankton Ecology
OCMB-6321  Food Webs of the Ocean
OCMB-6330  Wetlands Ecology (*) (+)
OCMB-7011  Marine Mammal Management
OCMB-7012  Florida Coral Reefs (*) (+)
OCMB-7013  Coral Reef Ecology (*) (+)
OCMB-7014  Molecular Marine Biology
OCMB-7014  Fundamentals of Aquatic Ecotoxicology (*) (+)
OCMB-8100  Ecology of the Belize Barrier Reef

(*) Also available for the coastal zone management major.

(+) Also available for marine environmental sciences major.
For the coastal zone management major, the normal courses include:
Introduction to Environmental Science
Florida Environmental Regulation
Marine Environmental Law
Environmental Public Policy
Environmental and Public Disputes
Environmental GIS Remote Sensing
Management of Barrier Islands and Beaches
Aquaculture
Aquaculture Systems
Coastal Engineering/Ports and Harbors
Biological Effects and Risks of Chemicals in the Aquatic Environment
Fundamentals of Aquatic Toxicology
Aspects of Marine Pollution
Cultural Resource Management
Coastal Water Resource Impacts
Ecotourism
Tropical Marine Fish Ecology
Coral Reef Assessment Techniques
Marine and Coastal Impacts and Management
Conflict Resolution
Oil Pollution Effects

For the marine environmental sciences major, the normal courses include:
Principles of Ecology
Introduction to Environmental Science
Marine Environmental Law
Environmental Public Policy
Environmental and Public Disputes
Wetlands Ecology
Dry Coastal Ecosystems
Plankton Ecology
Coral Reef Ecology
Aquaculture
Aquaculture Systems
Marine Biodiversity
Fundamentals of Aquatic Toxicology
Aspects of Marine Pollution
Environmental GIS Remote Sensing
Cultural Resource Management
Biostatistics II
Tropical Marine Fish Ecology
Coral Reef Assessment Techniques
Coral Reefs–Keys Field Course
Coral Reef Ecology–Belize Field Course
Oil Pollution Effects

For the joint marine biology and coastal zone management; marine biology and marine environmental sciences; and coastal zone management and marine environmental sciences majors, the choice of courses includes those listed above for the individual specialties. Since the “normal” curriculum may not exactly suit an individual student’s career goals, interests, or research needs, some program flexibility may be provided in the form of elective courses and courses from a specialty other than the one in which the student is enrolled. Permission for program flexibility must be given in writing by program administrators. Such course flexibility is limited to one or (in extreme cases) two courses. It is stressed that any deviation from the normal program must be done carefully and with approval of a program director and the major professor (if selected). The applicability of the elective course must be justified and approved prior to registration. Failure to do this risks nonapproval of the course for program credit after the fact. This can delay a student’s progress.

4.4.4. Distance Education

The Oceanographic Center does not have a formal program for students to receive the M.S. degree via distance education. Nevertheless, several courses are offered in the distance education format and may be used as electives in the various programs where appropriate. These are:
OCMB-6330 Marine Mammal Management
CZMT-0665/MEVS-5001 Environmental Sustainability: Choices of the Future
OCMB-6335 Life on a Water Planet/ 3 credits. Web-based distance education.

These courses are also available to interested and qualified students to take under special-student status.

4.4.5. Academic Activities and Approvals

4.4.5.1. Advising

Incoming M.S. students may be assigned temporary academic advisors, depending upon the stated goals in their application packages. Students should consult their advisors or program administration for questions about their M.S. programs.

4.4.5.2. Orientation

An orientation session may be held for groups of incoming students by center divisions (e.g., library) to inform them about center facilities and about the M.S. program requirements.
4.4.5.3. Suggested Activities
Timelines

The following approvals and activities are essential for proper progress toward the degree:

- Follow normal curricula. If changes are desired, formalize a program of studies in consultation with program administration. Accomplish before completion of 12th program credit.
- Select major professor. Discuss, examine, and evaluate capstone review paper/thesis topics. Accomplish before 39th/30th course credit (depending on capstone or thesis track).
- Select capstone review paper /thesis topic, get topic approval, and form advisory committee. Accomplish before 39th/30th course credit (depending on capstone or thesis track).
- For topic/proposal development under guidance of the thesis or capstone review paper, students are required to enroll for directed independent study if the development effort is expected to be greater than three weeks. The number of credits would typically be a minimum of three for each term of activity.
- Submit capstone review paper proposal and outline to major professor and (provisional) committee. Accomplish before first term of capstone review registration.
- Upon approval of capstone review paper proposal, commence capstone review registration (minimum three credits); if not complete at the end of initial term, register for three capstone review continuation credits/term thereafter). Accomplish before expiration of time limit (five years).
- Submit thesis proposal and outline to major professor and (provisional) committee. Upon approval, commence Thesis registration (three thesis credits per term until minimum is achieved; three thesis credits/term thereafter). Accomplish before first term of capstone review paper/thesis registration.
- Continue thesis registration on each following term and complete degree requirements. Accomplish by or before expiration of time limit (five years).

4.4.6. Capstone Review/Thesis Requirements

4.4.6.1. Proposal

Commencement of the M.S. capstone review paper or the thesis may begin only after the M.S. student has an approved proposal. Students not yet having approved thesis/capstone review topics or proposals, but desiring to prepare them under guidance, should register for directed independent study credits (OCMB-0796, CZMT-0775, MEVS-5025; 3 cr.).

Develop the topic. The student should develop the idea, discuss with faculty and major professor, or investigate a new aspect of an existing research program. The major professor is a source of ideas, help, and direction, but the project must be taken beyond the conceptual stage by the student.

Obtain approval of the tentative topic. The explicit procedure is that the student approaches a potential major professor and obtains agreement for consideration of the student’s proposal. The potential major professor may form a provisional committee that includes at least one other center faculty member. Proposal drafts will be reviewed by the major professor and committee. If this process is anticipated to take more than several weeks, the student must be registered for three directed independent study credits during the process.
Write the proposal. Start in the library. The student should review the current literature to determine how the problem relates to previous work and to assess its feasibility and significance. For a literature review, the student should obtain an idea of the quantity of information available (breadth of topic) and any previous reviews of the subject. For the proposal, the review should be thorough but need not be fully and completely developed. Any proposal submitted without evidence of a literature search will be rejected out of hand. Any proposal with poor English, spelling, and format will be rejected out of hand. The proposal should be as well written and as complete as possible. It should not be submitted as a draft needing extensive editorial changes, but rather as the student’s best effort toward a finished product.

A proposal draft will be reviewed by the major professor and provisional committee. The student may meet and discuss issues with the professor and committee. The major professor makes a final decision as to whether the proposal is acceptable and files a report with the program office. If acceptable, thesis/capstone review work may begin, directed by the major professor and committee.

The proposal should consist of the following elements:

- Title of the proposed thesis/capstone review paper
- Statement of the problem, hypothesis to be tested, or topic to be reviewed
- Statement of the significance of the work
- Capstone review paper: A detailed outline of the topic to be intensively reviewed, along with the preliminary literature review
- Thesis: A description of the methodology to be used. Literature should be cited where applicable with enough detail that the methodology can be understood without going to the literature. Experimental design is very important. The expected results should be provided, and any required facilities and funding should be listed, with their availability.
- References/Bibliography

4.4.6.2. Committee Composition

Capstone review: The capstone review committee will consist of at least two members, one of which must be a faculty member of the Oceanographic Center. Members of the committee must ordinarily have the terminal degree.

Thesis: The thesis advisory committee will consist of a major professor from the Oceanographic Center faculty and at least two additional members, one of whom may be from another center of Nova Southeastern University or from outside the university. The committee participates in topic selection and preparation of the proposal/outline and thesis. Close coordination between student and committee during this process is strongly advised.

4.4.6.3. Report of Progress (per term)

This report is absolutely required from each student registered for thesis credits, the capstone review paper, or capstone review continuation credits by the end of each term of registration. The report will include the following information:

- A brief narrative statement of progress since the last report
- Estimated percentage completion
- Estimate of time spent on this term
- For research thesis: details of all experiments conducted and literature reviewed; include all data collected in graphic or tabular form. This may be discussed orally with the major professor, but should also be reported in writing
- A current bibliography of all pertinent literature references consulted
- A list of problems experienced (if any)

4.4.6.4. Contents

Capstone review: The capstone review paper is to be considered an extended term paper in a format generally similar to that of the more formal thesis. The paper is soft-cover bound using the Oceanographic Center Library approved cover (see center librarian) and should be presented in good wordprocessed, laser-printed quality. Three copies are required: one for the library, one for the M.S. program office, one for the major professor. The paper should contain at minimum:

- Title page
- Table of Contents (detailed outline, using outline headings in text, same format)
  1. Introduction
  2. Statement of Purpose or Objectives
  3. Methods
  4. Results or Review
  5. Summary and Conclusions
  6. References
The text (excluding tables and figures) of the capstone review paper normally should be longer than 45 pages.

**Thesis:** The thesis should contain the following sections:

- Title page (see end of handbook for standard form)
- Approval page (see end of handbook)
- Abstract
- Acknowledgments
- Preface (optional)
- Table of Contents - (detailed; this serves as the outline and section headers as well)
- Body of Thesis (see Style Options)
  1. Introduction
  2. Statement of Purpose or Objectives
  3. Methods and Materials (if applicable)
  4. Results
  5. Discussion
  6. Summary and Conclusions
  7. References
  8. Appendices (optional)

**4.4.5.5. Time Guidelines**

The capstone review paper topic and proposal must be submitted to and approved by program administrators prior to capstone review course registration. Committee members should be identified prior to registration.

After course registration the following schedule and deadlines are in effect for the capstone review paper.

Within four weeks after the start of the term, submit to program administrators and advisor a draft of the paper abstract (summary), a draft introduction, a detailed outline, and a representative bibliography. This should be wordprocessed, laser-printed, and as clearly written as possible. Great care should be taken by the student to use appropriate style, syntax, grammar, spelling, etc. A draft in poor form will be returned unread to the student for revisions. Committee members should be listed along with the topic.

Within eight weeks from the start of the term, submit a first draft of the full paper. This should be wordprocessed and laser-printed, comprehensive, and as well-written as possible. This draft will be reviewed by the committee, discussed with the student, and returned for revisions, as appropriate.

Before the end of the term, submit a defendable draft of the paper and schedule the defense. The defense date should be cleared initially with the committee and confirmed by program administrators. A copy of the defendable draft also should be submitted to program administrators at this time.

If the above deadlines are ignored during the term of registration, the student will be administratively withdrawn from the capstone review paper course (OCMB-7000/CZMT-0701/MEVS-5026). Registration must again be undertaken in a subsequent term.

If a good-faith effort has been made but the paper has not been submitted or needs revisions, the student will register for three capstone review continuation credits in the following term (OCMB-7010/CZMT-0702/MEVS-5027). Completion means that the paper has been submitted and fully approved by the committee. The student should allow at least two weeks for committee review of submitted drafts. If the paper has already been defended, the committee may or may not elect to have a second oral “defense”; however, the final paper must be completely acceptable and judged so by the committee prior to the end of the term of registration. If the student is not administratively withdrawn, he/she will receive an "I" grade for the capstone review paper until it is complete.

**4.4.6.6. Style**

**Capstone review:** The student uses a manuscript format applicable to library research and term papers. A table of contents must be provided, which is then expanded into major topics and divided with subtopics. No further guidelines are given, in order to allow some flexibility. A scientific journal format will be acceptable.

**Thesis:** The required editorial style for a thesis reporting lab or field research can be obtained from an appropriate scientific journal in the field (selected with approval of the major professor). Each journal publishes a list of guidelines to authors. The thesis is written as a journal article but with more methodological detail and raw data than would normally be published. The intent is to prepare the thesis in a form that can be pared down and submitted for publication.

A left-hand margin of one-and-a-half inches is essential. Final copies of theses with a left-hand margin less than one-and-a-half inches will be rejected. This is necessary to prevent loss of text during binding. All other margins should be one inch. Wordprocessing should be neat and clean and laser-printed. Dot matrix or inkjet printing are unacceptable. For the final copies, paper must be of good quality, acid-free, 20 percent cotton (rag) bond. Erasable
bond and heat-sensitive paper for thermal printers are absolutely forbidden. Right margins should be even, not ragged.

4.4.6.7. Rough Drafts/Committee Inspection

Rough draft copies of the thesis submitted to committee members prior to the defense must be complete, containing figures and tables with legends and a bibliography. The draft must be double spaced and should be in good form. It must not be missing parts essential to a proper evaluation, especially the data. A complete and detailed outline should be included with all drafts.

Figures need not be in final drafted form but they must be legible. For the standard form, individual chapters may be submitted for reading if they are complete in themselves with a bibliography.

Students should expect major revisions by the committee (editorial or otherwise), especially in the first drafts. Several drafts are usually necessary before the final form is achieved. The use of a wordprocessor will save much time and effort at this stage.

4.4.6.8. Defense

On completion of the capstone review paper or thesis to the major professor's satisfaction, it is formally submitted to the other committee members. Upon agreement of the committee members, defense is scheduled at least two weeks later for the thesis and one week later for the capstone review paper. For very long works, this time period must be extended to provide the committee adequate time for reading.

The capstone defense will optionally consist of a private defense with the committee or a public defense. For the private defense, requirements include a 10- to 15-minute presentation to the committee, followed by questions and discussion. Center faculty may also attend. For the public defense, requirements include a 30- to 50-minute oral presentation (with appropriate visual aids) to the faculty, student body, and other interested persons. The public defense is mandatory for the thesis option. The committee then will question the candidate in private on the thesis work and related aspects. This private session is closed and limited to the candidate, members of the committee, and interested faculty members. A vote is then taken in closed session by the committee. The capstone review paper or thesis may be accepted, accepted with revision, or rejected.

The Oceanographic Center faculty ultimately must pass on acceptability. The student should consult frequently with the committee during all phases of Thesis work for continuity and in order to avoid problems during the formal defense. If the paper is not acceptable, the student receives the grade of "P" for the course. If the paper and defense are acceptable, the student receives a grade of "P". If the paper is acceptable, but requires only minor corrections, the student may receive a grade of "P" when the corrected paper is received. In this case, the paper must be received within one week of the defense. The student will be informed of the committee's decision following the closed defense.

All M.S. thesis defenses must be scheduled at least two weeks in advance and all M.S. capstone review paper defenses must be scheduled at least one week in advance through the Institute of Marine and Coastal Studies. Notice will be provided to the faculty. At least two weeks prior to scheduled thesis defenses and one week prior to scheduled capstone review paper defenses, a copy of the work must be submitted to and reside in the program office. This defendable copy must be complete, including, for example, all relevant materials, appendices, figures, and data tables. The copy (or reproductions thereof) will be available for review to any interested faculty member. Incomplete works will not be acceptable for defense. If the defendable copy is not submitted in time, the defense will be rescheduled. Once the defendable copy is submitted, additional revisions should not be made or circulated prior to the defense.

4.4.6.9. Final Submission

At least three signed copies of the successfully defended capstone review paper/thesis, including any revisions specified during the defense, must be submitted in correct form to the Oceanographic Center librarian for binding. The cost of binding is the student's responsibility.

One bound copy will be placed in the library, one is for the student's major professor, and one is for the program office. The student may submit any number of additional personal copies for binding.

4.4.6.10. Sample Cover and Approval Sheets

Students should seek sample cover and approval sheets from the library or the program office.

4.4.7. Course Descriptions

The permission of the instructor or program administrator is a prerequisite for all courses.
CORE CURRICULUM:

OCOR 5601 Concepts in Physical Oceanography/3 credits. Introduction to how wind, radiation, gravity, friction, and the Earth's rotation determine the ocean's temperature, salinity patterns, and currents. Conceptual models (geostrophy, Ekman transport, Rossby waves, etc.) explain physical features of the ocean ranging from microscopic to global circulation. Prerequisite: algebra.

OCOR 5602 Marine Ecosystems/3 credits. A study of the major plankton, nektonic, and benthic groups and associations, including their diversity, distribution, metabolism, production, trophic relationships, and ecological roles, with emphasis on coastal communities.

OCOR 5604 Marine Geology/3 credits. The origin, form, and resources of the ocean basins and continental margins, including discussion of seafloor spreading; trenches and island arcs; mountain building; coral reefs and atolls; sedimentation; ocean mining; coastal morphology; and the impact of wave action and human activities on beaches, coasts, continental shelves, and submarine canyons.

OCOR 5605 Marine Chemistry/3 credits. A study of the properties, composition, and origin of seawater; the importance, distribution, relationships, and cycling of the major inorganic nutrients, dissolved gases, trace metals, and organic compounds; and the use of radiotracers for water mass dating.

OCOR 5606 Biostatistics/3 credits. A basic course on the practical applications of descriptive and inferential statistics, with emphasis on principles and methods of summarizing biological data. Measures of central tendency, dispersion, and variability testing are discussed, along with basic concepts of probability distributions, hypothesis testing, and decision making. Topics also include simple statistical tests (including nonparametric tests), factorial analysis of variance, simple and multiple regression, and correlation.

ELECTIVE COURSES:

OCMB 0662 Internship/3 credits. Internship is conducted in a division of the Broward County Department of Natural Resource Protection. Students devote 8-10 hours per week to the internship. They are exposed to the regulatory and policy aspects of marine, freshwater, and coastal science. Emphasis is on the DNRP surface-water quality assessment (estuarine to freshwater). Involvement in this position also may include participation in environmental restoration projects and/or sampling for enforcement cases. Students become familiar with groundwater and drinking-water supply issues. A project report or term paper is required.

OCMB 0796 Directed Independent Study (for marine biology M.S.)/1-3 credits. Directed study in aspects of marine biology. May be used, under special circumstances, for completion of capstone review paper.

OCMB 5606 Plankton Ecology/3 credits. Traditionally, plankton have been dealt with under two broad headings: phytoplankton and zooplankton. While this categorization is useful, it does not reflect current research emphasis of the smaller members of the plankton community; bacteria (picoplankton) and the grazing protozoa (nanoplankton). This course will deal with these smaller members of the plankton community. Plankton Ecology will begin with a summarization of the plankton environment in lakes, oceans, and estuaries. It will continue with the essential aspects of the biology and physiology of bacteria and protozoa. It will finish with the exploration the functional role of these organisms within aquatic ecosystems.

OCMB 6070 Marine Botany/3 credits. Morphology, life histories, taxonomy, physiology, and ecology of multicellular marine phototrophs, including algae, seagrasses, and mangroves.

OCMB 6085 Taxonomy of Marine Invertebrates/3 credits. Systematics and ecology of marine invertebrates with an emphasis on shallow-water species of the tropical Western Atlantic. Field work and a self-paced laboratory are integral to the course.
OCMB 6086 Invertebrate Zoology/3 credits. This is a basic invertebrate zoology course including introductory anatomy, physiology, phylogeny, and ecology of major animal phyla from protozoa through echinoderms, with emphasis on marine organisms. Includes laboratory sessions.

OCMB 6120 Tropical Marine Fish Ecology/3 credits. Study of the ecology of tropical fish, including coastal, estuary, mangrove, and pelagic fish. Current theories on distribution and abundance are discussed in addition to ecological theory.

OCMB 6125 Coral Reef Assessment Technique/3 credits. Assessment of natural or anthropogenic change to coral reef ecosystems often demands the use of nondestructive methods, especially in protected areas. Students will learn common assessment techniques currently in use and have the opportunity to practice these methods in coral reef environs. The course will concentrate on fish assessment, as well as techniques for invertebrates. Substantial field work will be required. Most of these will be accomplished on weekends out of the Oceanographic Center. However, one of two day trips to the Florida Keys may be necessary.

OCMB 6196 Biological Effects and Risks of Chemicals in the Aquatic Environment/3 credits. Basic course on the biological effects and risks of foreign chemicals in aquatic ecosystems. Topics will include bioavailability and fate in sediment water systems, uptake, metabolism and accumulation in fish and invertebrates, and biodegradation in microorganisms. Sublethal behavioral and physiological effects will be discussed along with environmental legislations and risk assessment methods. Presentations will be relevant to acids, metals (organometallics), detergents, pesticides, polychlorinated biphenyls, dibenzo-p-dioxins, dibenzofurans, petroleum hydrocarbons, radionuclides, nutrients, and other conventional pollutants. The metabolism of each chemical group will also be examined in fish, invertebrates, algae, and microorganisms along with methods of analysis. Prioritization schemes for hazardous chemicals in the U.S. and overseas will be presented with case studies on hazard/risk assessment.

OCMB 6200 Aquaculture/3 credits. Designed to survey the field of aquaculture, this course will provide direct, practical, hands-on training in the latest methods of commercial shrimp, fish, and other animal culture. Course work includes activities with live animals in each life-history stage, and instruction in hatchery design and management; culture of larval foods; larval culture techniques; stocking and growout; disease and problems; sourcing of breeders; and maturation; as well as marketing and finances. Modern and classical methodologies will be discussed. Emphasis is on species from the United States and abroad, including catfish, tilapia, shrimp, and clams.

OCMB 6205 Aquaculture Systems/3 credits. This course covers the engineering and mechanics of both freshwater and marine aquaculture systems. Students will study the major aquaculture methods for food species and aquarium hobby culture, including system design and construction. Students will learn to use aquaculture materials such as fiberglass, PVC, and concrete. Systems studied will include indoor, recirculating, outdoor, high intensity, tank culture, and pond culture, and the aeration, water treatment, and filtration components of these systems. Course lectures will be supplemented by field trips to representative facilities and one-week internships at operating facilities.

OCMB 6220 Functional Morphology and Physiology of Fish/3 credits. Introductory course to the study of fishes. Topics include a survey of the major groups of fishes, current systematics, anatomy, physiology, ecology, reproduction, and behavior. Underlying themes include functional morphology and the integration of the animal with its environment.

OCMB 6230 Marine Ichthyology/3 credits. Topics include the systematics, ecology, behavior, and resource management of marine fishes, with emphasis on the inshore fishes of the tropical Atlantic. A self-paced laboratory and some field work are integral to the course.

OCMB 6321 Wetlands Ecology/3 credits. Basic ecology of coastal (marine and fresh water) wetlands, followed by intensive field work in the identification, delineation, and evaluation of these wetlands. Students learn to identify wetland indicator species and visit area wetlands to learn agency delineation techniques based on vegetation, soils, and hydrology. Evaluation of the functions of the wetlands is taught using the Adamus and other methods. Some field work is required.

OCMB 6330 Marine Mammal Management/3 credits. The distance education course is designed to serve as a source of information and ideas providing an introductory awareness of a diversity of issues including the morphology, physiology, adaptation, and behavior of these species and their interaction with humans and other predatory mammals. Two papers are required.

OCMB 6335 Life on a Water Planet/3 credits. Web-based distance education.

OCMB 6900 Master's Thesis Research (Marine Biology)/3 credits each. Research and thesis preparation. No more than nine credits toward the M.S. degree may be applied. Requires prior consultation with major professor and submission of an approved thesis proposal.

OCMB 7000 Capstone Review Paper/3 credits. An extended literature review of a subject approved by the student's advisory committee. The paper should demonstrate...
proficiency in library research, organization, and writing.
OCMB 7010 Capstone Review Continuation Credits/1-3 credits each. These credits are necessary to complete the capstone review paper (marine biology).
OCMB 7011 Florida Coral Reefs/3 credits. A topical course intended for students who are familiar with basic reef ecology. The course will examine recent topics of special interest in coral reef ecology and biodiversity. The intent is to convey the complete spectrum of selected coral reef issues, from inception to final scientific consensus. The class will consist of discussions and presentations from assigned topics, a research paper, and a weekend field trip to the Florida Keys.
OCMB 7012 Coral Reef Ecology/3 credits. General ecology of corals and coral reefs. Includes discussion and description of distribution, abundance, and physiology of corals and coral reef animals. The effects of important natural and anthropogenic events and causes are described. Emphasis is given to coral reefs of the Caribbean and the Florida Keys.
OCMB 7013 Molecular Marine Biology/3 credits. This course covers theoretical and laboratory aspects of recombinant DNA techniques as applied to ecological, evolutionary, and physiological investigations of marine organisms.
OCMB 7014 Fundamentals of Aquatic Ecotoxicology/3 credits. This is a basic course on the fate of chemicals and their biological effects on aquatic organisms. It presents the history of aquatic toxicology and the general mechanisms of transport and transformation of chemicals in water/sediment systems and within aquatic organisms. It examines basic aquatic toxicological concepts and principles; concentration-response relationships criteria and approaches to single-species laboratory tests and multispecies field studies; the importance of good laboratory practices; and considerations for analyzing and interpreting aquatic toxicity data. Special types of organismal and media tests are discussed in addition to topics on biomarkers and biomonitoring, mathematical modeling, structure-activity relationships, and aquatic risk assessment.
OCMB 8100 Ecology of the Belize Barrier Reef/3 credits. A field course to be held at South Water Caye, Belize. This course will be an intensive hands-on learning experience at the magnificent barrier reef system of Belize. We will spend a majority of our time actually diving on the reef and waters of the lagoon and back reef. Students will experience firsthand the great natural biodiversity of the pristine reef system of Belize. Registration is open to undergraduate science majors, graduate students, and to others by permission of instructor. Prerequisites: Invertebrate zoology, marine ecology, or equivalent.
OCMB 9000 Laboratory Safety and Policy/0 credits. A practical course for graduate students who will be working in research laboratories.
CZMT 0603 Law and the Coastal Zone/3 credits. General instruction in legal fields and in selected environmental sciences, combined with in-depth study of administration of maritime industries and coastal activities. Focuses on the regulation of marine and maritime pursuits that pertain to the coastal zone and adjacent territorial waters.
CZMT 0609 Principles of Coastal Zone Management/3 credits. Management of coastal resources, based on the principles and techniques of a diverse array of disciplines, discussed in terms of a balanced coastal strategy. Practical solutions to conflicts of use, especially those of coastal zone protection versus land, mineral, and water development practices, are studied in relation to their impact on the coastal resource base.
CZMT 0610 Dry Coastal Ecosystems/3 credits. A comprehensive review of coastal drylands comprising dune strands, barrier beaches, old dunes, hammocks, and the submariote fringe. The complexities and subtleties of ecological relationships and the importance of organic resources in this zone are emphasized.
CZMT 0612 Coastal Resources and Economic Activities/3 credits. Inventory of global coastal zone resources and their effect on human wants and objectives; technologies; and the distribution of economic activities such as fishing, mariculture, mining, transportation and shipping, tourism, manufacturing, agriculture, forestry, and settlement.
CZMT 0613 Environmental Policy/3 credits. This course deals with the current governmental policies that affect the environment. Discussions will center specifically on those policies that affect the needs of the earth's biota and society. The course also addresses the recent changes in environmental policies that relate to human health risk, ecological risk, and economics. Specific concepts reviewed include ecological integrity, economic growth, carrying capacity, biodiversity, ecosystem health, resilience, and sustainability.
CZMT 0615 Public Policy/3 credits. Public policy in the American democratic system is designed, developed, and implemented by legislative bodies and executive agencies. Varying levels of input from scientifically trained experts make an environmental program, or policy initiative, successful. This public policy analysis course will describe the political environment of public policy initiatives within the wider framework of a tripartite government. The impact of political interest groups, the media, and the role of environmental managers will be developed through an analysis of selected environmental case studies. Particular relevance will be made to the coastal zone manager and
marine scientist. Case studies will include the National Marine Sanctuary, biodiversity, endangered species, global warming, water quality, land management, cultural resource management, mitigation, and fisheries issues.

**CZMT 0621 Florida Environmental Regulation**/3 credits. A study of the organizational structure and operation of Florida state, county, and local environmental regulatory agencies.

**CZMT 0622 Coastal Water Resource Impacts**/3 credits. This course is oriented toward a systems analysis of the multiple uses that shape the coastal zone. Emphasis is on the multiple uses of the coastal zone and their associated impacts. In addition, the current "balancing" of development, and environmental protection policies of state and federal government and how these policies have affected the coastal environment, are discussed. The course not only deals with specific environmental problems but also analyzes the problems and prospects of effective planning, technical management, regulation, and legislation used for managing the coastal environment.

**CZMT 0630 Life on a Water Planet**/3 credits. Web-based distance education.

**CZMT 0634 Oil Pollution Effects**/3 credits. This course focuses on the impact of petroleum hydrocarbons on natural and human environments. The course is designed to provide a background in petroleum chemistry, natural resources, and human resources at risk; the effects and fate of spilled hydrocarbons; relevant regulations; and spill contingency planning. Data are drawn from recent publications in petroleum and environmental research, from case studies of actual spills, and from various contingency plans. Students have the opportunity to participate in a spill drill, study recent spill sites, review area contingency plans, and use computer-generated (geographic information systems) maps for oil spill response.

**CZMT 0639 GIS and Environmental Remote Sensing**/3 credits. This course provides hands-on training with the latest techniques in geographic information systems and remote sensing. Course work includes lecture and hands-on computer training. Areas covered (utilizing both ERDAS Imagine 8.3 and ESRI Arcview 3.0) include: GIS/remote sensing theory, image georeferencing and mosaicking, image enhancement and classification procedures, accuracy assessment procedures, importing GPS polygons, establishing database and multimedia hotlinks, importing tables, joining, building queries, charting and map creation. Instruction will be centered on application of these techniques to actual environmental case studies.

**CZMT 0650 Fundamentals of Aquatic Ecotoxicology**/3 credits. Basic course on the fate of chemicals and their biological effects on aquatic organisms. Presents the history of aquatic toxicology and the general mechanisms of transport and transformation of chemicals in water/sediment systems and within aquatic organisms. Examines basic aquatic toxicological concepts and principles, concentration-response relationships, criteria and approaches to single-species laboratory tests and multispecies field studies, the importance of good laboratory practices, and considerations for analyzing and interpreting aquatic toxicity data. Special types of organismal and
media tests are discussed in addition to topics on biomarkers and biomonitoring, mathematical modeling, structure-activity relationships, and aquatic risk assessment.

CZMT 0651 Artificial Reefs in Marine Management: An Overview/3 credits. A seminar course that examines the historical and potential uses of artificial reefs in marine environments, with emphasis on fish ecology and management.

CZMT 0655 Coral Reef Ecology/3 credits. General ecology of corals and coral reefs. Includes discussion and description of distribution, abundance, and physiology of corals and coral reef animals. The effects of important natural and anthropogenic events and causes are described. Emphasis is given to coral reefs of the Caribbean and the Florida Keys.

CZMT 0665 Environmental Sustainability: Choices of the Future/3 credits. This Web-based distance education course highlights more than 25 years (1972 to present) of international discussion and debate with regard to the state of the environment and our actions toward it. Key considerations and voices are included from both the developed and developing world. Students participate in regular online closed discussion regarding issues such as limits to growth, ecology and the structure of the international system, prospects for international environmental cooperation, the case for and against free trade, the sustainable development debate, the potential for ecological conflict, empowerment, and questions of ecological justice. The emphasis is on presenting an international range of perspectives and case studies, linking already timely issues to up-to-the-moment occurrences, and helping students to share and develop their own local responses to these issues.

CZMT 0670 Cultural Resource Management/3 credits. Introductory survey course dealing with the assessment and management of cultural/historic resources in the coastal zone terrestrial and marine environments. Cultural Resource Management is often referred to as public archeology, rescue archeology, and contract archeology. The course will focus on the preparation of the cultural resource assessment (comparable to the better known environmental impact assessment), which is the product of CRM study. This course will address case problems in the field environment and the preparation of field studies, but will also focus on the macromanagement of cultural resources in both the public and private sectors.

CZMT 0675 Environmental Conflict/3 credits. The purpose of this course is to examine many of the practical and theoretical considerations regarding third-party intervention into public disputes (environmental being one of the most dynamic and controversial). This class will begin to answer why these events occur as well as how people actively intervene to help pave the way to collaborative, consensus-based solutions.

CZMT 0681 Master’s Thesis Research (Coastal Zone Management)/2 credits. Research and thesis preparation. Normally no more than six credits toward the M.S. degree may be applied. Requires prior consultation with the major professor and submission of an approved thesis proposal.

CZMT 0690 Tropical Marine Fish Ecology/3 credits. Study of the ecology of tropical fish, including coastal, estuary, mangrove, and pelagic fish. Current theories on distribution and abundance are discussed in addition to ecological theory.

CZMT 0695 Coral Reef Assessment Techniques/3 credits. Assessment of natural or anthropogenic change to coral reef ecosystems often demands the use of nondestructive methods, especially in protected areas. Students will learn common assessment techniques currently in use and have the opportunity to practice these methods in coral reef environments. The course will concentrate on fish assessment, as well as techniques for invertebrates. Substantial field work will be required. Most of these will be accomplished on weekends outside of the Oceanographic Center. However, one of two day trips to the Florida Keys may be necessary.

CZMT 0701 Capstone Review Paper/3 credits. An extended literature review of a subject approved by the student’s advisory committee. The paper should demonstrate proficiency in library research, organization, and writing.

CZMT 0702 Capstone Review Continuation Credits/1-3 credits each. These credits are necessary to complete the capstone review paper (coastal zone management).

CZMT 0775 Directed Independent Study (DIS)/3 credits. Directed Independent Study courses are offered each term on an elective basis. This triad in the course sequence is reserved for student internships in the work-study program. Students working off campus will be directed by on-site adjunct professors, counselors, or thesis mentors, but must report to the program professor. A term paper or progress report is required by the end of each term.

CZMT 0780 Coastal Engineering/Ports and Harbors/3 credits. A comprehensive examination of modern trends in port and harbor engineering, maintenance, and management. Includes planning and layout of ports, harbors, and marinas; operation and maintenance of facilities; and environmental impact. Emphasis is on analysis of modern practices.

CZMT 0790 Aspects of Marine Pollution/3 credits. Deals with various forms of environmental pollution as they affect both the land and maritime environment. Sources, measurement, and control of pollution in marine and coastal environments are discussed.
CZMT 0791 Wetlands Ecology/3 credits. Basic ecology of coastal (marine and fresh water) wetlands, followed by intensive field work in the identification, delineation, and evaluation of these wetlands. Students learn to identify wetland indicator species and visit area wetlands to learn agency delineation techniques based on vegetation, soils, and hydrology. Evaluation of the functions of the wetlands is taught using the Adamus and other methods. Some field work is required.

CZMT 0806 Biological Effects and Risks of Chemicals in the Aquatic Environment/3 credits. Basic course on the biological effects and risks of foreign chemicals in aquatic ecosystems. Topics will include bioavailability and fate in sediment water systems; uptake; metabolism and accumulation in fish and invertebrates; and biodegradation in microorganisms. Sublethal behavioral and physiological effects will be discussed, along with environmental legislations and risk assessment methods. Presentations will be relevant to acids, metals (organometallics), detergents, pesticides, polychlorinated biphenyls, dibenzo-p-paradioxins, dibenzofurans, petroleum hydrocarbons, radionuclides, nutrients, and other conventional pollutants. The metabolism of each chemical group will also be examined in fish, invertebrates, algae, and microorganisms, along with methods of analysis. Prioritization schemes for hazardous chemicals in the U.S. and overseas will be presented with case studies on hazard/risk assessment.

CZMT 0807 Aquaculture/3 credits. Designed to survey the field of aquaculture, this course will provide direct, practical, hands-on training in the latest methods of commercial shrimp, fish, and other animal culture. Course work includes activities with live animals in each life-history stage, and instruction in hatchery design and management; culture of larval foods; larval culture techniques; stocking and growout; disease and problems; sourcing of breeders; and maturation, as well as marketing and finances. Modern and classical methodologies will be discussed. Emphasis is on species from the United States and abroad, including catfish, tilapia, shrimp, and clams.

CZMT 0808 Marine Botany/3 credits. Morphology, life histories, taxonomy, physiology, and ecology of multicellular marine phototrophs, including algae, seagrasses, and mangroves.

CZMT 0810 Aquaculture Systems/3 credits. This course covers the engineering and mechanics of both freshwater and marine aquaculture systems. Students will study major aquaculture methods for food species and aquarium hobby culture, including system design and construction. Students will learn to use aquaculture materials such as fiberglass, PVC, and concrete. Systems studied will include indoor, recirculating, outdoor, high-intensity, tank culture, and pond culture, and the aeration, water treatment, and filtration components of these systems. Course lectures will be supplemented by field trips to representative facilities and one-week internships at operating facilities.

MEVS 5000 Tropical Marine Fish Ecology/3 credits. Study of the ecology of tropical fish, including coastal, estuary, mangrove, and pelagic fish. Current theories on distribution and abundance are discussed in addition to ecological theory.

MEVS 5001 Environmental Sustainability: Choices of the Future/3 credits. This Web-based distance education course highlights more than 25 years (1972 to present) of international discussion and debate with regard to the state of the environment and our actions toward it. Key considerations and voices are included from both the developed and developing world. Students participate in regular online closed discussion regarding issues such as limits to growth, ecology and the structure of the international system, prospects for international environmental cooperation, the case for and against free trade, the sustainable development debate, the potential for ecological conflict, empowerment, and questions of ecological justice. The emphasis is on presenting an international range of perspectives and case studies, linking already timely issues to up-to-the-moment occurrences, and helping students to share and develop their own local responses to these issues.

MEVS 5004 Biological Effects and Risks of Chemicals in the Aquatic Environment/3 credits. Basic course on the biological effects and risks of foreign chemicals in aquatic ecosystems. Topics will include bioavailability and fate in sediment water systems; uptake; metabolism and accumulation in fish and invertebrates; and biodegradation in microorganisms. Sublethal behavioral and physiological effects will be discussed, along with environmental legislations and risk assessment methods. Presentations will be relevant to acids, metals (organometallics), detergents, pesticides, polychlorinated biphenyls, dibenzo-p-paradioxins, dibenzofurans, petroleum hydrocarbons, radionuclides, nutrients, and other conventional pollutants. The metabolism of each chemical group will also be examined in fish, invertebrates, algae, and microorganisms, along with methods of analysis. Prioritization schemes for hazardous chemicals in the U.S. and overseas will be presented with case studies on hazard/risk assessment.

MEVS 5005 Aquaculture/3 credits. Designed to survey the field of aquaculture, this course will provide direct, practical, hands-on training in the latest methods of commercial shrimp, fish, and other animal culture. Course work includes activities with live animals in each life-
history stage, and instruction in hatchery design and management; culture of larval foods; larval culture techniques; stocking and growout; disease and problems; sourcing of breeders; and maturation, as well as marketing and finances. Modern and classical methodologies will be discussed. Emphasis is on species from the United States and abroad, including catfish, tilapia, shrimp, and clams.

**MEVS 5006 Florida Coral Reefs**/3 credits. A topical course intended for students who are familiar with basic reef ecology. The course will examine recent topics of special interest in coral reef ecology and biodiversity. The intent is to convey the complete spectrum of selected coral reef issues, from inception to final scientific consensus. The class will consist of discussions and presentations from assigned topics, a research paper, and a weeklong field trip to the Florida Keys.

**MEVS 5007 Coral Reef Ecology**/3 credits. General ecology of corals and coral reefs. Includes discussion and description of distribution, abundance, and physiology of corals and coral reef animals. The effects of important natural and anthropogenic events and causes are described. Emphasis is given to coral reefs of the Caribbean and the Florida Keys.

**MEVS 5010 Aquaculture Systems**/3 credits. This course covers the engineering and mechanics of both freshwater and marine aquaculture systems. Students will study major aquaculture methods for food species and aquarium hobby culture, including system design and construction. Students will learn to use aquaculture materials such as fiberglass, PVC, and concrete. Systems studied will include indoor, recirculating, outdoor, high-intensity, tank culture, and pond culture, and the aeration, water treatment, and filtration components of these systems. Course lectures will be supplemented by field trips to representative facilities and one-week internships at operating facilities.

**MEVS 5011 Wetlands Ecology**/3 credits. Basic ecology of coastal (marine and fresh water) wetlands, followed by intensive field work in the identification, delineation, and evaluation of these wetlands. Students learn to identify wetland indicator species and visit area wetlands to learn agency delineation techniques based on vegetation, soils, and hydrology. Evaluation of the functions of the wetlands is taught using the Adamus and other methods. Some field work is required.

**MEVS 5012 Dry Coastal Ecosystems**/3 credits. A comprehensive review of coastal drylands comprising dune strands, barrier beaches, old dunes, hammocks, and the submari’time fringe. The complexities and subtleties of ecological relationships and the importance of organic resources in this zone are emphasized.

**MEVS 5013 Fundamentals of Aquatic Ecotoxicology**/3 credits. Basic course on the fate of chemicals and their biological effects on aquatic organisms. Presents the history of aquatic toxicology and the general mechanisms of transport and transformation of chemicals in water/sediment systems and within aquatic organisms. Examines basic aquatic toxicological concepts and principles, concentration-response relationships, criteria and approaches to single-species laboratory tests and multispecies field studies, the importance of good laboratory practices, and considerations for analyzing and interpreting aquatic toxicity data. Special types of organismal and media tests are discussed, in addition to topics on biomarkers and biomonitoring, mathematical modeling, structure-activity relationships, and aquatic risk assessment.

**MEVS 5016 Oil Pollution Effects**/3 credits. The focus of this course is the impact of petroleum hydrocarbons on natural and human environments. The course is designed to provide a background in petroleum chemistry, natural resources, and human resources at risk; the effects and fate of spilled hydrocarbons; relevant regulations; and spill contingency planning. Data are drawn from recent publications in petroleum and environmental research, from case studies of actual spills, and from various contingency plans. Students have the opportunity to participate in a spill drill, study recent spill sites, review area contingency plans, and use computer-generated (geographic information systems) maps for oil spill response.

**MEVS 5018 Environmental Policy**/3 credits. This course deals with the current governmental policies that affect the environment. Discussions will center specifically on those policies that affect the needs of the earth’s biota and society. The course also addresses the recent changes in environmental policies that relate to human health risk, ecological risk, and economics. Specific concepts reviewed include ecological integrity, economic growth, carrying capacity, biodiversity, ecosystem health, resilience and sustainability.

**MEVS 5019 Florida Environmental Regulation**/3 credits. A study of the organizational structure and operation of Florida state, county, and local environmental regulatory agencies.

**MEVS 5020 Coastal Water Resource Impacts**/3 credits. This course is oriented toward a systems analysis of the multiple uses that shape the coastal zone. Emphasis is on the multiple uses of the coastal zone and their associated impacts. In addition, the current “balancing” of development and environmental protection policies of state and federal government and how these policies have affected the coastal environment are discussed. The course not only deals with specific environmental problems but also analyzes
the problems and prospects of effective planning, technical management, regulation, and legislation used for managing the coastal environment.

MEVS 5021 Environmental Public Policy/3 credits. Public policy in the American democratic system is designed, developed, and implemented by legislative bodies and executive agencies. Varying levels of input from scientifically trained experts make an environmental program, or policy initiative, successful. This public policy analysis course will describe the political environment of public policy initiatives within the wider framework of a tripartite government. The impact of political interest groups, the media, and the role of environmental managers will be developed through an analysis of selected environmental case studies. Particular relevance will be made to the coastal zone manager and marine scientist. Case studies will include the National Marine Sanctuary, biodiversity, endangered species, global warming, water quality, land management, cultural resource management, mitigation, and fisheries issues.

MEVS 5023 GIS and Environmental Remote Sensing/3 credits. This course provides hands-on training with the latest techniques in geographic information systems and remote sensing. Course work includes lecture and hands-on computer training. Areas covered (utilizing both ERDAS Imagine 8.3 and ESRI Arcview 3.0) include: GIS/remote sensing theory, image georeferencing and mosaicking, image enhancement and classification procedures, accuracy assessment procedures, importing GPS polygons, establishing database and multimedia hotlinks, importing tables, joining, building queries, charting and map creation. Instruction will be centered on application of these techniques to actual environmental case studies.

MEVS 5024 Fundamentals of Aquatic Ecotoxicology/3 credits. Basic course on the fate of chemicals and their biological effects on aquatic organisms. Presents the history of aquatic toxicology and the general mechanisms of transport and transformation of chemicals in water/sediment systems and within aquatic organisms. Examines basic aquatic toxicological concepts and principles; concentration-response relationships; criteria and approaches to single-species laboratory tests and multispecies field studies; the importance of good laboratory practices; and considerations for analyzing and interpreting aquatic toxicity data. Special types of organismal and media tests are discussed in addition to topics on biomarkers and biomonitoring, mathematical modeling, structure-activity relationships, and aquatic risk assessment.

MEVS 5030 Cultural Resource Management/3 credits. Introductory survey course dealing with the assessment and management of cultural/historic resources in the coastal zone terrestrial and marine environments. Cultural Resource Management is often referred to as public archeology, rescue archeology, and contract archeology. The course will focus on the preparation of the cultural resource assessment (comparable to the better known environmental impact assessment), which is the product of CRM study. This course will address case problems in the field environment and the preparation of field studies, but will also focus on the macromanagement of cultural resources in both the public and private sectors.

MEVS 5035 Environmental Conflict/3 credits. The purpose of this course is to examine many of the practical and theoretical considerations regarding third-party intervention into public disputes (environmental being one of the most dynamic and controversial). This class will begin to answer why these events occur as well as how people actively intervene to help pave the way to collaborative consensus-based solutions.

MEVS 5110 Introduction to Environmental Sciences/3 credits. Interested in learning about the ways of the world? This course is introductory in nature and will appeal to students wanting to learn more about ecological and environmental issues. Its introductory nature makes it inappropriate for students who already have degrees in ecology or environmental science. Part A of the course will focus on ecosystems, how they work and how they maintain a delicate balance in terms of energy transfer and material cycling. Part B will address man’s activities and examine how these are threatening the stability of ecosystems in general. Topics examined will include eutrophication, pollution, and global warming. Part C will focus on the resources afforded by our ecosystems and will look at ways to responsibly manage these resources. Topics will include biodiversity, waste disposal, and the promise of biotechnology.

MEVS 5130 Life on a Water Planet/3 credits. Web-based distance education.
4.5. Ph.D. PROGRAM

4.5.1. General and Credit-Hour Requirements

There are two informal divisions within the Ph.D. in Oceanography Program: marine biology and physical oceanography. The Ph.D. degree requires a minimum of 90 credits beyond the baccalaureate. At least 48 credits must consist of dissertation research. At least 42 credits consist of upper-level course work. Required courses include the four M.S. core courses (Descriptive Marine Physics, Marine Ecosystems, Marine Geology, Marine Chemistry). Other upper-level course work usually consists of tutorial studies with the major professor. Ph.D. courses are included at the end of this section. The student must successfully complete the Ph.D. comprehensive examination (see below) and successfully defend the completed dissertation before the committee. The Oceanographic Center faculty has final approval of the dissertation.

4.5.2. Academic Activities and Approvals

Ph.D. students may transfer up to 30 graduate course credits from prior graduate programs in the same disciplines that the Ph.D. degrees aspired to. Transfer courses must be either reasonable duplicates of courses offered at NSU or clearly in the applicable Ph.D. field of interest. Transfer acceptability will be decided by the director of the Institute of Marine and Coastal Studies, the students’ advisors, and the students’ dissertation committees (if formed at entrance).

4.5.2.1. Committee

The student’s Ph.D. Committee consists of four people, at least three of whom must be center faculty and one of whom must be from outside the Oceanographic Center. The committee monitors all phases of the candidate’s progress. The committee is formed prior to acceptance or within two terms of admission.

4.5.2.2. Comprehensive Examination

The examination consists of written and oral phases. The written exams, taken on completion of formal course work, are administered by the major professor and consist of questions submitted by each committee member potential. The candidate is allowed an appropriate time to answer each member’s questions. The entire exam takes at least three days. The student is informed of the results of the written examination within one week of completion. The student normally takes the oral examination within two weeks of this notification. The oral phase consists of questions concerning any aspect of marine science posed by each committee member during a joint meeting. The exam is chaired by the outside committee member and must be at least two hours in length. After the examination, the student will be excused and the committee will determine the outcome. The decision of the committee must be unanimous. A student failing either part may retake the exam once, typically two to six months after the first attempt.

4.5.2.3. Academic Timetable and Milestones

- Select major professor and submit tentative program of studies. Complete by or before admission (students are not admitted without prior agreement on a research topic with a faculty member).
- Prepare program of studies (with major professor). Complete by or before one term after admission.
- Take qualifying examinations (at option of major professor). Complete by or before one term after admission.
- Select formal dissertation committee. Complete before two terms after admission.
- Take comprehensive exams. Complete before one term of completion of formal course work, but not prior to one and one-half years after admission.
- Submit formal dissertation proposal and begin research. Complete proposal within one term after exams. The dissertation proposal draft will be reviewed by the major professor and provisional committee. The student may meet and discuss issues with the professor and committee. The major professor makes a final decision as to whether the proposal is acceptable for presentation to the faculty. The faculty receive and review the proposal and vote upon acceptability. If acceptable, dissertation may begin, directed by the major professor and committee.

The dissertation proposal should consist of the following elements:

- Title of the proposed dissertation
- Statement of the problem, hypothesis to be tested, or topic to be reviewed
- Statement of the significance of the work
- A description of the methodology to be used. Literature should be cited where applicable with enough detail that the methodology can be understood without going to the literature. Experimental design is very important. The expected results should be provided, and any required facilities and funding should be listed, with their availability.
- References/Bibliography
4.5.2.4. Defense of Dissertation

On completion of the dissertation to the major professor's satisfaction, it is formally submitted to the other committee members, and the defense is scheduled at least two weeks later. For very long works, this time period must be extended to provide the committee adequate time for reading.

The defense will consist of a 50-minute oral presentation (with slides/visual aids) to the faculty, student body, and other interested persons. The committee will then question the candidate on the thesis work and related aspects. This session is closed and limited to the candidate, members of the committee, and interested faculty members. A vote is then taken in closed session by the committee. The thesis may be accepted, accepted with revision, or rejected. The Oceanographic Center faculty ultimately must pass on acceptability. The student should consult frequently with the committee during all phases of thesis work for continuity and in order to avoid problems during the formal defense.

All Ph.D. dissertation defenses must be scheduled at least two weeks in advance through the Institute of Marine and Coastal Studies. Notice will be provided to the faculty. At least two weeks prior to a student's scheduled defense, a copy of the work must be submitted to, and reside in, the program office. This defendable copy must be essentially complete, including, for example, all relevant materials, appendices, figures, and data tables. The copy (or reproductions thereof) will be available for review to any interested faculty member. Incomplete works will not be acceptable for defense. If the defendable copy is not submitted in time, the defense will be rescheduled.

4.5.2.5. Final Submission of Dissertation

At least three signed copies of the successfully defended dissertation, including any revisions specified during the defense, must be submitted in bound form to the Oceanographic Center librarian. The complete dissertation may be submitted to the librarian for binding or the student may elect to have this done elsewhere. The cost of binding is the student's responsibility.

The major professor is responsible for insuring that changes specified by the committee are incorporated in the final version. One bound copy will be placed in the library, one is for the student's major professor, one is for the program office. The student may submit any number of additional personal copies for binding.

4.5.2.6. Progress (per term)

This report is absolutely required from each student registered for thesis credits by the end of each term of registration. The report will include the following information:

- A narrative statement of progress since the last report, as well as the direction of the thesis work.
- Estimated percentage of completion.
- Estimate of time spent on dissertation work this term.
- A report of all experiments conducted and literature reviewed, including all data collected in graphic or tabular form. This may be discussed orally with the major professor, but it also should be reported in writing.
- A current or updated bibliography of all pertinent literature consulted.
- A list or discussion of any problems encountered.

4.5.2.7. Sample Cover and Approval Sheets

Students should seek sample cover and approval sheets from the library or the program office.

4.5.3. Ph.D. Course Descriptions

In addition to specialized courses, Ph.D. candidates register for OCGY-8000 (Ph.D. Dissertation Research) or OCGY-0799 (Directed Independent Study).

CORE CURRICULUM:

OCOR 5601 Concepts in Physical Oceanography / 3 credits. Introduction to how wind, radiation, gravity, friction, and the Earth's rotation determine the ocean's temperature and salinity patterns and currents. Conceptual models (geostrophy, Ekman transport, Rossby waves, etc.) explain physical features of the ocean ranging from microscopic turbulence to global circulation. Prerequisite: algebra.
OCOR 5602 Marine Ecosystems / 3 credits. A study of the major plankton, nektonic, and benthic groups and associations, including their diversity, distribution, metabolism, production, trophic relationships, and ecological roles, with emphasis on coastal communities.

OCOR 5604 Marine Geology / 3 credits. The origin, form, and resources of the ocean basins and continental margins, including a discussion of seafloor spreading, trenches and island arcs, mountain building, coral reefs and atolls, sedimentation, ocean mining, coastal morphology, the impact of wave action and human activities on beaches and coasts, continental shelves, and submarine canyons.

OCOR 5605 Marine Chemistry / 3 credits. A study of the properties, composition, and origin of seawater; the importance, distribution, relationships, and cycling of the major inorganic nutrients, dissolved gases, trace metals, and organic compounds; and the use of radiotracers for water mass dating.

OCOR 5606 Biostatistics/3 credits. A basic course on the practical applications of descriptive and inferential statistics, with emphasis on principles and methods of summarizing biological data. Measures of central tendency, dispersion, and variability are discussed, along with basic concepts of probability distributions, hypothesis testing, and decision making. Topics also include simple statistical tests (including nonparametric tests), factorial analysis of variance, simple and multiple regression, and correlation.

OTHER COURSES:

OCOR 0751 Systematic Ichthyology I/2 credits. A tutorial course on taxonomic methods as they apply to fishes. In addition to reading materials, no less than two contact hours per week for discussions and laboratory work under direct supervision of the instructor are required.

OCOR 0752 Systematic Ichthyology II/2 credits. A continuation of OCGY 0751 (Systematic Ichthyology I).

OCOR 0753 Comparative Osteology of Fishes/ 2 credits. A comparison of skeletal structure in fishes from various taxonomic groups.

OCOR 0754 Comparative Osteology of Fishes II/2 credits. A detailed comparison of the osteology of fishes.

OCOR 0775 Artificial Reefs/3 credits. A practicum in the use of artificial reefs in the marine environment.

OCOR 0796 Directed Study: Marine Biology /3 credits.

OCOR 0797 Directed Study/1-3 credits.

OCOR 0799 Ph.D. Directed Study/1-3 credits each. Advanced tutorial instruction and/or directed independent study in specialized aspects of ocean science.

OCOR 5520 Population Genetics/3 credits.

OCOR 5530 Techniques in Biological Oceanography/3 credits.

OCGY 0752 Genetics/3 credits. A study of the genetics of marine organisms with a focus on the basic principles of genetics, including inheritance, linkage, and mutations.

OCGY 0775 Systematic Ichthyology I/2 credits. A tutorial course on taxonomic methods as they apply to fishes. In addition to reading materials, no less than two contact hours per week for discussions and laboratory work under direct supervision of the instructor are required.

OCGY 0796 Directed Study: Marine Biology /3 credits.

OCGY 0797 Directed Study/1-3 credits.

OCGY 0799 Ph.D. Directed Study/1-3 credits each. Advanced tutorial instruction and/or directed independent study in specialized aspects of ocean science.

OCGY 5520 Population Genetics/3 credits.

OCGY 5530 Techniques in Biological Oceanography/3 credits.

OCGY 5606 Biostatistics/3 credits. A basic course on the practical applications of descriptive and inferential statistics, with emphasis on principles and methods of summarizing biological data. Measures of central tendency, dispersion, and variability are discussed, along with basic concepts of probability distributions, hypothesis testing, and decision making. Topics also include simple statistical tests (including nonparametric tests), factorial analysis of variance, simple and multiple regression, and correlation.

OCGY 6195 Dynamic Biological Oceanography/3 credits. Explores modern concepts and approaches in the study of life in the sea. Emphasis is on understanding the scales and coupling of biotic and physical variability, the use of modern continuous sampling techniques, and the handling of data from such samplers. Some background in statistics and calculus is helpful.

OCGY 8000 Ph.D. Dissertation Research/1-9 credits. Research and progress toward completion of the Ph.D. dissertation.

OCGY 8001 Applications of Experimental Methods for Field Ecology/3 credits. A tutorial-based examination of applications of experimental methods of field ecology with literature readings and extensive discussions.

OCGY 8002 Applications of HPLC in Pigmentary Ecology/3 credits. Theory and methods in HPLC with emphasis on qualitative and quantitative analysis of the chlorophyll and carotenoid pigments of marine phytoplankton and zooplankton.

OCGY 8003 Advanced Concepts in Marine Ecology/3 credits. This course, designed for advanced graduate students in the marine sciences, will consider the classical literature and contemporary thinking in ecological theory. Among the topics discussed will be island biogeography, foraging theory, predator-prey models, competition theory, and the concept of the niche.

OCGY 8004 Behavioral Ecology of Coral Reef Fishes/2 credits. This is a reading course for graduate students who are familiar with fundamentals of animal behavior and principles of ecology. Topics include: territoriality, feeding strategies, spawning, social systems, symbiosis, predator-prey, and diversity.

OCGY 8007 Chromatographic Analysis of Phytoplankton Pigments/3 credits. A laboratory methods course in thin-layer and other chromatographic methods for the qualitative and quantitative separation of pigments in phytoplankton. Radioisotope use is included for the estimation of growth rate by pigment labeling.

OCGY 8010 Geophysical Fluid Dynamics I: Modeling Coastal Ocean Circulation/3 credits. Two-dimensional and three-dimensional models of coastal circulation; coastal Kelvin waves and other coastally trapped waves; Ekman and Sverdrup flows; response of the coastal ocean to switched-on and periodic winds; instabilities of coastal currents and other nonlinear effects.

OCGY 8011 Geophysical Fluid Dynamics II: Modeling Equatorial Ocean Circulation/3 credits. Equatorially trapped waves; Ekman and Sverdrup flows; the unbounded and bounded Yoshida jet; response of the equatorial ocean to switched-on and periodic winds; instabilities of equatorial currents and other nonlinear effects.
OCGY 8012 Geophysical Fluid Dynamics III: Mixed-Layer Dynamics/3 credits. Surface Ekman layers and inertial oscillations; elementary considerations of turbulent flows; observations of diurnal and seasonal-scale deepening of the surface mixed layer; effects of surface fluxes of momentum and buoyancy; models of Pollard-Rhines-Thompson and Kraus-Turner; dissipation and microstructure; numerical models.

OCGY 8013 Geophysical Fluid Dynamics IV: Numerical Methods in Fluid Dynamics/3 credits. Forward, center, and backward differences; solutions of Laplace, diffusion, and wave equations; stability and accuracy; various techniques of solving Navier-Stokes equations.


OCGY 8017 Ocean Waves I: Free and Forced Linear Waves/3 credits. Surface and internal waves, gravity waves and Rossby waves, bottom-trapped Second Kelvin waves; Ekman and Sverdrup flows; linear western boundary currents.


OCGY 8019 Coastal Dynamics/3 credits. Two-dimensional and three-dimensional models of coastal circulation: coastal Kelvin waves and other coastally trapped waves Ekman and Sverdrup flows; response of the coastal ocean to switched-on and periodic winds instabilities of coastal currents and other nonlinear effects.

OCGY 8020 Geophysical Fluid Dynamics V: Geophysical Instabilities/3 credits. Rayleigh-Bernard instability; the parallel shear-flow instabilities; barotropic, Kelvin-Helmholtz, baroclinic, and ageostrophic horizontal shear instabilities; salt fingering. Energy budgets and instability criteria are developed for each type. Unstable solutions are found using both analytic and numerical methods.

OCGY 8021 Geophysical Instabilities/3 credits. Rayleigh-Bernard instability; the parallel shear-flow instabilities; barotropic, Kelvin-Helmholtz, baroclinic, and ageostrophic horizontal shear instabilities; salt fingering. Energy budgets and instability criteria are developed for each type. Unstable solutions are found using both analytic and numerical methods.

OCGY 8023 Dynamics of El Niño and The Southern Oscillation/3 credits. Coupled ocean-atmosphere models of El Niño and the Southern Oscillation are covered from the first papers in the field in 1983 up to current research. The various coupled systems are arranged in a hierarchy of increasing dynamical sophistication. At the base of the hierarchy are conceptual and simple models that illustrate basic processes of interactions: time-delay oscillations, two equilibrium states, and coupled instabilities. Intermediate systems and coupled general circulation models are also discussed.

OCGY 8050 Microbial Ecology/6 credits

OCGY 9000 Ph.D. Continuation Credits/1 credit. Ph.D. defense completion of dissertation.

4.6. OTHER INFORMATION

4.6.1. Office Space and Keys

Limited office/study areas may be available to graduate students upon request to program administrators. Students granted office space are considered “in residence” and must be registered for a minimum of 3 credits (D.I.S. course, thesis or Capstone Review credits) at all times. There are no exceptions to this rule. Keys to offices, laboratories, and other areas may be granted on an as-needed basis. A deposit is required for any keys. Under no circumstances will any student be allowed keys to administrative offices. Holding unauthorized keys to such areas may be grounds for immediate dismissal.

4.6.2. Copying

Students may use the copiers located in the library. Charges are posted. A copier account number must be obtained from the librarian to operate one machine (the other is coin operated). Students will be billed periodically for copy charges and must pay costs by check. NSU makes no profit on copy charges.

4.6.3. Supplemental Text Material

Text material for some classes may consist of photocopies of literature or reports. This material may be made available for purchase at a nominal charge. The material will also be available in the library under closed reserve (i.e., obtained from the librarian during regular office hours).

4.6.4. Computer Usage

IBM-compatible microcomputers are available for student use. They are loaded with Windows 97, Microsoft Office, the Internet, and statistical software. An IBM-PC compatible, with image analysis software, is available to M.S. students.
5. Grading

5.1. GRADING SYSTEM

The following system is used to grade academic performance:

**A** Excellent
**B** Satisfactory
**C** Marginal Pass
**D** Poor
**F** Failure

**W** Withdrawal: Given after the third class week or termination by the instructor for noncompletion of the course by the student.

**I** Incomplete: Given when most (80 percent), but not all, work has been completed.

A grade of incomplete must be requested from the instructor, have the director's approval, and be accompanied by a completed contract specifying outstanding course requirements and completion dates. Completion must occur within two terms (or six months) of the end of the course.

Securing the completed and signed "incomplete" contract forms is the responsibility of the student. Blank forms are available from the program secretary. There is a charge of $10 for processing a grade change. If course requirements are not completed prior to the contracted date, the grade of I becomes IW (Incomplete Withdrawal). Students must then retake the course (full tuition) in order to receive credit. There will be no exceptions to this rule.

**IW** Incomplete Withdrawal
**Au** Audit
**P** Pass
**NG** No Grade (not yet assigned by instructor)

Students are permitted to retake, at their expense, courses for which a grade of C or lower has been earned. Retaking of courses does not remove from the student's official transcript the entry of the earlier registration nor the grades earned; however, the highest grade earned in a course will be computed as part of the grade point average, thus enabling the student to improve his/her academic standing.

Infrequently, students who are not in good standing may be continued on probation for one additional term when exceptional circumstances warrant.

5.1.1. Quality Points

<table>
<thead>
<tr>
<th>GRADE</th>
<th>QUALITY POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>A -</td>
<td>3.67</td>
</tr>
<tr>
<td>B +</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B -</td>
<td>2.67</td>
</tr>
<tr>
<td>C +</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>C -</td>
<td>1.67</td>
</tr>
<tr>
<td>D +</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>D -</td>
<td>.67</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
</tbody>
</table>

Not all courses are graded with the letter + or - system. In some courses, only whole letter grades are given.

5.1.2. Grading Policies

5.1.2.1. Audit

Master's degree candidates and special students may audit courses (noncredit) for one-half the normal tuition rate (plus fees). These students may withdraw from audited courses and receive full or partial tuition reimbursement according to the Withdrawal and Refund Policy listed in the handbook and bulletin.

Ph.D. candidates may register to audit courses at no additional charge beyond their regular tuition. They are expected to attend classes and participate in the courses as regular students. If this is not the case, the students will be administratively dropped from the class roster. Audit students may take course exams and complete term papers at their option.

5.1.2.2. Attendance

As a requirement for accreditation, regular and punctual class attendance is necessary.

Each professor has the responsibility to enforce class attendance. To fulfill this requirement students must be present for 80 percent of the regularly scheduled sessions and field trips or they will automatically be withdrawn from the course by the instructor through the Registrar's Office.

There are no excused absences for purposes of this rule.

5.1.3. Examinations

Final written examinations are required in graduate courses, except in seminars and other tutorial courses where research papers or other requirements may be invoked. Usually the final examination or total accumulated points determine the grade for a course. However, the instructor may indicate otherwise.
A student failing to take the final examination in any course must notify the director’s office as soon as circumstances permit, preferably prior to the final. If the director is satisfied that the absence was justified, permission may be given to take a makeup examination within six months or the next time the course is regularly offered.

5.1.4. Student Grade Transmittal

No grades will be released to students without full payment of tuition and fees (or firm arrangements for their payment). Grade reports are mailed to the student’s permanent address and are not given over the telephone or verbally by the program office. Grades are not divulged by telephone.

5.1.5. Grade Appeal/Grievance Procedure

The grade appeal or other grievance procedure for students is itemized below and should be followed in all instances, making sure that each step is completed before going on to the next step. If resolution is reached at the end of any given step, it is not necessary to continue.

Step 1: The professor should be contacted to discuss the grade disparity. The problem should be resolved at this level if at all possible.

Step 2: The student must make an appeal in writing to the professor, noting specific objection to the grade received or the problem encountered. The professor must respond in writing giving justification for the grade or action given. Copies of both communications should be forwarded to the program administrator. The program administrator may decide the matter, if that is agreeable to all parties.

Step 3: An appeal committee will review both written and oral arguments in the case. The committee will consist of at least one administrative officer of the program, at least one faculty member who teaches in the program, and others as deemed necessary by the program administrator(s).

Step 4: The student and professor will be informed of the committee’s decision and, barring any written objections to the committee by either party within 14 calendar days, the recommendations of the committee will be accepted.

Step 5: If written objections are received within fourteen days, the matter will be referred to the director of the Institute of Marine and Coastal Studies for review and resolution. This step does not apply if the director served on the appeal committee. In the latter case, the matter will be referred to the dean of the Oceanographic Center.

5.2. ACADEMIC STANDING

The academic progress of all students will be evaluated after each term, including the summer term. Students shall be deemed in good academic standing unless they have a cumulative GPA of less than 3.0. Any student who fails to maintain a 3.0 will be placed on academic probation for two terms. If probation is not removed at the end of the two terms, the student may be suspended from the program. A student may petition for reinstatement after six months, explaining the reasons why academic potential has changed and re-admission should be considered. Students who have reason to believe that there has been an error in assigning a grade may formally protest and invoke the Grade Appeal Procedure.

5.3. STUDENT PROGRESS REPORTS

A yearly progress report is intended to remind the student and administration of the preceding academic activities and approval deadlines, and to ensure proper progress. It is the student’s responsibility to complete and submit a report of his/her yearly progress to the program administrator by April 15 of each year. Failure to submit a report signals a student’s resignation from the degree program. The report will include the following information.

1. Student status (full, provisional) (capstone review paper/thesis)
2. Student’s major (M.S.: marine biology, CZM, dual; Ph.D.: oceanography)
3. Date of program entry/matriculation (month, year)
4. Date of time limit expiration (five years for M.S., seven years for Ph.D.)
5. Program of studies (indicate if the “normal” curriculum is followed for marine biology or CZM, or if there are deviations)
6. List of all courses completed with grades and dates (or working transcript)
7. Name of actual or desired advisor/major professor; list of committee members if appropriate
8. Capstone review paper or thesis title/topic; Ph.D. dissertation title
9. Date of capstone review paper/thesis or dissertation proposal approval
10. Date of last conference with major professor/program administrator
11. Date of expected completion of degree requirements
12. Comments, questions, problems, successes
6. Long-Term Academic Calendar
1999-2001

A detailed academic calendar is provided as an insert to this catalog. Please contact the program office for an update if the calendar is missing. Please see the VA Calendar (section 7.4) for a general calendar of events.

7. VA Students

7.1. STANDARDS OF PROGRESS

A VA student must attain and maintain a minimum grade-point average (GPA) of not less than a 3.0 ("B" Grade) each evaluation period (e.g., term). He/she also must meet any skill or technical requirement of his/her particular program.

Each VA student is expected to complete the program within the number of training hours approved by the State Approving Agency for Veterans Training. If at any point in time it is determined that a VA student cannot successfully complete the program within the approved number of hours, the student's VA educational benefits will be terminated for unsatisfactory progress.

A VA student who, at the end of any evaluation period, has not attained and maintained satisfactory progress (3.0 GPA or better) will be placed on academic probation for the next evaluation period. Should the student not attain and maintain satisfactory progress (3.0 GPA or better) by the end of the probationary period (one evaluation period), the student's VA educational benefits will be terminated for unsatisfactory progress.

A student whose VA educational benefits have been terminated for unsatisfactory progress may petition the school to be recertified after one evaluation period has elapsed. The school may recertify the student for VA educational benefits only if there is a reasonable likelihood that the student will be able to attain and maintain satisfactory progress for the remainder of the program.

7.2. STUDENT CONDUCT

All students are expected to comply with the legal and ethical standards of the institution. Academic dishonesty and/or nonacademic misconduct will result in disciplinary action. Specific instances of misconduct include, but are not limited to, cheating, plagiarism, knowingly furnishing false information to the institution, and forging or altering institution documents and/or academic credentials.

The institution reserves the right to require a student to withdraw at any time for misconduct as described above. It also reserves the right to impose probation or suspension on a student whose conduct is determined to be unsatisfactory.

Students who feel their rights have been denied are entitled to due process.

7.3. GRADE/PROGRESS REPORTS

Each VA student will be provided a grade/progress report at the end of every evaluation period (e.g., term, semester, quarter). A copy of each report will be placed in the student's permanent file maintained by the school. The Institute of Marine and Coastal Studies maintains up-to-date progress records on each student. The university periodically furnishes each student with a working transcript that shows current status of grades and earned semester hours for all courses completed and/or attempted, plus grades for courses in which the student is currently enrolled.
7.4. VA CALENDAR

FALL 1999
Registration
Late registration
Rosh Hashanah
Yom Kippur
Withdrawals and refunds
Before the second class meeting 75%
Before the third class meeting 60%
Before the fourth class meeting 50%
Thereafter 0%
Thanksgiving
Classes end

September 13-September 27
After September 27
September 11 (University closed)
September 20 (University closed)

WINTER 1999-2000
Registration
Late registration
Classes begin
Martin Luther King Day
Change of registration
Withdrawals and refunds
Before the second class meeting 75%
Before the third class meeting 60%
Before the fourth class meeting 50%
Thereafter 0%
Classes end

November 25-26 (University closed)
December 17

December 13-January 3
After January 3 (or first class meeting)
January 3
January 17 (University closed)
Anytime before finals

March 24
**SPRING 2000**
Registration
Late registration
Classes begin
Change of registration
Withdrawals and refunds
  Before second class meeting 75%
  Before third class meeting 60%
  Before fourth class meeting 50%
  Thereafter 0%
Good Friday
Memorial Day
Classes end

**SUMMER 2000**
Registration
Independence Day
Late registration
Classes begin
Change of registration
Withdrawals and refunds
  Before second class meeting 75%
  Before third class meeting 60%
  Before fourth class meeting 50%
  Thereafter 0%
Labor Day
Classes end

**FALL 2000**
Registration
Rosh Hashanah
Late registration
Classes begin
Yom Kippur
Thanksgiving
Change of registration
Withdrawals and refunds
  Before the second class meeting 75%
  Before the third class meeting 60%
  Before the fourth class meeting 50%
  Thereafter 0%
Classes end

March 20-April 7
April 3 (or 1st class meeting)
April 3
Anytime before finals

April 21 (University closed)
May 29 (University closed)
June 30

June 26-July 10
July 4 (University closed)
July 10 (or first class meeting)
July 10
Anytime before finals

September 4 (University closed)
September 22

September 18-October 2
September 30 (University closed)
October 2 (or first class meeting)
October 2
October 9 (University closed)
November 23-24 (University closed)
Anytime before finals

December 22
WINTER 2000-2001

Registration
Christmas
New Years Day
Late registration
Classes begin
Martin Luther King Day
Change of registration
   Withdrawals and refunds
   Before second class meeting 75%
   Before third class meeting 60%
   Before the fourth class meeting 50%
   Thereafter 0%
Classes end

SPRING 2001

Registration
Late registration
Good Friday
Classes begin
Change of registration
   Withdrawals and Refunds
   Before second class meeting 75%
   Before third class meeting 60%
   Before the fourth class meeting 50%
   Thereafter 0%
Memorial Day
Classes end

SUMMER 2001

Registration
Late registration
Classes begin
Independence Day
Change of registration
   Withdrawals and Refunds
   Before second class meeting 75%
   Before third class meeting 60%
   Before the fourth class meeting 50%
   Thereafter 0%
Labor Day
Classes end

FALL 2001

Registration
Rosh Hashanah
Late registration
Classes begin
Yom Kippur
Change of registration
   Withdrawals and Refunds
   Before second class meeting 75%
   Before third class meeting 60%
   Before the fourth class meeting 50%
   Thereafter 0%
Thanksgiving
Classes end
8. Policies Governing Student Relations

8.1. GENERAL

Nova Southeastern University has established specific policies, procedures, and guidelines defining its relationship with its students. The term "students" as used in this catalog defines the student, or parents of the student if the student qualifies as a dependent under the provisions of the Internal Revenue Code.

8.1.1. Institutional and Academic Information

Nova Southeastern University and its composite academic units periodically publish bulletins or catalogs describing university programs. These bulletins are available to enrolled and prospective students through the various admissions offices associated with the academic units, or from the Office of the University Registrar. Each academic unit, group of units, and/or the Office of the University Registrar maintains at least one full-time employee to assist all students in obtaining information.

8.1.2. Nondiscrimination

Nova Southeastern University fully subscribes to and practices a policy of nondiscrimination in admissions and enrollment. No applicant or enrolled student shall be discriminated against because of race, color, sex, age, nondisqualifying disability, religion or creed, or national or ethnic origin. The university registrar is designated as the policy coordinator to assure compliance with all federal, state, and local laws and regulations relative to nondiscrimination.

8.1.3 Americans With Disabilities Act

Nova Southeastern University adheres to the Americans With Disabilities Act. Any student requiring special assistance in any classes or laboratories must provide medical documentation regarding such needs as soon as possible. All documentation and special needs requests must be in the program office at least two weeks before classes begin in any given quarter.

Students requesting specialized accommodations due to a documented disability must submit a copy of their registration at least 10 days prior to the start of the term. Please be advised that failure to provide a course schedule in a timely manner may result in the delay of receiving specialized services.

Students requesting services that require contacting other individuals or agencies (e.g. notetakers, interpreters, readers) must provide their class schedule at least two weeks before classes begin. Students receiving these services are required to notify the program office if they will not be attending a class at least two hours before the class begins. Students who do not provide prior notification of two or more absences for a semester will have these services terminated. Students requesting reinstatement of these services will then have to submit a written request to the program office. This request will be reviewed by the disability coordinator and a decision rendered. Students may appeal this decision by written petition to the Student Review Committee.

The types of accommodations provided to students with disabilities will vary depending on the nature of the disability and the course content. It is not unusual for there to be an initial trial and error period of finding the best way to evaluate a student's ability to demonstrate mastery of course material. This department is committed to assisting students and faculty in reasonable alternative accommodations that are effective. The overall goal is to promote student independence and success within the context of a competitive academic environment. The student is asked to be a responsible and active participant in this process.

8.2. STUDENT RIGHTS AND RESPONSIBILITIES

8.2.1. The Code of Student Conduct and Academic Responsibility

Purpose: This code seeks to promote high standards of academic integrity by setting forth the responsibilities of students as members of the university community. Abiding by the code ensures a climate wherein all members of the university community can exercise their rights of membership.

8.2.2. Nova Southeastern University Statement of Academic Rights and Responsibilities

Nova Southeastern University, as a community of women and men, is committed to furthering scholarship, academic pursuits, and service to our society. As an institution, our purpose is to assure all students an equal opportunity to fulfill their intellectual potential through pursuit of the highest standards of academic excellence. Certain rights and obligations flow from membership in any academic community committed to such goals:
• The rights of personal and intellectual freedom, which are fundamental to the idea of a university. While students will be guided by faculty in their educational experiences, they are free to examine all pertinent data, to question assumptions, to be guided by the evidence of scholarly research, and to formulate their own opinions.
• A scrupulous respect for the equal rights and dignity of others; and dedication to the scholarly and educational purposes of the university and participation in promoting and assuring the academic quality and credibility of the institution. Students are responsible for obtaining, learning, and observing the established university and Center policies as listed in all official publications. In addition, students must comply with the legal and ethical standards of the institution as well as those of Broward County and the state of Florida. All members of the community should inform the appropriate official of any violation of conduct regulations.

8.2.2.1. Academic Standards

The university expects its students to manifest a commitment to academic integrity through rigid observance of standards for academic honesty. The academic honesty standards include the following criteria:

Original work. Assignments such as course preparations, exams, texts, projects, term papers, practicums, etc., must be the original work of the student. Original work may include the thoughts and words of another author, but if that is the case, those ideas or words must be indicated in a manner consistent with a university-recognized form and style manual.

Work is not original that has been submitted previously by the author or by anyone else for academic credit. Work is not original that has been copied or partially copied from any other source, including another student, unless such copying is acknowledged by the person submitting the work for the credit at the time the work is being submitted or unless copying, sharing, or joint authorship is an express part of the assignment. Exams and tests are original work when no unauthorized aid is given, received, or used prior to or during the course of the examination.

Referencing the works of another author. All academic work submitted for credit or as partial fulfillment of course requirements must adhere to each center’s specific accepted reference manuals and rules of documentation. Standards of scholarship require that proper acknowledgment be given by the writer when the thoughts and words of another author are used. Students must acquire a style manual approved by their center and become familiar with accepted scholarly and editorial practice in their program. Students’ work must adhere to the adopted citation manual for their particular center.

At Nova Southeastern University, it is plagiarism to represent another person’s work, words, or ideas as one’s own without use of a center-recognized method of citation. Deviating from center standards A (1) or A (2) is considered plagiarism at Nova Southeastern University.

Tendering of information. All academic work must be the original work of the student. Giving or allowing one’s work to be copied, giving out exam questions or answers, or releasing or selling term papers is prohibited.

Acts prohibited. Students should avoid any impropriety, or the appearance thereof, in taking examinations or completing work in pursuance of their educational goals. Violations of academic responsibility include, but are not limited to:

- plagiarism
- any form of cheating
- conspiracy to commit academic dishonesty
- misrepresentation
- bribery in an attempt to gain an academic advantage
- forging or altering documents or credentials
- knowingly furnishing false information to the institution.

Additional matters of ethical concern. Where circumstances are such as to place students in positions of power over university personnel, inside or outside the institution, students should avoid any reasonable suspicion that they have used that power for personal benefit or in a capricious manner.

8.2.2.2. Conduct Standards

Interference with the rights, safety, or health of members of the university community or other students’ right to learn. Students are expected to abide by all university, center, and program rules and regulations and all local, state, and federal laws. Violations of conduct standards include, but are not limited to:

- theft
- vandalism
- disruptive behavior
- possession or use of firearms, fireworks, explosives, or other dangerous substances or items
- possession, transfer, sale, or use of illicit drugs
- appearance in class or on campus under the apparent influence of alcohol or illicit drugs or chemicals

43
- violations of housing regulations
- any act or conspiracy to commit an act which is harassing or abusive or which invades an individual's right to privacy, including, but not limited to, sexual harassment and abuse against members of a particular racial, ethnic, religious, or cultural group
- threats of, or actual damage to, property or physical harm to others
- any activity that may be construed as hazing: "hazing" is defined as any action or situation that recklessly or intentionally endangers the mental or physical health or safety of a student for the purpose of initiation or admission into or affiliation with any organization operating under the sanction of a university
- failure to pay tuition and fees in a timely manner.

Student authorization. Students must have authorization from the university to have access to university documents, data, programs, and other types of information and information systems. Any use of the above without authorization is prohibited.

8.2.2.3. Supplementary Standards

Students are expected to comply with the legal and ethical standards of this institution and those of their chosen field of study, including the code of ethics for computer usage. The university and each center or program may prescribe additional standards for student conduct as would comply with the letter and spirit of this code.

8.2.2.4. Violations

Any violation(s) of any of the academic standards, conduct standards, or supplemental standards may result in the filing of a complaint against a student to enforce the Code of Student Conduct and Academic Responsibility. Deans or directors may, in their discretion, immediately suspend students pending a hearing on charges of academic conduct or supplemental standard violations. Any student found guilty of a violation of the academic, conduct, or supplemental standards will be subject to disciplinary action, including expulsion from the university.

8.2.2.5. Student Code of Computer Ethics

Nova Southeastern University provides computer systems with access to hardware, software, and networks to enhance academic experience. The university's computer systems are vital to its programs of instruction, research, and administration. Nova Southeastern University's computer systems refer to all computers owned or operated by the university and include hardware, software, data, and communication networks associated with these systems. In particular, computer systems refer to systems ranging from multiuser time-sharing systems to single-user terminals and personal computers, whether freestanding or connected to a network.

Ethical conduct by students in the use of this technology is the same as in all other areas of university life, and it is of equal importance. All students are expected to abide by the Nova Southeastern University Code of Student Conduct and Academic Responsibility. Students, as part of their academic preparation toward specific professional career goals, must be aware of and abide by the professional code of ethics associated with their chosen profession. Therefore, student technology users must apply standards of normal academic and professional ethics and considerate conduct to their use of the university's computing systems and resources, including respect of other users' rights to privacy.

Student users must be aware of the legal and moral responsibility for ethical conduct in the use of technology. Student users of Nova Southeastern University's computer systems are subject to all applicable federal, state, and international computer laws. A copy of the Florida Computer Crimes Act and referenced Florida statutes may be examined online or in a student's academic program office.

In addition, a student accessing any of Nova Southeastern University's computer systems, whether a multiuser time-sharing system or a single-user terminal or personal computer, must:

- have proper authorization for use or attempted use of accounts within the Nova Southeastern University computer systems
- limit the use of Nova Southeastern University computer systems to academic activities as defined by the student's academic program office
- refrain from attempting to tamper with or obstruct the operation of Nova Southeastern University's computer systems
- be aware that accessing or using another person's computer account without that person's permission is illegal and unethical
- refrain from any attempt to use Nova Southeastern University's computer systems as a means for the unauthorized access to computer systems outside the university's systems
- be aware that the use of invasive software, such as worms and viruses destructive to hardware, software, or data files, is illegal and unethical
• be aware that using Nova Southeastern University's computer systems to act or behave in a rude, obscene, or harassing manner will be dealt with by appropriate university policy, procedures, and agents
• use only legally obtained or licensed data or software in accordance with its license or purchase agreement
• be in compliance with federal copyright laws and the Nova Southeastern University copyright code

As with all matters of law and ethics, ignorance of the rules does not excuse violations. Inappropriate conduct and violations will be dealt with under the guidelines of the Nova Southeastern University Code of Student Conduct and Academic Responsibility as defined and determined by the office of the academic vice president and the office of the dean of a student's academic program.

8.2.2.6. Drug-Free Schools and Campuses

In order to comply with the Drug-Free Schools and Communities Act (Pub. L. No. 101-226, Title 34 C.F.R., part 86), Nova Southeastern University has adopted the following policy for all workplace, school, campus, and field-based programs.

The unlawful manufacture, distribution, dispensation, possession, or use of illicit drugs* and the abuse of alcohol are prohibited in and on Nova Southeastern University-owned or controlled property and as a part of any of its activities. No Nova Southeastern University employee or student is to report to work or school while under the influence of illicit drugs or alcohol.

There are serious health risks associated with the abuse of drugs and alcohol (see following “Controlled Substances—Uses and Effects”). If a student, teacher, or coworker has a problem with abuse of drugs and/or alcohol, help can be provided at the following locations:

On Campus
Nova Southeastern University
Wellness Center
(954) 262-7040

Nova Southeastern University
Community Mental Health
Davie (954) 262-5730
Lauderdale Lakes (954) 486-3663
Coral Springs (954) 753-7020

*The term “illicit drugs” refers to all illegal drugs and to legal drugs obtained or used without a physician's order. It does not prohibit the use of prescribed medication under the direction of a physician.

Community
Florida Department of Education
Educational Prevention Center
Knott Building
Tallahassee, Florida 32399
(850) 488-6304

Department of Health and Rehabilitative Services
Alcohol and Drug Abuse Program
1317 Winwood Boulevard
Tallahassee, Florida 32399
(850) 487-2920

When a student uses or deals in drugs, he or she also risks incarceration and/or fines. The attached federal sentencing guidelines indicate federal penalties for trafficking in drugs.

In addition to the federal sanctions, Florida statutes provide sanctions in regard to the use, possession, and/or sale of illicit drugs and the abuse of alcohol. Punishment varies dependent upon the amount and type of drugs and/or alcohol involved. Felony convictions range from one year to life imprisonment. Possession of not less than 20 grams of cannabis is punishable as a misdemeanor of the first degree. Punishment for misdemeanors ranges from less than 60 days to one-year imprisonment.

Under §893.13, Florida Statutes, it is unlawful for any person to sell, purchase, manufacture, deliver, or possess with intent to sell, purchase, manufacture, or deliver a controlled substance. Violation of this statute is a felony and is punishable under Chapter 775 of the Florida Statutes.

Under §893.13 (1) (e), Florida Statutes, it is unlawful for any person to sell, purchase, manufacture, deliver, or to possess with the intent to sell, purchase, manufacture, or deliver a controlled substance in, on, or within 1,000 feet of a public or private elementary, middle, or secondary school. Punishment for a violation of this statute may include a minimum three-year imprisonment.

Under §316.1936, Florida Statutes, it is unlawful for any person to possess an open container of alcoholic beverage while operating a vehicle in the state or while a passenger in or on a vehicle being operated in the state. Violation of this law will result in a noncriminal moving traffic violation, punishable as provided in Chapter 318 of the Florida Statutes, with fines and points on a driving record leading to driver’s license suspension.

Under §316.193, Florida Statutes, a person is guilty of driving under the influence if such a person is driving or in actual physical control of a vehicle within the state and the person is under the influence of alcoholic beverages or any controlled substance when affected to the extent that his
or her normal faculties are impaired or the person has a
blood alcohol level of .08 percent or higher. First conviction
on such a DUI charge shall result in a fine not less than
$250 or more than $500 and imprisonment for not more
than six months. A second conviction results in a fine of
not less than $500 or more than $1,000 and not more than
nine months’ imprisonment.

A third conviction will result in not less than a $1,000
fine or more than a $2,500 fine and imprisonment for not
more than 12 months.

By applying for a driver’s license and accepting and
using a driver’s license, a person holding the driver’s license
is deemed to have expressed his or her consent to submit to
breath, blood, and urine tests for alcohol, chemical
substances, or controlled substances.

Nova Southeastern University requires that an
employee notify the employer of any criminal drug statute
conviction for a violation occurring in the work place no
later than five days after such conviction. In order to
comply with federal law, Nova Southeastern University
must notify any federal contracting agency within 10 days
of having received notice that an employee engaged in the
performance of a federal contract or grant has had a
criminal drug statute conviction for a violation occurring
in the work place. Any criminal drug convictions in the
work place must be reported by the employee to his or her
university supervisor or department head within five days
of the date of such conviction. The university will discipline
any employee who is so convicted or require the employee’s
satisfactory participation in a drug/alcohol abuse assistance
or rehabilitation program within 30 days of notice of such
conviction.

Any Nova Southeastern University employee or student
determined to have violated this policy shall be subject to
referral for prosecution by the appropriate authorities.
Other sanctions include evaluation/treatment for drug use
disorder, which may include mandatory completion of
a drug/alcohol abuse rehabilitation program, expulsion,
and/or termination.

All Nova Southeastern University faculty and staff
members will, as a condition of their employment, abide by
the terms of this policy. All Nova Southeastern University
students will, as a condition of their enrollment, abide by
the terms of this policy.

8.2.2.7. Smoking and Nonsmoking

Smoking is prohibited in any Nova Southeastern
University facility where, regardless of physical separation,
nonsmokers share a ventilation system with smokers. This
policy does not apply to living quarters (dormitories),
which are subject to a separate smoking policy. Nor does
this policy in any way supersede the Florida Clean Indoor
Air Act.
### Controlled Substances - Uses & Effects

| DRUGS
| CSA SCHEDULES | TRADE OR OTHER NAMES | MEDICAL USES | DEPENDENCE | TOLERANCE | DURATION (HOURS) | USUAL METHODS OF ADMINISTRATION | POSSIBLE EFFECTS | EFFECTS OF OVERDOSE | WITHDRAWAL SYNDROME |
|----------------|---------------------|---------------------|--------------|------------|-------------|-----------------|-------------------------------|-------------------|-------------------|---------------------|
| **NARCOTICS**  |                      |                     |              |            |             |                 |                               |                   |                   |                     |
| Opium         | III IV               | Dover's Powder, Paregoric Paracetophin | Analgesic, antidiarrheal | High       | High        | Yes             | Oral, smoked | Euphoria, drowsiness, respiratory depression, convulsions, coma, possible death | Slow and shallow breathing, clammy skin, dilated pupils, nausea, wink and rapid pulse, coma, possible death | Water eyes, running nose, yawning, loss of appetite, irritability, tremors, panic, cramps, nausea, chill and sweating |
| Morphine      | III                  | Morphine, MS-Contin, Roxanol, Roxanol SR | Analgesic, antitussive | High       | High        | Yes             | Oral, smoked, injected |                   |                   |                     |
| Codeine       | III V                | Tylenol w/Codeine, Robitussin AC, Empirin, w/Codein, Fornal w/Codein | Analgesic, antitussive | Moderate   | Moderate     | Yes             | Oral, injected |                   |                   |                     |
| Hydromorphone | II                   | Dilaudid            | Analgesic     | High       | High        | Yes             | Injected, sniffs, smoked |                   |                   |                     |
| Meperidine (Pethidine) | II                | Demerol, Mepergan | Analgesic     | High       | High        | Yes             | Oral, injected |                   |                   |                     |
| Methadone     | II                   | Dolophine, Methadone, Methadose | Analgesic     | High       | High-Low    | Yes             | Oral, injected |                   |                   |                     |
| Other Narcotics | III III               | Numorphan, Percodan, Percocet, Tylox, IV Tussionex, Fentanyl, Darvon, Lometol, Talwin | Analgesic, antidiarrheal, antitussive | High-Low   | High-Low    | Yes             | Oral, injected |                   |                   |                     |
| **DEPRESSANTS** |                      |                     |              |            |             |                 |                               |                   |                   |                     |
| Chloral Hydrate | IV                  | Noctec              | Hypnotic      | Moderate   | Moderate     | Yes             | Oral            | Slurred speech, disorientation, drunken behavior without odor of alcohol | Shallow respiration, clammy skin, dilated pupils, weak and rapid pulse, coma, possible death | Anxiety, insomnia, tremors, delirium, convulsions, possible death |
| Benzodiazepines | IV                  | Ativan, Dalmane, Librium, Restoril, Diazepam, Xanax, Serax, Valium, Tranxene, Versed, Verstran, Halcion, Paxipam | Antianxiety, anticonvulsant, sedative, hypnotic | Low        | Low         | Yes             | Oral            |                   |                   |                     |
| Methaqualone  | I                    | Quaalude            | Sedative, hypnotic | High       | High        | Yes             | Oral            |                   |                   |                     |
| Glutethimide  | III                  | Doriden             | Sedative, hypnotic | High       | High        | Yes             | Oral            |                   |                   |                     |
| Other Depressants | III IV               | Equanil, Miltown, Noludar, Placidyl, Valmid | Antianxiety, sedative, hypnotic | Moderate   | Moderate     | Yes             | Oral            |                   |                   |                     |
| **STIMULANTS** |                      |                     |              |            |             |                 |                               |                   |                   |                     |
| Cocaine       | II                   | Coke, Flare, Snow, Crack | Local anesthetic | Possible   | High        | Yes             | 1-2             | Sniffs, smoked, injected | Increased alertness, excitation, euphoria, increased pulse rate & blood pressure, hallucinations, convulsions, possible death | Apathy, long periods of sleep, irritability, depression, disorientation |
| Amphetamines  | II                   | Biphetamine, Delcoba, Desoxyn, Dexedrine, Obetrol | Attention deficit disorders, narcolepsy, weight control | Possible   | High        | Yes             | Oral, injected |                   |                   |                     |
| Phenmetrazine | II                   | Preludin            | Weight control | Possible   | High        | Yes             | Oral, injected |                   |                   |                     |
| Methamphetamine | II                  | Ritalin             | Attention deficit disorders, narcolepsy | Possible   | Moderate     | Yes             | Oral, injected |                   |                   |                     |
| Other Stimulants | III IV               | Adipex, Cyberl, Didrex, Ionamin, Meflat, Plegine, Sanorex, Teutane, Tepali, Prelu-2 | Weight control | Possible   | High        | Yes             | Oral, injected |                   |                   |                     |
| **HALLUCINOGENS** |                     |                     |              |            |             |                 |                               |                   |                   |                     |
| LSD           | I                    | Acid, Microdot     | None         | None       | Unknown     | Yes             | 8-12            | Oral            | Illusions and hallucinations, poor perception of time and distance | Longer, more intense "trip" episodes, psychosis, possible death | Withdrawal symptoms not reported |
| Mescaline and Peyote | I                  | Mesec, Buttons, Cactus | None         | None       | Unknown     | Yes             | 8-12            | Oral            |                   |                     |
| Amphetamine Variants | II                | 2,5-DMA, PMA, STR, MDA, MDMA, TMA, DOM, DDOB | None         | Unknown   | Unknown     | Yes             | Variable        | Oral, injected |                   |                     |
| Phencyclidine | II                   | PCP, Angel Dust, Hog | Unknown        | High       | High        | Yes             | Days            | Smoked, oral, injected |                   |                     |
| Phencyclidine Analogs | II                 | PCE, PCPy, TCP | Unknown        | High       | High        | Yes             | Days            | Smoked, oral, injected |                   |                     |
| Other Hallucinogens | I                   | Bufotenine, Ibogaine, DMT, DET, Psilocybin, Psilocyn | None         | Unknown   | Unknown     | Yes             | Variable        | Smoked, oral, injected, sniffs |                   |                     |
| **CANNABIS**  |                      |                     |              |            |             |                 |                               |                   |                   |                     |
| Marijuana     | I                    | Pot, Acapulco Gold, Grass, Reefer, Sinsemilla, Thai Sticks | None         | Unknown   | Moderate    | Yes             | 2-4             | Smoked, oral | Euphoria, relaxed inhibitions, increased appetite, disoriented behavior | Fatigue, paraesthesia, possible psychosis | Insomnia, hyperactivity and decreased appetite occasionally reported |
| Tetrahydrocannabinol | I II                | THC, Marinol      | Cancer chemotherapy antinauseant | Unknown   | Moderate    | Yes             | 2-4             | Smoked, oral |                   |                     |
| Hashish      | I                    | Hash                | None         | Unknown   | Moderate    | Yes             | 2-4             | Smoked, oral |                   |                     |
| Hashish Oil  | I                    | Hash Oil           | None         | Unknown   | Moderate    | Yes             | 2-4             | Smoked, oral |                   |                     |

1 Designated a narcotic under the CSA  
2 Not designated a narcotic under the CSA
### Federal Trafficking Penalties

<table>
<thead>
<tr>
<th>PENALTY</th>
<th>QUANTITY</th>
<th>DRUG</th>
<th>QUANTITY</th>
<th>PENALTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSA</td>
<td>1st Offense</td>
<td>2nd Offense</td>
<td>1st Offense</td>
<td>2nd Offense</td>
</tr>
<tr>
<td>2nd Offense</td>
<td>1st Offense</td>
<td>2nd Offense</td>
<td>1st Offense</td>
<td>2nd Offense</td>
</tr>
</tbody>
</table>

| I       | If death or serious injury, not less than life. and Fine of not more than $4 million individual, $10 million other than individual. | 10-99 gm or 100-999 gm mixture | METHAMPHETAMINE | Not less than 10 years. Not more than life. |
| I       | If death or serious injury, not less than life. and Fine of not more than $4 million individual, $10 million other than individual. | 100-999 gm mixture | HEROIN | Not less than 10 years. Not more than life. |
| I       | If death or serious injury, not less than life. and Fine of not more than $4 million individual, $10 million other than individual. | 500-4,999 gm mixture | COCAINE | Not less than 10 years. Not more than life. |
| I       | If death or serious injury, not less than life. and Fine of not more than $4 million individual, $10 million other than individual. | 5-49 gm mixture | COCAINE BASE | Not less than 10 years. Not more than life. |
| I       | If death or serious injury, not less than life. and Fine of not more than $4 million individual, $10 million other than individual. | 10-99 gm or 100-999 gm mixture | PCP | Not less than 10 years. Not more than life. |
| I       | If death or serious injury, not less than life. and Fine of not more than $4 million individual, $10 million other than individual. | 1-10 gm mixture | LSD | Not less than 10 years. Not more than life. |
| I       | If death or serious injury, not less than life. and Fine of not more than $4 million individual, $10 million other than individual. | 40-399 gm mixture | FENTANYL | Not less than 10 years. Not more than life. |
| I       | If death or serious injury, not less than life. and Fine of not more than $4 million individual, $10 million other than individual. | 10-99 gm mixture | FENTANYL ANALOGUE | Not less than 10 years. Not more than life. |

| II      | Fine of not more than $200,000 individual, $5 million other than individual. | 10-99 gm or 100-999 gm mixture | METHAMPHETAMINE | Not less than 10 years. Not more than life. |
| II      | Fine of not more than $200,000 individual, $5 million other than individual. | 100-999 gm mixture | HEROIN | Not less than 10 years. Not more than life. |
| II      | Fine of not more than $200,000 individual, $5 million other than individual. | 500-4,999 gm mixture | COCAINE | Not less than 10 years. Not more than life. |
| II      | Fine of not more than $200,000 individual, $5 million other than individual. | 5-49 gm mixture | COCAINE BASE | Not less than 10 years. Not more than life. |
| II      | Fine of not more than $200,000 individual, $5 million other than individual. | 10-99 gm or 100-999 gm mixture | PCP | Not less than 10 years. Not more than life. |
| II      | Fine of not more than $200,000 individual, $5 million other than individual. | 1-10 gm mixture | LSD | Not less than 10 years. Not more than life. |
| II      | Fine of not more than $200,000 individual, $5 million other than individual. | 40-399 gm mixture | FENTANYL | Not less than 10 years. Not more than life. |
| II      | Fine of not more than $200,000 individual, $5 million other than individual. | 10-99 gm mixture | FENTANYL ANALOGUE | Not less than 10 years. Not more than life. |

| III     | Any | Fine of not more than $250,000 individual, $5 million other than individual. | Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine $1 million individual, $5 million other than individual. | Not more than 10 years. If death or serious injury, life. Fine $2 million individual, $10 million other individual. |
| III     | Any | Not more than 5 years. | Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine $1 million individual, $5 million other than individual. | Not more than 10 years. If death or serious injury, life. Fine $2 million individual, $10 million other individual. |
| IV      | Any | Not more than 3 years. | Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine $1 million individual, $5 million other than individual. | Not more than 10 years. If death or serious injury, life. Fine $2 million individual, $10 million other individual. |
| V       | Any | Not more than 1 year. | Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine $1 million individual, $5 million other than individual. | Not more than 2 years. If death or serious injury, not less than 2 years. Fine $10 million individual, $20 million other than individual. |

---

###Federal Trafficking Penalties – Marijuana

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
<th>FIRST OFFENSE</th>
<th>SECOND OFFENSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 kg or more; or 1,000 or more plants</td>
<td>Marijuana</td>
<td>Not less than 10 years, not more than life. If death or serious injury, not less than 20 years, not more than life. Fine less than 4 million individual, $10 million other than individual.</td>
<td>Not less than 10 years, not more than life. If death or serious injury, not less than 20 years, not more than life. Fine less than 4 million individual, $10 million other than individual.</td>
<td></td>
</tr>
<tr>
<td>100 kg to 1,000 kg; or 100-999 plants</td>
<td>Marijuana</td>
<td>Not less than 5 years, not more than 40 years. If death or serious injury, not less than 20 years, not more than life. Fine not more than 2 million individual, $5 million other than individual.</td>
<td>Not less than 10 years, not more than life. If death or serious injury, not less than 20 years, not more than life. Fine not more than 4 million individual, $10 million other than individual.</td>
<td></td>
</tr>
<tr>
<td>50 to 100 kg</td>
<td>Marijuana</td>
<td>Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine not more than $2 million individual, $5 million other than individual.</td>
<td>Not less than 10 years, not more than life. If death or serious injury, not less than 20 years, not more than life. Fine not more than 4 million individual, $10 million other than individual.</td>
<td></td>
</tr>
<tr>
<td>10 to 100 kg</td>
<td>Hashish</td>
<td>Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine $1 million individual, $5 million other than individual.</td>
<td>Not less than 10 years, not more than life. If death or serious injury, not less than 20 years, not more than life. Fine not more than 4 million individual, $10 million other than individual.</td>
<td></td>
</tr>
<tr>
<td>1 to 100 kg</td>
<td>Hashish Oil</td>
<td>Not more than 5 years. Fine not more than $250,000, $1 million other than individual.</td>
<td>Not less than 10 years. Fine $500,000 individual, $2 million other than individual.</td>
<td></td>
</tr>
<tr>
<td>50-99 plants</td>
<td>Marijuana</td>
<td>Not more than 5 years. Fine not more than $250,000, $1 million other than individual.</td>
<td>Not less than 10 years. Fine $500,000 individual, $2 million other than individual.</td>
<td></td>
</tr>
<tr>
<td>Less than 50 kg</td>
<td>Marijuana</td>
<td>Not more than 5 years. Fine not more than $250,000, $1 million other than individual.</td>
<td>Not less than 10 years. Fine $500,000 individual, $2 million other than individual.</td>
<td></td>
</tr>
<tr>
<td>Less than 10 kg</td>
<td>Hashish</td>
<td>Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine $1 million individual, $5 million other than individual.</td>
<td>Not less than 10 years. If death or serious injury, not less than 20 years, not more than life. Fine not more than 4 million individual, $10 million other than individual.</td>
<td></td>
</tr>
<tr>
<td>Less than 1 kg</td>
<td>Hashish Oil</td>
<td>Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine $1 million individual, $5 million other than individual.</td>
<td>Not less than 10 years. If death or serious injury, not less than 20 years, not more than life. Fine not more than 4 million individual, $10 million other than individual.</td>
<td></td>
</tr>
</tbody>
</table>

1. Law as originally enacted states 100 gm. Congress requested to make technical correction to 1 kg. 2. Does not include marijuana, hashish, or hash oil.

---

**Note:** The information provided is based on the Federal Trafficking Penalties as of the time of the document's publication. The laws and penalties may have changed since then. Always consult the latest and most authoritative sources for current information.
8.2.2.8. Alcohol and Other Drugs

Nova Southeastern University, as an institution of higher education, is dedicated to the well-being of all members of the university community—students, faculty, staff, and administrators. Concerned with the misuse of alcohol and other drugs (both licit and illicit), it is the policy of the university to endeavor to prevent substance abuse through programs of education and prevention.

The university recognizes alcoholism and drug abuse as illnesses or treatable disorders, and it is the university’s policy to work with members of the university community to provide channels of education and assistance. However, it is the individual’s responsibility to seek help.

The university also recognizes that the possession and/or use of certain substances is illegal, and the university is obligated to comply with local, state, and federal laws.

While on campus or engaged in any University-related activity, members of the University community must be in a fit condition to perform appropriately. Being under the influence of alcohol and/or drugs is prohibited and may subject the individual to disciplinary action including the possibility of dismissal.

Employees will be evaluated only on their work performance. If alcohol consumption or the use of any other drug affects an employee’s performance, assistance is available. However, if an employee’s performance continues to deteriorate, the University will discipline the employee based on his or her job performance. Poor job performance will lead to discharge. Professional assistance for substance abuse is given on a confidential, professional, and voluntary basis. The purpose of this assistance is to help the individual member of the University community who has a substance abuse problem lead a productive work and/or academic life free of substance abuse.

Members of the University community who engage in any illegal activity involving alcohol or other drugs are subject to dismissal.

8.2.2.9. Substance Abuse Awareness, Education, and Prevention

Nova Southeastern University’s activities in substance abuse awareness, education, and prevention exist to encourage members of the University community to avoid the use of illicit drugs, to use alcohol and other licit drugs in a responsible manner, and to avert the need for direct intervention. The specific goals of the program are the following:

- to educate all members of the community that the use and possession of certain substances are illegal and may result in adverse consequences
- to inform members of the University community concerning the physical and psychological effects of alcohol and other drugs and to develop an awareness of potential problems that can result from the use of these substances
- to support those who choose not to drink alcohol or to use other drugs
- to teach those who choose to drink alcohol to do so responsibly
- to help those who abuse alcohol or other drugs

In order to achieve these goals, the university operates and/or engages in the following programs and activities:

**Alcohol and Drug Resource Center.** The Resource Center is directed by an existing staff member. Additional staff consists of student employees, practicum students, and/or student volunteers. The center has the primary responsibility for the university’s prevention and education programs. It coordinates the various activities and serves as a clearinghouse for alcohol and drug information. Each academic center designates a contact person who works with the center’s staff to disseminate information within their centers.

**Advisory Committee.** This is a group of administrators, faculty members, and student leaders who are appointed by the vice president for academic affairs to serve as advisors and resource persons. The committee is chaired by the director of the Alcohol and Drug Resource Center. The group meets monthly to discuss and develop program plans and activities.

**Alcohol and drug awareness activities.** Under the direction of the Resource Center, there are regular and ongoing activities designed to disseminate information about alcohol and drug use. The target audience is all students, employees, and faculty members of the university, both on and off campus. The awareness activities can include posters, media campaigns, films, exhibits, and literature. The university supports National Alcohol Awareness Week and schedules activities at that time to promote awareness on campus.
Student organizations. The student governments are encouraged to establish chapters of organizations such as BACCHUS (Boost Alcohol Consciousness Concerning the Health of University Students) and SADD (Students Against Drunk Driving).

Alcohol and drug workshops. Workshops are provided for student leaders and for employees as part of the university's staff development program. These workshops provide the opportunity for participants to discuss the information they receive. Student leaders are required to complete such workshops before they can plan parties that involve drinking.

Academic courses. Several academic centers have put identifiable units on alcohol and drugs into appropriate existing courses. Additionally, several academic centers have established elective courses in substance abuse and/or recommend students to take such courses in other centers. Assistance is available to the academic centers from the Alcohol and Drug Abuse Resource Center to ensure that the substance abuse content of courses is consistent with university policies.

Orientation. Academic centers include information on drugs and alcohol in the orientation sessions and materials for new students. The orientation provides a general introduction to the problems of substance abuse and includes a statement of the university's policy on drugs and alcohol. The information is presented in a positive manner. The Resource Center works with the academic centers to prepare the materials presented.

8.2.2.10. Communicable Diseases Policy

Guidelines

It is the intent of the university to protect students and employees from exposure to communicable diseases that pose reasonable risk of harm to members of the university community. It is also the intent of the university to protect the rights of those infected with a communicable disease pursuant to the sick leave policy of the university. Employees and students of the university who do become infected with a communicable disease are subject to the guidelines listed below.

All employees diagnosed with any communicable disease will receive the same benefits and privileges extended to any employee under the sick leave policy and shall be afforded confidentiality for all related issues.

The university will be flexible in its response to incidents of communicable disease, evaluating each occurrence in light of this policy and current available medical information.

For the purpose of this policy, the term “employee” shall include all persons employed by the university, either full time or part time, including adjuncts and off-site coordinators, but shall not include the following persons:

- members of the board of trustees
- guest lecturers
- vendors

The term “student” shall include all persons enrolled at the university, either part time or full time, from preschool through graduate studies.

The term “infected person” shall include students and employees who have been medically diagnosed as infected with a communicable disease.

In the event that any employee, administrator, or student has a concern about the potential for the spread of a communicable disease within the university community, those concerns should be brought to the assistant director of human resources for review consistent with the current available information on the spread of the particular communicable disease. After review and evaluation of the concerns, if there appears to be a reasonable likelihood of the spread of the disease within the university community by an infected person, the assistant director of human resources will, after notification of the issues presented to the University president, contact the Broward County Health Department for recommendations of appropriate action consistent with state law.

The university will make available to its employees and students information about the transmissibility of communicable diseases and precautions that can be taken to prevent the spread of various communicable diseases.

An infected person can continue to work and study so long as he or she is able to continue to perform regular responsibilities satisfactorily and so long as the best available medical evidence indicates that his or her continued status does not present a health or safety threat to self or others. Infected employees with diseases that threaten the safety of others are eligible for the same leave of absence provisions of current university policy for sick or annual leave.

An infected person returning to work or school after a leave of absence for reasons related to a communicable disease must provide a statement from his or her treating physician indicating current medical status. An employee shall submit the physician’s statement to the director of human resources or a delegated representative. Students shall submit their statement to their program dean.

Within reason, the university shall make accommodations to the infected persons, whenever possible,
to ensure continuity in employment or in the classroom. Such measures may include, subject to administrative limitations, job reassignment or class reassignment to place the infected person in a less demanding position.

No infected person (employee or student) may be dismissed from the university solely on the basis of a diagnosis of an infection of a contagious disease. A decision to dismiss or discharge will be made only after reasonable accommodation has been attempted and an examination of facts demonstrate that the infected person can no longer perform as required or poses a reasonable threat to the health and safety of those around him or her.

Disciplinary measures are available to the university when any employee fails or refuses to work at his or her assigned job with an infected person who has not been deemed to pose a health or safety threat to self or to others. Student disciplinary measures shall range from counseling to expulsion.

As with any medical condition, employees must not disclose information regarding another employee or student to anyone except those employees with a medical or administrative need to know. The university shall take every precaution to ensure that confidentiality is maintained. Breach of such confidentiality by any employee shall result in disciplinary action.

8.2.2.11. Policy on Sexual Harassment

It is the intent of Nova Southeastern University to protect all employees and students from sexual harassment. Sexual harassment is a violation of Title VII. Sexual harassment undermines the integrity of the employment and academic environment, debilitates morale, and interferes with the effectiveness of employees and students. In accordance with Equal Employment Opportunity Commission-promulgated guidelines, unwelcome sexual advances, unwanted requests for favors of a sexual nature, and any other verbal or physical conduct of a sexual nature are considered sexual harassment if:

- explicit or implicit submission to sexual overtones is made a term or condition of employment
- employment decisions are made on the basis of whether submission to or rejection of sexual overtones occurred
- a conduct occurs, interfering with a sexually intimidating, hostile, or offensive atmosphere

At Nova Southeastern University, sexual harassment of or by employees includes:

- Unwelcome or unwanted sexual advances. This includes unwelcome physical contact or sexual advances considered unacceptable by another individual.
- Requests or demands for sexual favors. This includes subtle or blatant pressures or requests for any type of sexual favor accompanied by an implied or stated promise of preferential treatment or negative consequence concerning one's employment status.
- Verbal abuse that is sex-oriented or considered unacceptable by another individual, as well as sexually derogatory comments. This includes commenting about an individual's body or appearance when such comments go beyond mere courtesy; telling jokes that are clearly unwanted and considered offensive by others; or other tasteless, sexually-oriented comments or innuendoes or actions that offend others.

Engaging in any type of sexually oriented conduct that would unreasonably interfere with another's work performance. This includes extending unwanted sexual attention to someone that reduces personal productivity or time available to work at assigned tasks.

Normal, noncoercive interaction that is acceptable to both parties is not considered to be sexual harassment.

All allegations of sexual harassment of or by an employee, client, or vendor should be reported promptly to the director of human resources and will be thoroughly investigated by the Human Resources Department.

At Nova Southeastern University, sexual harassment by employees of students is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature when:

- submission to such conduct is made to appear to be a term or condition of enrollment, attendance, or participation in a class
- submission to or rejection of such conduct affects academic decisions
- such conduct has the purpose or effect of unreasonably interfering with a student's academic performance or creating an intimidating, hostile, or offensive academic environment
- there is unwelcome patting, pinching, or touching
- there are offensive or demeaning sexual remarks, jokes, or gestures

Students aggrieved by a violation of this policy may file a grievance under their center's grievance procedure.

Any employee who violates any portion of this policy shall be subject to disciplinary action.

At Nova Southeastern University, romantic and sexual
relationships between a faculty member and a student are subject to the prohibition against sexual harassment.

Romantic or sexual relationships between a faculty member and a student then enrolled in the faculty member's class (including supervised student activities for which academic credit is given) may appear to be coercive and are discouraged. Even when no coercion is present, such relationships create an appearance of impropriety and favoritism that can impair the academic experience of all students in that class. It is, therefore, improper conduct for a faculty member to engage in a romantic or sexual relationship with a student then enrolled in the faculty member's class.

8.2.2.12. Privacy of Records

Nova Southeastern University maintains a system of records that includes application forms, letters of recommendation, admission test scores, and transcripts of students' previous academic records and performance while in residence. These records are available for review by present and former students upon written request to the registrar's office. However, the registrar will not release transcripts of students' academic records until all of their accounts, both academic and nonacademic, have been paid.

The law limits access by and disclosure to a third party. Such access is given only upon consent of the student or if required by law, except for the following information, which may be released as directory information: a) student's name; b) dates of attendance; c) degree and awards received. Requests for such information must be submitted in writing to the registrar. The university reserves the right to refuse the above information if the reason for the request is not considered to be a sufficient need to know.

Any student or parent not wishing to have this information disclosed should notify the Office of the University Registrar in writing prior to September 1 of the relevant school year.

A person does not have the right of access to educational records until he or she has been admitted to and has actually begun attending Nova Southeastern University. There is no prohibition from disclosing such information to the parents of students who are listed on their parents' federal income tax forms.

Parents or eligible students will be provided a hearing by the University if they wish to challenge the content of the record. If they are still not satisfied, the parents or eligible students may add explanatory or rebuttal matter to the record.

If the students or parents are denied access to a hearing or if the records are alleged to have been illegally disclosed to a third party, the students or parents may file a complaint with the U.S. Department of Education.

8.2.2.13. Reservation of Power

Nova Southeastern University reserves the right to amend, modify, add to, or delete its rules, policies, and procedures affecting its institutional relationship with students as deemed necessary by the administration. Any such amendment, modification, addition, or deletion shall not be considered a violation of the relationship between the university and the student. Such right includes modification to academic requirements, curriculum, tuition, and/or fees when in the judgment of the administration such changes are required in the exercise of its educational responsibility.

8.2.2.14. Grievances

The purpose of this procedure is to promote the orderly resolution of problems arising out of a student complaint concerning a policy, procedure, or administrative action of Nova Southeastern University. Students and faculty are encouraged to resolve disputes informally prior to instituting a formal grievance.

Any student who has a grievance concerning administrative action or a member of the faculty or staff shall file such a grievance in writing with the director of student affairs. The written grievance will contain a short and concise statement of all relevant facts, and the relief sought, on forms available from the Student Affairs Office.

Upon receipt of a written grievance, the director of student affairs shall request proof supporting the grievance and request a reply/response with supporting evidence from the party the complaint is against. An administrative review panel will review the grievance and evidence to determine whether the grievance presents a complaint upon which action should be taken. If the grievance is found to have no basis, to be insubstantial, or wholly a question of academic discretion, the grievance shall be dismissed without further action. The student will be advised in writing as to whether the grievance was dismissed or whether additional action will be taken.

If the administrative review panel decides that further inquiry should be made, then the director of student affairs may invoke one of the following procedures:

- informal resolution procedure: The director of student affairs may meet informally with all parties and try to resolve the issues raised.
- formal resolution procedure: If the director of student affairs is unable to resolve the issue
informally, then a grievance committee will be convened to make a final determination of the issue.

The grievance committee shall consist of three members. Two members shall be taken from a center alumni list and will be chosen by rotation sequence and availability from a resource panel of alumni who have consented to serve as impartial arbitrators. The third member will be a faculty member or center administrator of Nova Southeastern University. The third member will have no immediate knowledge of the facts in the case.

The parties will attend the grievance hearing before the panel, at which time both parties shall submit their evidence and arguments concerning the matter. All hearings shall be conducted on the main campus during normal working hours. There will be no meeting of the committee unless an active appeal has been filed in accordance with this procedure.

The grievance committee hearing shall be subject to the following procedures:

- The committee shall have no right to modify, add to, or subtract from this grievance procedure.
- A majority vote of the committee shall be determinative.
- The committee may not substitute its judgment for the qualitative academic decision of the faculty member rendering the grade or assessing the student’s work. The committee may recommend only to uphold or reverse the center’s decision. In the event the committee reverses the center’s decision, the program director shall fashion a remedy consistent with sound academic principles, which shall be final. The committee may not address sanctions, which are wholly within the program director’s discretion.
- The committee shall render its decision in writing on forms provided.
- The committee shall be obliged to render a decision within 14 calendar days following the close of the hearing.

The decision of the committee shall be final and binding. Any student filing a grievance shall be notified of the committee decision by certified mail to his or her last official address. Any suit filed to challenge a procedure or determination under these proceedings shall be filed in a court of competent jurisdiction in Broward County, Florida, and the laws of the state of Florida shall apply.

8.2.2.15. Financial Aid

Nova Southeastern University’s Office of Student Financial Aid administers comprehensive federal, state, institutional, and private financial aid programs. The purpose of these programs is to provide monetary assistance to students who can benefit from further education but who cannot do so without such assistance. Students interested in receiving a financial aid packet should contact the Office of Student Financial Aid at or 800-806-3680 or http://www.nova.edu.

8.2.2.16. International Students

International students who intend to reside in the United States and who are required to obtain an I-20 visa must be full-time, degree-seeking students and must attend the main campus in Fort Lauderdale, Florida. For further information, contact the international student adviser, Nova Southeastern University, 3301 College Avenue, Fort Lauderdale, Florida 33314, telephone (954) 262-7257.

8.2.2.17. Veterans’ Benefits

All programs described in this catalog are approved for the training of veterans and other eligible persons by the Bureau of State Approval for Veterans’ Training, Department of Veterans’ Affairs. Eligible veterans and veterans’ dependents should contact Nova Southeastern University, Office of the University Registrar.

8.3. PROVISIONS

The provisions set forth in this document are not to be regarded as an irrevocable contract between the student and Nova Southeastern University. Regulations and requirements, including tuition and fees, are necessarily subject to change without notice at any time at the discretion of the administration. The university further reserves the right to require a student to withdraw at any time, as well as the right to impose probation on any student whose conduct is unsatisfactory.

Any admission on the basis of false statements or documents is void upon discovery of the fraud, and the student is not entitled to any credit for work that he or she may have done at the university. Upon dismissal or suspension from the university for cause, there will be no refund of tuition or fees. The balance due Nova Southeastern University will be considered receivable and will be collected.

A transcript of a student’s academic record cannot be released until after all of his or her accounts, academic or nonacademic, are paid.
Any Nova Southeastern University student has the right to inspect and review his or her educational record. The policy of the university is not to disclose personally identifiable information contained in a student's educational record without prior written consent from the student, except to university officials, to officials of another school in which the student seeks enrollment, to authorized representatives of federal or state agencies, to accrediting organizations, to parents of dependent students under judicial order, to parties in a health or safety emergency, or when verifying graduation with a particular degree.

A student also has the right to petition Nova Southeastern University to amend or correct any part of his or her educational record that he or she believes to be inaccurate, misleading, or in violation of the privacy or other rights of students. If the university decides it will not amend or correct a student's record, the student has a right to a hearing to present evidence that the record is inaccurate, misleading, or in violation of the privacy or other rights of students. If these rights are violated, a student may file a complaint with the Department of Education.

A student may obtain a copy of the Educational Privacy Act policy by requesting it in writing from the Office of the University Registrar.

Nova Southeastern University does not discriminate on the basis of race, color, sex, age, nondisqualifying disability, religion or creed, or national or ethnic origin in admission, access, or employment for any of its programs and activities. The university registrar and director of human resources have been designated as student and employee coordinators, respectively, to assure compliance with the provisions of the applicable laws and regulations relative to nondiscrimination.

The school is authorized under federal law to enroll nonimmigrant alien students.

The Nova Southeastern University general policies on student relations are on file in the Office of the University Registrar.

Nova Southeastern University programs are approved for the training of veterans and other eligible persons by the Bureau of State Approval for Veterans' Training, Florida Department of Veterans' Affairs. Eligible veterans and veterans' dependents should contact the Office of the University Registrar.

9. The University

Nova Southeastern University is an independent, nonsectarian, nonprofit university chartered by the state of Florida in 1964. It is located on a 232-acre main campus west of Fort Lauderdale at 3301 College Avenue in Davie, 10 miles inland from the Atlantic Ocean and easily accessible from major highways, including I-75, I-95, I-595, the Sawgrass Expressway, and Florida's Turnpike. Additional locations are in downtown Fort Lauderdale, Coral Springs, North Miami Beach, and Fort Everglades. Its 13 centers of study offer campus-based prekindergarten through grade 12 and undergraduate and graduate programs leading to degrees in education, law, psychology, oceanography, computer sciences, social sciences, business and public administration, osteopathic medicine, pharmacy, optometry, and allied health (physician assistant, occupational therapy, and physical therapy). As an acknowledged leader in field-based degree programs, Nova Southeastern University offers courses of study leading to the bachelor's, master's, educational specialist, and doctoral degrees in education; business and public administration; psychology; the health professions; and in physical, social, and computer sciences.

The Family and School Center is a community resource that provides education and therapeutic services for families and their children. The center comprises three units: the University School, the Ralph J. Baudhuin Oral School, and the Family Center Unit. The University School is a demonstration school serving children from preschool through high school, preparing them in the upper grades for college. The Baudhuin School provides programs for children with specific learning needs and/or hearing disabilities. The Family Center Unit provides a spectrum of family-related programs designed to promote positive interaction between parents and children.

From the beginning, the university has distinguished itself by its innovative outlook, its unique programs that provide both traditional and nontraditional choices in educational programs, and its research in many fields aimed at solving the problems of immediate concern to mankind.

The university's centers and programs share a common mission—to educate students for leadership roles in a variety of professions, such as law, education, psychology, osteopathic medicine, optometry, pharmacy, allied health, business and public administration, oceanography, and computer and information science. In the Nova Southeastern University educational continuum, preprofessional training begins as early as the University School, continues through the college level, and culminates in the various centers for professional studies. Through the
Nova Southeastern University educational plan, students master appropriate skills and disciplines at each academic level, develop a sense of professional ethics and responsibility, and learn to appreciate the role of the professional as a key individual in society.

"The Nova Southeastern Plan" stresses the critical relationship between theory and practice; it reinforces and tests the classroom experience through applied research and community service as integral parts of academic experience. Consistent with its mission, the university extends its resources to provide educational opportunities to working professionals nationwide, with faculty teaching at corporate and other locations across the country. Nova Southeastern University also delivers programs through a variety of educational technologies, including telecommunications. The university is committed to the idea that education should not be timebound or placebound. Through its educational offerings, research projects, and programs of public service, the university encourages the free exchange of ideas and the search for knowledge that is the cornerstone of the academic tradition.

9.1. LIBRARY RESOURCES

The university library system has more than 500,000 volume equivalents. The Albert and Birdie Einstein Library, located in the Parker Building, houses the University’s major collection of books and journals in the humanities and sciences. Its more than 162,000-volume equivalents can be searched through the library’s online catalog. Also, specialized indexes in CD-ROM format are available, as is dial-up access to the online catalog and to First Search.

The Einstein Library is equipped to perform online literature searches using DIALOG information databases. Reference librarians will assist the students in structuring searches. The library is a member of SEFLIN and FLIN, cooperative library networks that speed access to materials from other institutions throughout Florida. The Einstein Library has also been named a cooperating library of the Foundation Center in New York, giving students access to a special collection for grants and foundation research. Through the Distance Library Services Office, students off campus have access to books, journal articles, Educational Resource Information Center (ERIC) documents, interlibrary loans, database searches, and reference librarians specializing in research services to remote student locations. Students may call the DLS to request materials 24 hours a day, using mail, fax, or home computer. To contact DLS by phone, call 800-541-6682 (enter number for "General Student Services" and follow the menu) or (954) 475-7388.

The Health Professions Division Library is located at the North Miami Beach campus in the Student Activities Building. It contains card and computerized catalogs of holdings, more than 11,000 book titles, 783 active journals, and more than 800 audio and video tapes. The library is a member of DOCLINE, which is the National Library of Medicine’s online interlibrary loan service, coordinating with other medical libraries in the United States. Full membership in the Miami Health Services Library Consortium permits free exchange of materials among local medical libraries for all patrons. Membership in the Association of Visual Sciences Librarians includes a cooperative lending relationship, so patrons have access to nearly all vision-related resources. Also, a Learning Resources Laboratory, based in the College of Pharmacy Building, is available for student use evenings and Saturdays.

The Law Library of the Shepard Broad Law Center, with a collection numbering more than 261,000 volumes and volume equivalents, contains the standard materials required for legal study and research. It is one of the few collections in the country designated as a depository for United Nations documents. It is also designated as a depository for state and federal documents.

The William Springer Richardson Library, at the Oceanographic Center, houses a specialized collection of books and periodicals in physical, biological, geological, and chemical oceanography.

The University School Media Center maintains an integrated collection of print and nonprint materials designed to provide curriculum enrichment resources for students from preschool through high school.

9.2. CENTER FOR MEDIA AND TECHNOLOGY

Consisting of a TV studio and well-equipped audio and graphics rooms, the center provides media production services for students and faculty. The video recording facilities of the studio are used regularly as a means of enriching student learning.

9.3. COMPUTING FACILITIES

The university’s computing facility provides data processing services for meeting instructional, research, and administrative needs. The central site is on the main campus in the Mailman-Hollywood Building.

Access to the facility is through terminals and other computer systems located on the main campus and at the Port Everglades site. Time-sharing services are available through the local telephone system. This facility is reached
through the local telephone system. It is available to qualified students and faculty for research and for computer-oriented course work.

9.4. TEXTBOOKS

The bookstore, Nova Books, is located on the main campus in the Rosenthal Student Center and carries all the required books for courses at the university. Students located throughout the United States and Canada may order their texts via telephone: 800-541-NOVA or (954) 262-4750 or fax (954) 262-4759.

Email: novabook@nsu.nova.edu.
10. Nova Southeastern University Degree Offerings

**Doctoral and Professional Degrees**

**Doctor of Business Administration** in:
- Accounting (D.B.A./Acc.)
- Business Administration (D.B.A.)
- Finance (D.B.A./Fin.)
- Health Services (D.B.A./H.S.)
- Information Systems (D.B.A./IS)
- International Management (D.B.A./I.M.)
- Marketing (D.B.A./Mkt.)

**Doctor of Education** (Ed.D.) in:
- Adult Education
- Child and Youth Studies
- Computer and Information Technology
- Computer Education
- Educational Leadership
- Health Care Education
- Higher Education
- Instructional Technology and Distance Education
- Vocational, Technical, Occupational Education

**Doctor of International Business Administration** (D.I.B.A.) in:
- International Business Administration

**Doctor of Occupational Therapy** (D.O.T.)

**Doctor of Optometry** (O.D.)

**Doctor of Osteopathy** (D.O.)

**Doctor of Pharmacy** (Pharm.D.)

**Doctor of Philosophy** (Ph.D.) in:
- Clinical Psychology
- Dispute Resolution
- Family Therapy
- Oceanography

**Doctor of Physical Therapy** (D.Sc.P.T.)

**Doctor of Psychology** (Psy.D.) in:
- Clinical Psychology

**Doctor of Public Administration** (D.P.A.) in:
- Public Administration

**Doctor of Science (Sc.D.)** in:
- Computer Information Systems
- Computer Science
- Computer Technology in Education
- Information Science
- Information Systems
- Training and Learning

**Juris Doctor** (J.D.) in:
- Law

**Specialist Degrees**

**Clinical Specialist** (C.I.S.) in:
- Family Systems Health Care

**Educational Specialist** (Ed.S.) in:
- Computer Education
- Computer-Based Learning Education

**Master's Degrees**

**Master of Accounting** (M.Acc.) in:
- Accounting

**Master of Business Administration** (M.B.A.) in:
- Business Administration

**Master of International Business Administration** (M.I.B.A.) in:
- International Business Administration

**Master of Occupational Therapy** (M.O.T.)

**Master of Physical Therapy** (M.P.T.)

**Master of Public Administration** (M.P.A.) in:
- Public Administration
- Public Administration/Coastal Zone Management
- Public Administration/Marine Biology

**Master of Science** (M.S.) in:
- Child and Youth Care Administration
- Child Care Administration
- Coastal Zone Management
Computer-Based Learning
Computer Information Systems
Computer Science Education
Dispute Resolution
Education
Elder Care Administration
Family Support Studies
Family Therapy
Health Services Administration
Human Resource Management
Human Services Administration
Instructional Technology and Distance Education
Management Information Systems
Marine Biology
Mental Health Counseling
School Guidance and Counseling
Speech-Language Pathology
Master of Medical Education (M.Sc.)

Bachelor's Degrees
Bachelor of Arts (B.A.) in:
  Humanities
Bachelor of Science (B.S.) in:
  Accounting
  Administrative Studies
  Applied Professional Studies
  Business Administration
  Computer Information Systems
  Computer Science
  Elementary Education
  Exceptional Education
  General Studies
  Hospitality Management
  Legal Assistant
  Legal Studies (prelaw)
  Life Sciences (premedical)
  Ocean Studies
  Physician Assistant
  Professional Management
  Psychology
  Secondary Education
  Vision Sciences
MISSION STATEMENT
Nova Southeastern University is a dynamic, not-for-profit independent institution dedicated to providing high-quality educational programs of distinction from preschool through the professional and doctoral levels, as well as service to the community. Nova Southeastern University prepares students for lifelong learning and leadership roles in business and the professions. It offers academic programs at times convenient to students, employing innovative delivery systems and rich learning resources on campus and at distant sites. The university fosters inquiry, research, and creative professional activity by uniting faculty and students in acquiring and applying knowledge in clinical, community, and professional settings.

Approved by the Board of Trustees, March 24, 1997

ACCREDITATION STATEMENT
Nova Southeastern University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097: Telephone number 404-679-4501) to award bachelor’s, master’s, educational specialist, and doctoral degrees.

NOTICE OF NONDISCRIMINATION
Nova Southeastern University admits students of any race, color, sex, age, nondisqualifying disability, religion or creed, or national or ethnic origin to all the rights, privileges, programs, and activities generally accorded or made available to students at the school, and does not discriminate in administration of its educational policies, admissions policies, scholarship and loan programs, and athletic and other school-administered programs.